This document comprises a registration document (the "**Registration Document**") relating to Nord Gold plc (the "**Company**") and has been prepared in accordance with the prospectus regulation rules (the "**Prospectus Regulation Rules**") of the Financial Conduct Authority (the "**FCA**") made under section 73A of the Financial Services and Markets Act 2000 (as amended) ("**FSMA**"), and has been made available to the public as required by Prospectus Regulation Rule 3.2.1. This Registration Document has been approved by the FCA, as competent authority under Regulation (EU) 2017/1129 which is part of UK law by virtue of the European Union (Withdrawal) act 2018 (the "**UK Prospectus Regulation**"). The FCA only approves this Registration Document as meeting the standards of completeness, comprehensibility and consistency imposed by the UK Prospectus Regulation. Such approval should not be considered as an endorsement of the Company that is the subject of this Registration Document.

The Directors (whose names appear on page 37 of this Registration Document) and the Company accept responsibility for the information contained in this Registration Document. To the best of the knowledge of the Company and the Directors, the information contained in this Registration Document is in accordance with the facts and this Registration Document makes no omission likely to affect its import.

This Registration Document should be read in its entirety. In particular, see Part I: "*Risk Factors*" for a discussion of certain risks relating to the Company and its subsidiaries (the "**Group**").

nordgold
more than gold

Nord Gold plc

(incorporated under the Companies Act 2006 and registered in England with registered number 13287342)

The contents of this Registration Document are not to be construed as legal, business or tax advice. Each prospective investor should consult his or her own lawyer, independent adviser or tax adviser.

This Registration Document may be combined with a securities note and summary to form a prospectus in accordance with the Prospectus Regulation Rules. A prospectus is required before an issuer can offer transferable securities to the public or request the admission of transferable securities to trading on a regulated market. However, this Registration Document, where not combined with the securities note and summary to form a prospectus, does not constitute an offer or invitation to sell or issue, or a solicitation of an offer or invitation to purchase or subscribe for, any securities in the Company in any jurisdiction, nor shall this Registration Document alone (or any part of it), or the fact of its distribution, form the basis of, or be relied upon in connection with, or act as any inducement to enter into, any contract or commitment whatsoever with respect to any offer or otherwise. The Company is now considering undertaking an initial public offering of all of the ordinary shares of the Company to certain institutional and professional investors, and applying for admission of the ordinary shares in the Company to the premium listing segment of the Official List of the FCA and to trading on London Stock Exchange plc's main market for listed securities.

No representation or warranty, express or implied, is made and no responsibility or liability is accepted by any person other than the Company and its Directors, as to the accuracy, completeness, verification or sufficiency of the information contained herein and nothing contained in this Registration Document is, or shall be relied upon as, a promise or representation by any of the Company's advisers or any of their respective affiliates as to the past, present or future. The delivery of this Registration Document shall not, under any circumstances, create any implication that there has been no change in the business or affairs of the Company since the date of this Registration Document or that the information contained herein is correct as of any time subsequent to its date. No person is or has been authorised to give any information or to make any representation not contained in or not consistent with this Registration Document and, if given or made, such information or representation must not be relied upon as having been authorised by the Company or the Directors. Without limitation, the contents of the website of the Group do not form part of this Registration Document and information contained therein should not be relied upon by any person.

Any securities referred to in this Registration Document have not been, and will not be, registered under the US Securities Act of 1933, as amended (the "**US Securities Act**") or with any securities regulatory authority of any state of the United States, and may not be offered, sold, pledged or otherwise transferred in the United States absent registration under the US Securities Act except to qualified institutional buyers ("**QIBs**") as defined in Rule 144A under the US Securities Act ("**Rule 144A**") or another exemption from, or in transactions not subject to, the registration requirements of the US Securities Act. Any securities referred to in this Registration Document have not been and will not be registered under the applicable securities laws of Australia, Canada, South Africa, Japan or the United States and, accordingly, subject to certain exceptions, may not be offered or sold in Australia, Canada, South Africa, Japan or the United States.

This Registration Document speaks only as of the date hereof. The definitions commencing on page 277 of this Registration Document apply throughout this Registration Document, including the cover page, except where the context indicates otherwise.

The date of this Registration Document is 3 June 2021.

IMPORTANT NOTICE

The distribution of this Registration Document in certain jurisdictions may be restricted by law. Other than in the United Kingdom, no action has been taken or will be taken to permit the possession or distribution of this Registration Document in any jurisdiction where action for that purpose may be required or doing so is restricted by law. In the United States, you may not distribute this Registration Doument or make copies of it without the Company's prior written consent oher than to people you have retained to advise you in connection with this Registration Document, or persons reasonably believe by the Company to be QIBs. Accordingly, neither this Registration Document nor any advertisement may be distributed or published in any jurisdiction, other than the United Kingdom, except under circumstances that will result in compliance with any applicable laws and regulations. Persons into whose possession this Registration Document comes should inform themselves about and observe any such restrictions. Any failure to comply with these restrictions may constitute a violation of the securities laws of any such jurisdiction.

TABLE OF CONTENTS

PART I

RISK FACTORS

The Group is subject to a number of risks. The reader should consider carefully the factors and risks associated with the Group's business and the industry in which it operates, together with all other information contained in this Registration Document, including, in particular, the risk factors described below.

The following is not an exhaustive list or explanation of all risks applicable to the Group. Additional risks and uncertainties relating to the Group that are not currently known to the Group, or that it currently deems immaterial, may individually or cumulatively also have a material adverse effect on the Group's business, results of operations and financial position.

Risks Relating to the Gold Mining Industry Generally

The Group's results of operations are significantly affected by changes in the market price for gold.

The Group derives substantially all of its revenue from the sale of gold. Accordingly, the Group's financial results are materially dependent on the price of gold. The price of gold is sensitive to changes in general political and economic conditions, and may be subject to significant and, at times, rapid fluctuations. These fluctuations are caused by numerous factors beyond the Group's control, including:

- prevailing monetary and fiscal policy;
- actual and expected inflation rates, interest rates and currency exchange rates, particularly movements in the value of the U.S. dollar (the currency in which the gold price trades internationally) relative to other currencies;
- speculative positions taken by investors or traders in gold;
- changes in the demand for gold used in jewellery, for industrial uses and for investment;
- changes in the supply of gold from production, disinvestment, scrap and hedging;
- substitution of gold and/or cryptocurrencies;
- actual or expected gold sales by central banks;
- gold sales by gold producers in forward transactions;
- global or regional political or economic events;
- local and foreign government regulations and regulatory actions, including export quotas; and
- the costs of gold production.

As a result, it is not possible to accurately forecast the gold price. In 2016, 2017 and 2018, the average London gold price remained relatively stable at U.S.$1,251 per ounce, U.S.$1,257 per ounce, and U.S.$1,268 per ounce, respectively. However, since 2019, the global gold price has fluctuated significantly and has been subject to volatile movements over short periods of time. The average London gold price increased to U.S.$1,393 and U.S.$1,770 per ounce in 2019 and 2020, respectively, with the price of gold peaking at U.S.$2,067 per ounce in August 2020 before falling to U.S.$1,763 per ounce in November 2020. As at 31 May 2021, gold opened at U.S.$1,904 per ounce.

In the case of a significant and prolonged reduction in the price of gold, the Group may be required to revise its exploration and development plans and budget, and if the price falls below the Group's cost of production for a prolonged period, it may determine that it is not economically feasible to continue commercial production at some or all of its operations or the development of some or all of its current prospects. In such circumstances, the Group may curtail or suspend some or all of its exploration and production activities or be required to draw down (without replacement) or restate downwards its reserves, which may have a material adverse effect on the Group's business, results of operations and financial condition.

As at the date of this Registration Document, the Group does not hedge its exposure to the price of gold and as such is fully exposed to market price movements. The current market price of gold is significantly above the historic average and the price of gold may decline significantly. Recently, the average London gold price decreased from U.S.$1,937 per ounce as at 4 January 2021 to U.S.$1,903 per ounce as at 31 May 2021.

Significant sustained declines in the price of gold may render any of the gold exploration or development activities to be undertaken by the Group less profitable or unprofitable and may have a material adverse effect on the Group's business, results of operations and financial condition.

Global economic developments could have a significant adverse impact on the Group's business, financial condition, results of operations and prospects.

The Group is significantly affected by global economic developments and prevailing macro-economic conditions, including GDP growth rates, interest rates, inflation rates and currency exchange rates, which, in turn, affect demand for (and therefore the price of) gold, the availability and cost of financing and potential associated increases in its operating costs.

Since 2014, global financial markets and the supply of credit has been adversely impacted by concerns surrounding the sovereign debt of Greece and potentially other EU countries, the exit of the UK from the European Union, the possibility of further credit rating downgrades of, or defaults on, such sovereign debt, concerns about a slowdown in growth in certain economies and uncertainties regarding the stability and overall standing of the European Monetary Union.

Under President Trump, there was significant uncertainty as to the status of trade relations between the U.S. and some of its largest trade partners. The worsening of such trade relations, in particular between the U.S. and China, threatened negative repercussions in these countries and a knock-on effect on global trade and the economic environment. It is unclear if (or how) this dynamic will change after the inauguration of President Biden. More recently, the severe social and economic impact of the COVID-19 pandemic had (and continues to have) a material negative impact on the global economic environment. See "*Risk Factors — The Group faces risks related to the adverse impact of the COVID-19 pandemic."*

Such developments, or the perception that any of them could occur, have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets, and may significantly reduce global market liquidity and restrict the ability of key market participants to fund their capital and liquidity requirements and operate in certain financial markets. If any such events were to occur, it could result in unpredictable market volatility, which could have a material adverse effect on the Group's business, results of operations and financial condition.

The Group faces risks related to the adverse impact of the COVID-19 pandemic.

The COVID-19 pandemic has caused significant financial market volatility and economic strain since its emergence in December 2019. Substantially all of the world's key economies contracted in 2020, and governments continue to revise GDP growth forecasts for 2021 downward in response to the economic slowdown caused by the spread of COVID-19. Although vaccines have begun to be deployed in many countries around the world, it is possible that the prolonged global economic crisis caused by the COVID-19 pandemic will continue, together with price volatility for currencies and commodities, recessions or depressions despite monetary and fiscal interventions by governments and central banks globally. The COVID-19 pandemic continues to result in many restrictions on travel and transportation and prolonged closures of workspaces and business.

The COVID-19 pandemic may affect the Group's industry and business in a number of ways, including but not limited to:

- increasing the expenses of the Group related to transportation, materials, supplies and personnel, including as a result of domestic and international travel and transportation shutdowns;
- increasing prices of components and materials that are required for the Group's operations;
- affecting supply chain infrastructure and information technology;
- causing potential interruptions in the Group's geological, exploration mining and/or processing operations, including as a result of any local outbreaks at the Group's sites where employees work on a rotation schedule and, as a result, limiting the Group's ability to generate cash flow;
- causing the Group to delay, postpone or cancel certain of its investment projects;
- affecting the physical and mental health of a critical workforce, their families and communities;

- creating a potential deficit in the quality of the labour force as a result of the travel restrictions and mandatory quarantine requirements for employees;
- affecting the Group's ability to enter into new strategic transactions or to finalise strategic transactions on previously agreed terms and timetables;
- requiring the Group to make operational changes and implement measures to ensure the health and safety of its employees and counterparties, which may involve increased costs or operational inefficiencies; and
- decreasing sales of gold due to a decline in demand.

Due to COVID-19, the Group had to temporarily suspend operations at the Bissa-Bouly and Irokinda processing plants for several days in March 2020. Furthermore, no fieldwork was conducted at Uryakh in 2020 and a scheduled field campaign at Pistol Bay was postponed until summer 2021.

There can be no guarantee that the unprecedented fiscal and monetary support measures implemented by many governments and international institutions in response to the pandemic will support the global economic recovery post-COVID-19, or that, as the vaccine roll-out continues and such support measures are wound down, resulting dynamics in the macro-economic environment (including global interest rates and inflation rates) will not be materially adverse for the Group's business.

The Group is not currently able to estimate and quantify the negative effects that the COVID-19 outbreak might have on the Group's business, financial condition and results of operations. The overall impact of the pandemic on the Group's business will depend on a range of factors which are not possible to accurately predict, including the duration, severity, potential recurrence and scope of the pandemic, the extensiveness of measures adopted by governments and the efficacy of the recent vaccines approved for use against COVID-19. The outcome of any of these factors, if adverse, could have a material adverse effect on the Group's business, results of operations and financial condition. See also Part V: "*Business Description — Health and Safety*"**.**

The Group operates in a competitive industry and may be not able to compete successfully in the future.

The gold market is highly competitive and the Group faces competition from other competitors, primarily for the acquisition of exploration, development and production properties and mineral licenses. The Group's competitors include international gold producers, some of which are larger, might have greater ability to raise capital, might have more technologically advanced production facilities and, in some cases, have lower operating costs than it does. The Group cannot guarantee that it will be able to compete successfully in the future, in which event it may be unable to maintain and expand its reserves and production levels. As a result of the intensity of competition, combined with the unpredictability of gold markets, the Group may be unable to acquire attractive new mineral concessions and/or properties on terms that it considers acceptable, or at all, which may have a material adverse effect on the Group's business, results of operations and financial condition.

Risks Relating to the Group's Business

Gold exploration and the development of mines involves a high degree of risk and uncertainty.

To maintain future gold production beyond the life of the current reserves or to increase production materially through mining new deposits, the Group will need to extend its mineral base through geological exploration. Gold exploration requires substantial expenditure and involves a high degree of risk, and exploration projects are frequently unsuccessful. Once gold deposits are discovered it can take several years to determine whether gold reserves exist, and few prospects that are explored are developed into productive mines. The long-term success of the Group operations will be to some extent related to the cost and success of its exploration programmes. The challenges associated with gold exploration include the identification of potential gold mineralisation based on analysis of geological data, the technological challenges of exploration and development, the receipt of necessary governmental permits and licenses and the construction of mining and processing facilities at any site chosen for mining. A decline in the market price of gold may render reserves containing relatively lower grades of gold mineralisation uneconomic. No assurance can be given that any exploration programme undertaken by the Group will result in the discovery of new resources or in any new commercial mining operation.

Substantial expenditure may be required to establish reserves through drilling and to develop technological processes to extract metals from ore. If reserves are developed, it can take several years to go from the initial phases of drilling and identification of mineralisation to production. During this period, the assumptions on

which the Group has based its assessments of the economic feasibility of the mine, including in relation to future gold prices, anticipated tonnage, grades and metallurgical characteristics of ore to be mined and processed, anticipated recovery rates of gold from the ore, anticipated capital expenditures and cash operating costs, may require significant adjustment. The Group's initial access to information when forming such assumptions and making such assessments may also be limited.

Actual cash operating and capital costs, production levels and economic returns may differ significantly from those anticipated by studies and estimates. There are a number of uncertainties inherent in the development and construction of a new mine or an extension to an existing mine. These uncertainties include, in addition to those discussed above, the timing and cost (which can be considerable) of the construction of mining and processing facilities; the availability and cost of skilled labour, power, water, consumables (such as cyanide, lubricants and fuel) and transportation facilities; the availability and cost of appropriate refining arrangements; the need to obtain necessary environmental and other governmental permits and the timing of those permits; and the availability of funds to finance construction and development activities in the longer term.

Consequently, no assurance can be given that the current and future exploration and development programmes undertaken by the Group, including, without limitation, the expansion of Gross and the development of Tokko, will result in the discovery of deposits, the expansion or replacement of existing reserves or the development of mines. This may result in a material adverse effect on the Group's business, results of operations and financial condition.

The Group is subject to mining risks.

The Group's operations are subject to all the hazards and risks normally associated with the exploration, development and production of natural resources, any of which could result in production shortfalls or damage to people, property or the environment. The Group engages in open-pit mining, as well as in underground mining activities. Hazards associated with open-pit mining operations include flooding, collapses of the open-pit wall or bench, accidents associated with the operation of mining transportation equipment, accidents associated with the preparation and ignition of large-scale open-pit blasting operations, production disruptions due to weather and hazards associated with the disposal of mineralized waste water, such as groundwater and waterway contamination. In 2018, for example, the Group experienced a rockslide at the Berezitovy mine resulting in a 49% decrease in the gold production at the Berezitovy mine in 2018 compared to 2017. Open-pit mining may also be adversely affected by the low winter temperatures in the regions where some of the Group's mines are located. The output of the Group's mines may also be adversely affected by unforeseen geological conditions as well as unplanned breakdowns in mining equipment.

Underground mining is generally more expensive and more dangerous than open-pit mining and requires the use of ventilation systems. Hazards associated with underground mining operations include falls of ground, underground fires and explosions, such as those caused by flammable gas, ignition of diesel vehicles, toxic chemicals; sinkhole formation and ground subsidence and other incidents and conditions resulting from drilling, blasting, removing and transporting material from an underground mine.

The occurrence of any of these or similar hazards could delay production, increase production costs, damage the Group's reputation or result in injury, death and damage to property, as well as associated liability for the Group, and may result in actual production materially differing from estimates, including estimates contained in this Registration Document. The liability resulting from any of these risks may not be adequately covered by insurance, and it is not certain that the Group can obtain additional insurance coverage at reasonable rates. The Group may, therefore, incur significant costs, which may have a material adverse effect on the Group's business, results of operations and financial condition. See "*Damage to, or an accident at, a mine, including due to flood, fire, explosion or natural catastrophe, may adversely affect the Group's operating results and make it subject to environmental and other liabilities*".

Gross mine generates a significant portion of the Group's total gold production, leaving the Group exposed to adverse effects of a disruption to its operations.

Gross is the largest mine in the Group's portfolio with the lowest mining costs. In 2020, Gross comprised 26.8 per cent of the Group's gold production, 39.9 per cent of its Adjusted EBITDA, 26.44 per cent of its total gold sales in koz and 26.8 per cent of its total sales in U.S.$. Furthermore, the Group seeks to expand operations at Gross with a view to adding 130 koz of annual production from 2024, thereby leading to a weighted average annual production of approximately 350 Koz in the period between 2025 and 2035 (see Part V "*Business —*

Strategy" and Part X "*Operating and Financial Review — Principal Operations — Gross segment*"). To the extent that the Group's operations at Gross are subject to a temporary or prolonged disruption, including, among other things, as a result of suspension or termination of the mining license, major equipment failure, failure to receive required supplies in a timely manner or at all, or catastrophic events, such as fires, floods or adverse weather conditions, the Group's business, results of operations and financial condition could be materially adversely affected.

The Group may not be successful in expanding its operations in Gross Region.

As part of its strategy, the Group intends to successfully complete two near-term initiatives with high potential in the Gross Region consisting of the expansion of Gross, the largest mine in the Group's portfolio with the lowest mining costs, and the development of the Tokko project adjacent to Gross with a view to increasing the overall processing and production capacity while maintaining low mining costs. The Group expects the Gross expansion to add 130 koz of annual production from 2024 by increasing ore processing capacity from the current level of 16 mtpa to 18 mtpa in 2021, as the first stage, and further to 26 mtpa in 2023, as the second stage, thereby leading to a weighted average annual production of approximately 350 Koz in the period between 2025 and 2035 with a life or mine AISC of approximately U.S.$740/oz. The development of Tokko project is expected to result in additional 220 koz of average annual production in the period between 2025 and 2030 and an average life of mine AISC of approximately U.S.$585/oz, thereby becoming the Group's third low-cost mine in the Gross Region, and to add approximately 3.1 million ounces of minable resources. The total start-up mine construction capital expenditure on the development of the Tokko project is estimated to amount to approximately U.S.$340 million during 2022 — 2024 and on the second stage of Gross expansion to approximately U.S.$ 208 million during 2021 — 2023 (see Part V: "*Business — Strategy*").

Information related to future operational results, capital expenditures, operating costs, TCC and AISC for the Gross expansion and Tokko development are preliminary estimates of the Group. The Group has not yet conducted feasibility studies related to these two projects and, as such, these estimates may change, subject to such studies being carried out. Furthermore, capital expenditures, operating costs, TCC and AISC are subject to market and other factors which cannot be predicted, including the impact of inflation, the price of gold, the RUB/U.S.$ exchange rate and the actual costs of labor and materials. As a result, actual capital expenditures, operating costs, TCC and AISC may vary from the Company's current preliminary estimates.

No assurance can be given that the Gross expansion or the development of Tokko project will be implemented within the estimated time and budget or at all and, if implemented, will achieve the desired results. Any failure of the Group to implement these projects in part or at all or in a cost-efficient manner could result in decreases in production or the profitability of such production, which could, in turn have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's acquisition strategy may not be successful.

As part of its strategy, the Group monitors potential investment opportunities in the gold mining industry globally, including in Russia. The Group has historically acquired gold reserves, development properties and operating mines, either as stand-alone assets or as part of companies. For example, in March 2020, the Group acquired 98,443,593 shares, or 19.9%, in Cardinal Resources Limited, the owner of the Namdini Gold project in Ghana, for the total consideration of U.S.$27.2 million. Between July and September 2020, the Group acquired additional 50,901,121 shares for total consideration of U.S.$33.8 million resulting in the Group's interest in Cardinal Resources Limited increasing to 27.8%. In July 2020, the Group made an unconditional offer to acquire all the outstanding ordinary shares it did not already own in the share capital of Cardinal Resources Limited. However, following a competitive bidding process between the Group and Shandong Gold Mining (Hong Kong), the Group, decided to withdraw its offer and to accept the takeover offer for all of its shares from Shandong Gold Mining (Hong Kong), having regard to the offered price and the risks associated with mine development, entry into a new jurisdiction, and the Group's required rate of return on new projects. As a result, in December 2020, the Group sold all of its shares in Cardinal Resources Limited for a total cash consideration of U.S.$122.9 million (of which U.S.$120.0 million was paid in December 2020 and U.S.2.9 million was paid in January 2021). Also, in May 2020, the Group and Mako Gold Limited entered into a definitive sales contract to acquire the Niou Gold project in the central part of Burkina Faso. The acquisition has not yet completed and remains conditional on receipt of the approval of the Minister of Mines of Burkina Faso.

The Group's decisions to bid for and/or acquire and/or divest these and other properties have historically been based on a variety of factors including (but not limited to) historical operating results, estimates of and

assumptions about future reserves, cash and other operating costs, estimations of potential optimisation and cost reduction measures and their effect, the gold price and projected economic returns, the age and quality of processing plant and available technology, the ability to integrate a target's operations and financial systems and procedures into the Group's operations, and evaluations of existing or potential liabilities associated with a property and its operations. Should any of such estimates or assumptions prove to be materially inaccurate, the Group might not achieve full synergies and economic benefits from acquisitions, which could have a material adverse effect on the Group's business, results of operations and financial condition.

In addition, the Group may become responsible for additional liabilities or obligations not foreseen at the time of an acquisition. As a result, unforeseen expenditures may arise which may have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's stated Ore Reserves and Mineral Resources are only estimates based on a range of assumptions and there can be no assurance that the anticipated tonnages or grades will be achieved.

Like any mining company, the future financial condition of the Group will depend on its ability to economically extract its reserves and resources. Mineral Resources and Ore Reserves estimates of mining companies are inherently imprecise and depend to some extent on statistical inferences drawn from limited drilling and other testing, which may ultimately prove unreliable. Mineral Resources and Ore Reserves estimates and classifications are also affected by economic factors, such as significant changes in metal prices. The Mineral Resource and Ore Reserve estimates presented in this Registration Document have been prepared by the Company and reviewed and reported in accordance with the JORC Code by SRK Consulting (UK) Limited.

The estimates of Mineral Resources and Ore Reserves are based on a range of assumptions, including the results of exploratory drilling, the sampling of ore bodies and the experience of the experts engaged to carry out the estimates. Other uncertainties inherent in estimating resources and reserves include the reliance on subjective judgments and determinations based on available geological, technical, contractual and economic information. Some assumptions may be valid at the time of estimation but may change significantly when new information becomes available. As a result, actual Ore Reserves and Mineral Resources or exploration potential (which is the likelihood for the occurrence of undiscovered mineral resources in a defined area) may not conform to geological, metallurgical or other expectations, and the volume and grade of ore recovered may differ from the estimated levels. In addition, there can be no assurance that further on-site drilling or other exploratory work will result in the affirmation of previous estimates or that mineral recoveries in small-scale laboratory tests will be duplicated in larger-scale tests under on-site conditions or during production. The estimated mineral resources and reserves described in this Registration Document should not be interpreted as a statement of the commercial viability, potential or profitability of any future operations. Lower market prices, increased production costs, reduced recovery rates and other factors may render the Group's Ore Reserves or Mineral Resources uneconomic to exploit and may result in a reduction of its Ore Reserve estimates from time to time. If the Group's actual Ore Reserves and Mineral Resources are less than current estimates or are rendered uneconomic, or if the Group fails to develop its Mineral Resource base through the realisation of new mineral potential (see "*Gold exploration and the development of mines involves a high degree of risk and uncertainty*"), the Group's mining and production plans may have to be altered in a way that would have a material adverse effect on the Group's business, results of operations and financial condition.

Production may be materially and adversely affected by grades of ore, volumes of ore and waste mined, stripping costs and other costs.

The Group's levels of production may be materially and adversely affected by, amongst others:

- the grades of ore which can be processed — depending on the gold price level, the mining of low grade ore may be uneconomical;
- volumes of ore and waste mined and associated stripping costs — in open-pit mining operations, removal of overburden and other waste materials is required to obtain access to the ore body. In the event that a large amount of overburden and other waste materials removal is required, this may result in production being uneconomical; and
- costs of production — the key drivers of production costs are labour, energy, fuel, consumables, stripping costs and depreciation.

Any adverse changes in any of these drivers (or a combination thereof) could have a material adverse effect on the Group's production. If costs of production increase, profitability could be negatively affected, which could have a material adverse effect on the Group's business, results of operations and the financial condition.

The Group's business could be adversely affected if it fails to obtain, maintain or renew necessary contracts, licenses and permits, including subsoil licenses, or fails to comply with the terms of its contracts, licenses and permits.

The Group's exploration, mining and processing activities are dependent upon the grant, renewal and continued enforceability of appropriate contracts, licenses, permits, rights and regulatory approvals, permissions and consents, which may be valid only for a defined period of time, may be subject to limitations and may provide for withdrawal in certain circumstances. For example, companies seeking to explore or mine mineral deposits in Russia must obtain a subsoil license issued by the Federal Agency for Subsoil Use for an identified mineral deposit. Subsoil rights are not granted in perpetuity in Russia, and any renewal of the relevant license must be granted before expiry of the relevant current term. Further, in accordance with Russian legislation and terms commonly included in licence terms and conditions, a licence holder is obliged to obtain land rights to the part of the licensed area where certain subsoil operations are carried out, and is obliged to enter into lease agreements in respect of those areas to ensure it has all of the required land rights.

Some of the Group's principal mining licenses, such as the Taborny combined license and Irokinda combined license, are due to expire in December 2021 (see Part V: "*Business — Operating Mines*"). There can be no assurance that the Group will be able to renew the licenses on time or at all (see also "*The Group may face opposition from the communities or governments in the jurisdictions in which it operates*"). Should the Group not be able to renew its licences, it will not be able to continue to exploit the relevant licence area, which could have a material adverse effect on the Group's business, results of operations and financial condition.

The legal and regulatory basis for the licensing requirements in the jurisdictions, in which the Group operates, is ambiguous and subject to frequent change, which increases the risk that the Group may be found to be non-compliant, and the regulatory authorities in such jurisdictions, particularly Burkina Faso and Guinea, exercise considerable discretion in the timing of license issuances and renewals. In addition, it is possible that licenses applied for or issued in reliance on acts and instructions relating to subsoil rights issued by the relevant regulatory agencies could be challenged by governmental prosecutorial authorities or otherwise challenged as being invalid if such acts or instructions were found to be beyond the authority of that ministry or agency or if the licenses were issued in breach of the required procedures. Deficiencies of this nature may subject subsoil licensees and contracts to selective governmental claims. Any alleged non-compliance by the Group with licensing regulations or the terms of any of its licenses could lead to suspension or termination of the licenses and permits and to administrative, civil and criminal liability.

Regulatory authorities exercise considerable discretion in the monitoring of a licensee's compliance with the terms of a license. Conditions imposed by those authorities may include requirements to comply with numerous industrial standards, recruit qualified personnel and subcontractors, maintain necessary equipment and quality control systems, monitor the operations of the Group license-holders, maintain appropriate filings and, upon request, submit appropriate information to the licensing authorities. As a result, compliance with such conditions may be costly and time-consuming, and delays in the commencement or continuation of exploration or mining operations may occur as a result of delays to fulfil a license-holder's obligations. The Group's current subsoil use licenses and contracts impose, on an annual basis, various social, financial, tax, insurance and other obligations and require the application of a specified period of time between the termination of exploration activities and the commencement of mining operations at the relevant site (for purposes of commercial discovery evaluation). The authorities have the power to impose fines for violations of the terms and conditions of subsoil use contracts and licenses and can require that those violations be remedied. Any failure to implement the required remedial measures in certain circumstances could result in the termination of the relevant subsoil use contract, as well as the imposition of administrative and civil liabilities on the license-holder or subsoil user. There can be no assurance that all license-holders within the Group will comply or continue to comply with their respective license or contractual obligations.

As a result of the foregoing uncertainties, there can be no assurance that the contracts, licenses, permits, rights and regulatory approvals, permissions and consents that the Group requires to conduct its operations will be granted, renewed or continue in force, or, if so, on what terms. The withdrawal, termination or failure to secure any of the foregoing in respect of any of the Group's operations may, therefore, have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's operations are subject to extensive environmental controls and regulations.

The jurisdictions in which the Group operates have adopted environmental regulations requiring industrial companies to undertake programmes to reduce, control or eliminate various types of pollution and to protect

natural resources. The Group must actively monitor specific air emission levels, ambient air quality, quality of nearby surface water, level of contaminants in soil and creation of solid waste. The Group must also submit quarterly reports on emission levels and annual reports on water monitoring to environmental authorities in some of the jurisdictions in which the Group operates. In addition, the environmental authorities conduct additional testing to validate the Group's results. If the Group exceeds certain emissions levels, it is required to make additional payments to the regulatory authorities.

The Group's activities are generally subject to environmental and safety hazards as a result of the processes and chemicals used in gold extraction and production methods. In particular, the Group transports, uses and disposes of cyanide and other hazardous substances at its mines, which gives rise to the risk of spillage or seepage in areas where there could be harm caused to the environment and/or the public. In addition, environmental hazards that are currently unknown to the Group may exist on the Group's properties or may be encountered while its products are in transit. Such environmental hazards may arise irrespective of the Group's compliance with environmental regulations. Furthermore, the storage of tailings may present a risk to the environment, property and people. There remains a risk of leakage from or failure of the Group's tailings dams, including as a result of theft and vandalism during the operating life of the mines or after their closure. Failure to comply with environmental regulations and the terms of the Group's subsoil use contracts may subject the Group to significant civil and criminal penalties, including the loss of mining, land-use and other contracts, permits and licenses, negative reputational consequences as well as subject the Group's management to criminal sanctions. Furthermore, the Group may be forced to undertake extensive remedial clean-up action or to pay for government-ordered remedial clean-up actions, even in cases where such hazards have been caused by previous or subsequent owners or operators of the property, by any past or present owners of adjacent properties or by acts of vandalism by trespassers. Any such losses, withdrawals, suspensions, reputational consequences, actions or payments may have a material adverse effect on the Group's business, results of operations and financial condition.

Upon the cessation of mining operations, gold mining companies are obliged to cease their operations and rehabilitate the lands that they mined. Estimates of the total ultimate closure and rehabilitation costs for gold mining operations are significant and are based principally on current legal and regulatory requirements that could change materially. The Group's environmental liabilities relate to the restoration of soil and other related mining works, which are due upon the closures of mines and production facilities. These costs are expected to be incurred between 2022–2040. As at 31 December 2020, the Group had environmental provision of U.S.$59 million. Any underestimated or unidentified closing costs may reduce earnings and could have a material adverse effect on the Group's business, results of operations and financial condition.

Furthermore, reclamation legislation in the jurisdictions in which the Group operates require the Group to maintain certain funding arrangements. For example, in Burkina Faso the Group is required to open and fund a domestic bank account to create a fund to be used to pay the costs of implementation of the environmental preservation and rehabilitation program. Withdrawals of funds on this account by the account holder are subject to prior authorisations from the Minister of Finance. The annual contribution is equal to the total forecasted rehabilitation budget as stated in the environmental impact study divided by the number of years of the life of the mine. In relation to each of Bissa, Bouly and Taparko mines, the Group has opened and maintains the environmental preservation and rehabilitation bank account and will continue to coordinate with the relevant government agencies in order to comply with applicable requirements. The Group has also made a contribution into a liquidation fund in Guinea to be used for the environmental clean-ups of the territories covered by subsoil use contracts upon the cessation of mining operations. In the event that this fund is insufficient to meet the cost of the Group's clean-up obligations, the Group is obliged to fund any shortfall.

Environmental laws and regulations in the jurisdictions in which the Group operates are continually changing and are generally becoming more restrictive. The Group currently complies with all national standards and environmental regulatory requirements at each of its mines, but it may not currently comply with internationally recognised codes and guidelines at each of its mines and there can be no assurance that it will be able to meet international best practices at all of its mines. If the Group's environmental compliance obligations were to change as a result of changes in the laws and regulations or in certain assumptions it makes to estimate liabilities, or if unanticipated conditions were to arise in its operations, the Group's expenses and provisions may increase to reflect these changes. If material, these expenses and provisions could have a material adverse effect on the Group's business, results of operations and financial condition.

The storage of tailings may present a risk to the environment, property and people.

The Group's tailings storage facilities store large amounts of mining waste which are generated as a by-product when extracting minerals. As such, they can pose serious threats to humans and the environment, especially in

case of their improper design, handling or management. Thus, a failure of the Group's tailings storage facilities, including as a result of theft and vandalism during the operating life of the mines or after their closure, may result in uncontrolled spills of tailings, dangerous flow-slides or the release of hazardous substances, leading to major environmental catastrophes and potential casualties and loss of life. Furthermore, any failure to conduct third party inspections of the Group's tailings storage facilities as a result of the COVID-19 pandemic or otherwise, could prevent the Group from detecting and curing any defects in such facilities in a timely manner. The effective and safe disposal of mining waste presents technical and environmental issues. Any failure of a tailing storage facility may have a material adverse effect on the Group's business, results of operations and financial condition.

Equipment failures or production curtailments or shutdowns could adversely affect the Group's sales and profitability.

The Group may experience plant shutdowns or period of reduced production as a result of major equipment failures. Interruptions in production capacities may increase production costs and reduce revenue. In addition to equipment failures, the Group's facilities are also subject to the risk of material loss or production curtailments due to unanticipated events, such as fires, explosions or adverse weather conditions. The occurrence of any such events could have a material adverse effect on the Group's business, results of operations and financial condition.

Health and safety incidents may adversely affect the Group's business.

As with other mining companies, certain of the operations of the Group are carried out under potentially hazardous conditions. The Group's employees may become exposed to health and safety risks which may lead to the occurrence of work-related incidents. In the past, the Group has suffered fatal accidents, in particular there were two employee fatalities (at Zun-Holba and Irokinda mines) and two contractor fatalities (at Irokinda and Gross mine) in 2018 and three employee fatalities (at Taparko, Gross and Irokinda mines) and two contractor fatalities (at Taparko and Bissa mines) in 2019. In 2020, there was one contractor fatality at Suzdal mine and, in January 2021, there was one employee fatality at Irokinda mine. Though the Group has procedures in place to thoroughly investigate all incidents to identify underlying causes and take remedial action and to improve associated conditions, processes and systems, there can be no assurance that such improvements will be effective or that there will be no incidents in the future. The occurrence of any incidents could delay production, increase production costs and/or result in liability for the Group, and may result in actual production differing potentially materially from estimates of production. If any of this occurs, it could have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's principal operations are located in geographically remote areas with challenging climates.

The Group's principal operations are located in remote areas, some of which have challenging climates, resulting in technical and logistical difficulties for conducting both geological exploration and mining and processing. For example, Gross and Taborny mines are located in the southwestern Yakutia where winter temperatures are extremely low. Burkina Faso and Guinea mines operations in open pits may be affected by significant volumes of precipitation during the rainy season which result in floods. Furthermore, climate change may exacerbate the climate-related challenges that affect the Group's principal operations, including by leading to more frequent droughts and floods in some of the regions where the Group operates, which could cause operational disruptions, including washed-out roads, unsafe water levels in tailing dams, disruptions in water supply and mine closure. The Group may be unable to overcome problems related to weather and climate at a commercially reasonable cost in the future, which could have a material adverse effect on the Group's business, results of operations and financial condition. The remote location of the Group's principal operations also results in increased costs and transportation difficulties. The delivery of supplies to areas where the Group operates may be disrupted or transportation costs may increase. An increase in costs of, or interruptions in, transportation could have a material adverse effect on the Group's business, results of operations and financial condition.

Damage to, or an accident at, a mine, including due to flood, fire, explosion or natural catastrophe, may adversely affect the Group's operating results and make it subject to environmental and other liabilities.

The Group's operations and development projects are exposed to natural risks such as floods, fire, explosions in underground mines or the Group's facilities, sudden and unexpected failure of mineshafts, and extreme weather conditions. The occurrence of one or more of these events could potentially lead to multiple fatalities and injuries, long-term contamination or other environmental damage, significant reputational damage and disruption of the Group's operations. Furthermore, the Group's insurance may not fully cover losses resulting from any of

these events. The occurrence of accidents for which the Group is not insured, or for which the Group's insurance is insufficient, may materially and adversely affect the Group's business, results of operations and financial condition.

The Group may face opposition from the communities or governments in the jurisdictions in which it operates.

Some of the Group's current and potential operating activities are located in or near communities that may regard such operations as having a detrimental effect on their safety or environmental, economic or social circumstances. Opposition from a local community may have a material adverse effect on the cost, profitability, ability to finance or even the viability of an operation and the safety and security of the Group's workforce and assets. Further, local opposition could lead to disputes with national or local governments or with local communities or any other stakeholders and cause the Group material reputational damage. For example, in 2018, public debates were conducted in French Guiana with the aim to raise awareness of the Montagne d'Or project and to establish a platform for ongoing dialogue with local communities. In January 2019, the French National Commission of Public Debate designated two guarantors responsible for the participation of the public in the project development up until the opening of the public inquiry for the permit applications. Furthermore, in December 2016, the Montagne d'Or joint-venture, Compagnie Miniere Montagne d'Or SAS ("**CMMO**"), submitted applications to renew the Montagne d'Or concessions, which expired on 31 December 2018, for a 25-year period. As no decision on the renewal had been made by the competent authority, in 2019, CMMO filed legal claims with the Administrative Court of Cayenne in French Guiana to enforce the renewal of the mining concessions. In December 2020, the court issued an order supporting these claims and requiring the competent authority to renew the mining concessions for a 25 year period within six months from the date of that order. In January 2021, the French Government filed an appeal in respect of such court order and, in February 2021, requested to suspend the court order. The Bordeaux Administrative Court of Appeal notified the Group that the appeal hearing would take place between July and October 2021. As of the date of this Registration Document, CMMO has not received any confirmation on the renewal of the mining concessions from the competent authority. Despite all appropriate legal measures available to the Group to defend its rights in respect of the Montagne d'Or project, which measures may include taking, or procuring that there are taken by one or more of its affiliates, steps to protect its rights in international investment arbitration, there can be no assurance that the Montagne d'Or mining concessions will be renewed within the timeframe set by the court or at all, in which case the implementation of the project may be delayed or even become impossible.

Opposition from the communities or governments in the jurisdictions in which the Group operates could negatively impact the perceived value of the Group's assets and industrial investments and, consequently, have a material adverse effect on Group's business, results of operations and financial condition.

The cost and supply of fuel and electricity, particularly self-generated electricity, can be unstable.

Fuel and energy is one of the Group's largest operating expenses. In the years ended 31 December 2020, 2019 and 2018, the Group's fuel and energy costs amounted to U.S.$156.7 million, U.S.$164.7 million and U.S.$133.3 million, respectively, which represented 14.3%, 16.1% and 16.5% of the Group's cost of sales in the respective periods. The Group's mines located in Russia, other than Gross and Taborny each having on-site power generation, currently purchase electricity from the regional energy agencies, which charge consumers a rate based on tariffs that are modified from time to time. In Kazakhstan, the electricity is provided from the national electric grid. To a certain extent, these tariffs are regulated, and any deregulation of the electricity industry in the Russian Federation or Kazakhstan could result in increases in the tariffs.

The mines of Bissa-Bouly, Gross, Taborny, Lefa and Taparko currently purchase diesel and heavy fuel oil on a commodity exchange (Gross and Taborny) or from Total (Lefa) and Vivo Energy (Bissa-Bouly and Taparko) to supply their own electrical needs. Diesel fuel and heavy fuel oil are refined from crude oil and are therefore subject to the same price volatility affecting crude oil prices. Volatility in crude oil prices has a significant direct and indirect impact on the Group's production costs by affecting not only the cost of fuel the Group consumes but also transportation costs and the cost of other supplies that must be transported to the mine sites. This impact is less significant on the Group's operations in Russia and Kazakhstan, as the Group's mines in those jurisdictions source electricity from the relevant state electric grid and, in case of Gross and Taborny, have their own on-site power generation, and the price of diesel fuel and heavy fuel oil in those jurisdictions is not directly correlated to the world oil price. There is a greater correlation between the price of oil and the price of diesel fuel and heavy fuel oil in the Group's African operations. The production level across the mines influences the electricity costs per unit as these costs are relatively fixed. Any disruption in supplies and/or increase in the costs of these supplies could result in overall higher fuel costs. If fuel and energy costs increase, the profitability of the

Group's operations could be negatively affected, which may result in a material adverse effect on the Group's business, results of operations and financial condition.

Wage increases in Russia, Kazakhstan and West Africa may reduce the Group's profit margins.

Wage costs in Russia, Kazakhstan and West Africa have historically been significantly lower than wage costs in the more economically developed countries of North America and Europe for similarly skilled employees. However, to the extent that wage costs increase, this could result in a reduction in the Group's profit margins. Personnel costs constitute approximately one fifth of the Group's cost of sales. In the years ended 31 December 2020, 2019 and 2018, the Group's personnel costs amounted to U.S.$159 million, U.S.$135.5 million and U.S.$131.5 million, respectively. Personnel costs in the jurisdictions where the Group operates are affected by, amongst other factors, the scarcity of qualified local personnel, the competition for labour with other mining companies, periodic tensions with the local labour unions and local communities. The Group seeks to control personnel costs by increasing equipment utilization, automation, eliminating duplicate processes and implementing employee training and efficiency initiatives. To the extent that the Group is unable to continue to increase the efficiency and productivity of its employees, wage increases could have a material adverse effect on the Group's business, results of operations and financial condition.

Theft of gold and illegal mining on the Group's properties, may be difficult to control, disrupt the Group's business and expose the Group to liability.

From time to time some of the Group's properties have experienced illegal mining activities and theft of gold bearing materials (either by employees or third parties). The activities of the illegal miners could cause pollution or other damage to the Group's properties, including open-pit wall collapse, which could result in the interruption of mining operations or even personal injury or death, for which the Group could potentially be held responsible. In addition, illegal mining activities could result in depletion of mineral deposits. The presence of illegal miners could lead to project delays and disputes regarding the development or operation of commercial gold deposits. The theft of gold may reduce the amount of metals that the Group is able to recover from its operations. Any of these factors could have a material adverse effect on the Group's business, results of operations and financial condition.

The Group does not maintain full insurance coverage for all risks.

The Group's operations are subject to numerous operating risks, including environmental hazards, industrial incidents, unusual or unexpected geological conditions, labour force disruptions, unavailability of materials and equipment, weather conditions, pit wall failures, rock bursts, cave-ins, flooding, seismic activity, interruptions to power supplies and industrial and other accidents at mines, processing plants or related facilities. In addition, civil disturbances and criminal activities, such as trespass, illegal mining, theft and vandalism have caused disruptions to the Group's operations in the past and may do so in the future. While management has set up internal controls to try to prevent and mitigate these events, these risks and hazards could result in damage to or destruction of, mineral properties or processing facilities, personal injury or death, environmental damage, delays in mining and monetary losses and possible legal liability.

The Group maintains at least the minimum level of insurance required under the laws of each jurisdiction in which it operates. In particular, the Group maintains insurance for, amongst others, directors and officers liability, public liability for hazardous industrial facilities and hydraulic structures and employer liability. As a participant in exploration and mining activities, the Group may become subject to liability for risks that cannot be insured against, that are not sufficiently covered by mandatory third-party liability insurance, or against which it may elect not to be insured because of high premium costs. Losses from uninsured or partially insured risks may cause the Group to incur significant costs, and no assurance can be given that such insurance will thereafter continue to be available, that it will be available at commercially reasonable premiums or that the Group will obtain or maintain such insurance.

Moreover, the insurance which the Group does maintain in respect of certain risks may not provide sufficient coverage for losses related to these or other risks or hazards. The Group does not have full insurance coverage for its mining, processing and transportation facilities, for business interruption, or for third party liabilities in respect of property or environmental damage arising from accidents on the Group's property or relating to the Group's operations. The lack of, or insufficiency of, insurance coverage could materially adversely affect the Group's business, results of operations and financial condition.

The Group's business requires substantial capital expenditure and additional financing may not be available or may not be available on satisfactory terms.

Mining is capital intensive and the work associated with exploration and development, the conversion of mineral resources into reserves and the acquisition and upgrading of machinery and equipment require substantial capital

expenditures often over multi-year periods. In line with its strategy, the Group seeks to maintain and expand its reserve and resource base as well as to increase production efficiency, which involve significant capital expenditure. The Group has budgeted approximately U.S.$404 million for capital expenditures for 2021. The Group's capital expenditures might be subject to inflationary price pressures resulting from price increases, as well as price increases caused by an undersupply of critical equipment for mining and processing.

The implementation of the Group's strategy may be dependent upon the Group's ability to obtain financing by raising equity or debt or other means in the future. The Group's ability to secure debt or equity financing in amounts sufficient to meet its financial needs could be adversely affected by many factors beyond the Group's control, including, but not limited to, economic conditions, the level of liquidity in the Russian and international banking sectors and the impact of the U.S., U.K. and EU sanctions. See also "*Risks Relating to the Jurisdictions in which the Group Operates — The political instability in Ukraine and other states, the international reaction to Russia's actions in connection with Crimea, sanctions imposed by the U.S., U.K., the EU and other countries and other disputes between Russia and other countries could materially adversely affect the economic environment in Russia, and create significant political and economic uncertainty which could in turn materially adversely affect the Group's business, financial condition, results of operations and future prospects.*"). In addition, any downgrade in the ratings of the Group could make it more difficult and/or expensive for it to raise capital going forward. Although the Group considers that it has sufficient working capital to finance its development projects for at least the next twelve months, there can be no assurance that additional funding that may subsequently be required by the Group for any still existing current projects, or any that might be undertaken in the future, will be made available to it and, if such additional funding is available, that it will be offered on reasonable terms. If the Group is unable to obtain such additional financing as may be needed, it may be required to delay or reduce the scope of its operations or anticipated capital investments, which may have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's production, processing and product delivery rely on infrastructure being adequate and remaining available.

The Group's mining, processing, development and exploration activities depend on adequate infrastructure. The physical infrastructure in the jurisdictions where the Group operates, including rail and road networks, airports, power generation and transmission, communication systems and building stock, may be old and may not have been adequately funded and maintained. Electricity and heating shortages in some regions of the Russian Federation and Kazakhstan have seriously disrupted the local economies. There is even less established infrastructure in Burkina Faso and Guinea. A number of the Group's current operations and prospects are remotely located, difficult to access and subject to extreme weather conditions, resulting in long delivery times. Certain of the Group's operations have experienced disruptions to their power supply in the past, resulting in temporary production stoppages. The Group requires reliable roads, power sources and water supplies to access and conduct its operations and the availability and cost of this infrastructure affects capital and operating costs and the Group's ability to maintain expected levels of production and sales. Unusual weather or other natural phenomena, sabotage, theft or other interference in the maintenance or provision of such infrastructure could impact the development of a project, reduce mining volumes, increase mining or exploration costs or delay the transportation of raw materials or inputs to the mines and projects and of gold doré to the market. Furthermore, any failure or unavailability of the Group's operational infrastructure (for example, through equipment failure or disruption to its transportation arrangements) could adversely affect the production output from its mines or impact its exploration activities and development of a mine or project. Any such issues arising in respect of the infrastructure supporting or on the Group's sites could materially adversely affect the Group's business, results of operations and financial condition.

Actual and potential supply chain shortages and increases in the prices of production inputs may have a material adverse effect on the Group's operations and profits.

The Group's operational results may be affected by the availability and pricing of raw materials and other essential production inputs, including fuel, grind balls, and cyanide and other reagents. For example, in Burkina-Faso, fuel supplies are controlled by the government of Burkina Faso through a state-owned company SONABHY, which is the sole distributor of oil and gas products in the country, and fuel prices are set by the government of Burkina Faso. Should the government of Burkina Faso reduce fuel supplies or increase fuel price materially, the Group might have to seek alternative sources of fuel supplies, and no assurance can be given that any such alternative fuel supplies would be available on favorable terms or at all.

A sustained interruption in the supply of any of these materials could result in production slowdowns or stoppages and would require the Group to draw down on existing stockpiles, which may not be sufficient to

support continued production until such services resume or alternate providers are engaged. To the extent that the Group is unable to obtain alternative sources in the event of a prolonged disruption to its usual supply network, the Group may be forced to reduce its operating levels. Furthermore, even if the Group were able to obtain supplies of production inputs from alternative sources, it may incur substantially higher costs. More generally, the price of raw materials may be substantially affected by changes in global supply and demand, along with weather conditions, governmental controls and other factors. Any significant increase in the prices of these materials will increase the Group's operating costs and affect production considerations, which may have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's operations depend to a certain extent on external contractors which exposes the Group to certain risks associated with the engagement of third parties.

The Group's operations are dependent to a certain extent on the efforts and abilities of outside contractors, experts and other advisors, including with respect to drilling, blasting, maintenance and construction services. As a result, the Group's operations at those sites at which such contractors are present are subject to risks, some of which are outside the Group's control, including:

- the inability to replace a contractor and its operating equipment in the event that either party terminates the agreement;
- reduced control over those aspects of operations which are the responsibility of the contractor;
- failure of a contractor to perform under its agreement with the Group; interruption of operations or increased costs in the event that a contractor ceases its business due to insolvency or other unforeseen events; and
- failure of a contractor to comply with applicable legal and regulatory requirements, to the extent it is responsible for such compliance.

Further, the Group's operations use infrastructure provided by third parties, such as loading terminals and airfields, for transportation. The delivery of supplies may be disrupted or transportation costs may increase. Failure by suppliers to meet schedules for the production and delivery of necessary supplies could affect the Group's ability to conduct operations and to continue developing mines.

The occurrence of, or a combination of any of, the risks mentioned above could have a material adverse effect on the Group's business, financial condition, results of operations.

The Group's business depends on maintaining a highly qualified, skilled and motivated workforce, including qualified geologists and other mining specialists.

The Group's business depends in significant part upon the contributions of a number of the Group's key employees, in particular its senior management team and its team of engineers and geologists. There can be no certainty that the services of its key employees will continue to be available to the Group. Moreover, the Group competes with mining and other companies to attract and retain employees at all levels with appropriate technical skills and operating and managerial experience necessary to continue to operate its business. The Group's future success among other things will be dependent on its ability to attract and retain qualified employees. Factors critical to both retaining the Group's present staff and attracting additional qualified employees include the Group's ability to provide these individuals with competitive compensation arrangements. If the Group is not successful in retaining or attracting qualified individuals in key management positions and skilled engineers and geologists, it could have a material adverse effect on the Group's business, results of operations and financial condition.

The Group relies mostly on local employees with only 2% of its headcount comprised of expatriate employees who occupy some of the key managerial and technical roles. The long-term success of the Group's operations also depends upon its ability to further localise as many of the key roles in the Group as possible and ensure a pipeline of local employees in order to avoid the higher costs associated with employing expatriates and to meet the expectations of the applicable government and local communities. In Burkina Faso and Guinea, for example, it is difficult for the Group to hire sufficiently skilled and qualified people or to obtain all of the necessary expertise locally due to the shortage of appropriately qualified individuals. If qualified people or the necessary expertise cannot be obtained at satisfactory rates or at all, this could result in delays to or higher costs in respect of the Group's ongoing operations and the development of its projects.

As at 31 December 2020, the Group had 8,190 employees, of which approximately 51.06% were covered by collective bargaining agreements. The Group has entered into collective bargaining agreements with its employees in Lefa (Guinea), Bissa and Somita (Burkina Faso). Although the Group believes its labour relations with its employees are good, there can be no assurance that a work slowdown or a work stoppage will not occur at any of the Group's operating units or exploration prospects. Any future work slowdowns, stoppages, disputes with employee unions or other labour-related developments or disputes, including renegotiation of collective bargaining agreements, may result in decreased production levels, adverse publicity and/or increased costs, any of which could have a material adverse effect on the Group's business, results of operations and financial condition.

The Group's borrowings impose restrictions.

The Group's existing borrowings contain various financial covenants, including, among others, covenants limiting the Group's ability to create liens, to sell or otherwise dispose of material assets, to engage in mergers or consolidations, require it to maintain certain levels of Net Debt / EBITDA ratio and EBITDA (in each case as defined in the relevant financing agreements) to net interest ratio. These restrictions may adversely affect the Group's ability to raise additional capital at an acceptable cost in order to fund its growth over the long term, to react to changes in the economy or mining industry or to meet its obligations under its indebtedness. While the Group believes it is currently in compliance with its debt obligations, the Group's debt service and compliance obligations under these and future financings and the associated risks of breaching these obligations, as well as any difficulties in obtaining financing in the future, could have a material adverse effect on the Group's business, results of operations and financial condition.

Failures of the Group's IT systems or third party intrusions into such systems could adversely affect its business.

The Group's business and operations may be negatively affected by failures of the key IT systems and equipment of the Group as well as its IT service providers (see "*—The Group's operations depend to a certain extent on external contractors which exposes the Group to certain risks associated with the engagement of third parties*" and Part XII: "*Additional Information—Related party transactions and other arrangements*"), unauthorised access to confidential information and a distortion of information during data transfers or a disruption of activities during the introduction of a new IT system. IT systems are vulnerable to a number of problems, such as software or hardware malfunctions, malicious hacking, cyber terrorism, physical damage to vital IT centres and computer virus infection. These factors may result in the unauthorised release, gathering, monitoring, misuse, loss or destruction of proprietary and other information or potential information inaccuracies that could cause disruptions in the Group's decision making process, as well as deterioration in the quality of the Group's operational and financial reporting and the overall manageability of the Group.

The Group has invested in upgrading its technologies, centralising its information systems and controlling the operation of its hardware and software, taking into account international best practices, and has measures in place to ensure the cybersecurity of its computer systems. However, the Group cannot provide any assurance that its IT systems will continue to function in a manner that will not result in significant disruptions or temporary loss of functionality and that its computer systems, networks and databases will not suffer from any cyber-attack in the future. Any of these factors could materially adversely affect the Group's business, results of operations and financial condition.

The Group is subject to risks relating to partnership arrangements.

Some of the Group's projects are held or proposed to be developed through partnership arrangements with third parties that own or intend to own certain assets relating to the development of the gold mining and/or production projects. For example, the Group's assets in Burkina Faso and Guinea are subject to certain government equity interests, namely the state of Burkina Faso owns 10% interest in the share capital of each of Societe Des Mines de Taparko, Nordgold YEOU SA, Bissa Gold SA and Nordgold Samtenga SA, the state of Guinea owns 15% interest in the share capital of Société Minière de Dinguiraye ("**SMD**") and the Group owns a 55.01% stake in the Montagne d'Or project whilst the remaining stake is owned by a Canadian company operating in French Guiana, Orea Mining Corporation. See also "*Risk Relating to the Jurisdictions in which the Group Operates — The Group's assets in Burkina Faso and Guinea are subject to various government equity carried interests and royalty and other payments payable to the respective governments"*.

Partnership arrangements with third parties may result in the Group sharing control of such assets with third parties. In addition, certain decisions relating to those assets in partnership structures may depend upon the consent or approval of the Group's partners. However, the objectives of the partner may, in certain circumstances, differ significantly from the business objectives of the Group.

Disputes or disagreements with any of the Group's partners may result in significant delays and increased costs associated with the development of the Group's projects. Moreover, certain major decisions may require the partners' and/or other third parties' approval.

Failure to reach or maintain agreements with the Group's partners on matters relating to the financing and operation of the Group's projects may cause delays to, or cancellations of, the Group's projects or may otherwise impair its ability to complete its projects as planned, which could have a material adverse effect on the Group's business, results of operations and the financial condition.

The Group may not be able to protect adequately or enforce its intellectual property rights.

The Group does not currently own any registered intellectual property rights material to its business and relies primarily on a combination of patents, registered trademarks, licensing agreements and restrictions on disclosure to protect the Group's intellectual property. Despite these precautions, it may be possible for a third party to copy or otherwise obtain and use the Group's developed techniques, products, processes, brand names or other intellectual property without authorisation. There may also be technologies licensed to and relied on by the Group that are subject to infringement or other corresponding allegations or claims by third parties which may damage the Group's ability to rely on such technologies. If the Group is unable to protect its proprietary rights against infringement or misappropriation, it could materially harm its future financial results and the ability to develop the Group's business.

Risks Relating to the Jurisdictions in which the Group Operates

Substantially all of the Group's assets are located in emerging markets, such as Russia and Kazakhstan, and less developed markets, such as Burkina Faso and Guinea, which are subject to greater risks than the more developed markets.

In 2020, 45 per cent. of the Group's gold production came from Russia, while 31 per cent., 17 per cent. and 7 per cent. came from Burkina Faso, Guinea and Kazakhstan, respectively. As at 31 December 2020, 51.75 per cent., 15.25 per cent., 8.45 per cent., 6.44 per cent. and 18.11 per cent. of the Group's gold reserves were located in Russia, Burkina Faso, Guinea, Kazakhstan and French Guiana, respectively, and 49.93 per cent., 20.65 per cent., 10.60 per cent., 3.62 per cent. and 11.40 per cent. of the Group's measured, indicated and inferred gold resources were located in Russia, Burkina Faso, Guinea, Kazakhstan and French Guiana, respectively. Investors in companies whose assets are located in emerging markets, such as the Russian Federation and Kazakhstan, and particularly in less developed markets, such as Burkina Faso and Guinea, should be aware that these markets are subject to greater risks than more developed markets, including in some cases significant legal, regulatory, economic and political risks. Investors should also note that economies in such jurisdictions are subject to rapid change and that the information set out in this Registration Document may become outdated relatively quickly.

There are substantial risks associated with investments in emerging markets such as Russia and Kazakhstan and less developed countries such as Burkina Faso and Guinea, where civil unrest, nationalist movements, political violence and economic crises are possible. These countries may also pose heightened risks of expropriation of assets, increased taxation and a unilateral modification of concessions and contracts. If the Group is unable to successfully manage the risks associated with its investments in the countries of operation, its current investments and any planned future operations in such countries could be adversely affected, which could have an adverse effect on the Group's business, financial condition, results of operations.

Moreover, financial or political turmoil in any emerging market tends to adversely affect prices in credit, equity and foreign exchange markets of all emerging markets as investors move their money to more stable and developed markets. As has happened in the past, financial problems or an increase in the perceived risks associated with investing in emerging economies could dampen foreign investment in the Russian Federation and Kazakhstan and adversely affect their economies. In addition, during such times, companies that operate in emerging markets can face severe liquidity constraints as foreign funding sources are withdrawn. Thus, even if the Russian and Kazakhstan economies remain relatively stable, financial turmoil in any other emerging market could adversely affect the Group's business, financial condition, results of operations.

Economic instability in Russia could have a material adverse effect on the Group's business.

A substantial part of the Group's production assets are located in Russia, the economy of which is vulnerable to market downturns and economic slowdowns elsewhere in the world

Over the last two decades the Russian economy has experienced, among other things, significant declines in GDP and rate of GDP growth, high levels of inflation, high and fast-growing interest rates, unstable credit conditions, instability of currency (including periods of significant decline in value against foreign currencies), significant volatility in the debt and equity markets, pervasive capital flight, sudden price declines in commodities, a lack of reform in the banking sector and a weak banking system, providing limited liquidity to Russian enterprises, continued operation of loss-making enterprises due to the lack of effective bankruptcy proceedings, high levels of corruption and the penetration of the economy by organised crime, widespread tax evasion, significant increases in unemployment and underemployment and major deterioration of physical infrastructure.

In 2018 and 2019, the Russia's GDP growth was 2.3% and 1.3%, respectively, and in 2020, Russia's GDP declined by 3.1% in real terms.

As Russia produces and exports crude oil, natural gas, petroleum products and other commodities, the Russian economy is particularly vulnerable to fluctuations in oil and gas prices, as well as other commodities prices, which have historically been subject to significant volatility over time, as illustrated by the recent decline in crude oil prices. Brent crude oil prices were relatively stable in 2017, 2018 and 2019. However, most recently, oil prices fell with the price of Brent crude declining from a high of $69.96 per barrel on 6 January 2020 to $31 per barrel on March 9, 2020 and dropping to $27 per barrel on April 20, 2020 as a result of Russia and OPEC failing to reach an agreement over proposed oil production cuts and falling demand for oil triggered by the significant slowdown of business activity and a deteriorating global macro outlook caused by the spread of the COVID-19 pandemic. While a coalition of 23 nations led by Saudi Arabia and Russia subsequently agreed to reduce production of crude oil by 10 million barrels per day in May and June 2020 and 8 million barrels per day from July to December 2020, crude oil prices have remained depressed. As of 31 May 2021, the price of Brent crude was $69.65 per barrel.

Moreover, as a result of the COVID-19 pandemic, travel restrictions, quarantines, city and country lockdowns and similar measures taken by governments and companies around the world have been introduced which have affected the Russian economy. Although the Russian Government has adopted measures to mitigate the effects of the COVID-19 outbreak , there can be no assurance that such measures will be successful or will result in a sustainable recovery of the Russian economy (see "*The Group faces risks related to the adverse impact of the COVID-19 pandemic.*"). Therefore, any continued economic instability could have a material adverse effect on the Russian economy and, consequently, on the Group's business, results of operations and the financial condition.

Political and social conflicts or instability could create an uncertain operating environment.

Political and social conditions in the jurisdictions in which the Group operates may be less predictable than in less volatile markets. Any future political or social instability in such jurisdictions could result in a worsening overall economic situation, including capital flight and a slowdown of investment and business activity, which could adversely affect the Group's business.

In January 2020, a series of political reforms was proposed purporting to re-allocate powers and responsibilities among the Russian governmental authorities, including those of the State Duma and the Government. The reforms would have to be administered and changes to the existing Constitution and other laws would be necessary for the political decisions to become effective. The realisation of such political steps and actions would take time, and are subject to completion of the relevant implementation procedures.

Any future political instability could result in a worsening of the overall economic situation in the country, including increased capital flight and a slowdown of investment and business activity. Future shifts in governmental policy and regulation in Russia also could disrupt or reverse political, economic and regulatory reforms. Since a substantial part of the Group's production assets are located in Russia, any of these factors, should they materialise, could have a material adverse effect on the Group's business, results of operations and the financial condition.

In addition, ethnic, religious, historical and other divisions have, on occasion, given rise to tensions and, in certain cases, terrorist attacks in the jurisdictions in which the Group operates. For example, the Group's African mines are located in or close to areas with increased risk of political and social turbulence. If labour or social unrest escalates, significant political consequences could arise, including the imposition of a state of emergency in some or all regions in which the Group operates. Furthermore, in the last three years, the security situation in Burkina Faso has deteriorated as witnessed by an increase of terrorist and criminal incidents and activities in

various regions of Burkina Faso against various mining and exploration companies. Terrorist and criminal activities could cause disruption to domestic commerce, and may limit the Group's ability to hire and keep qualified personnel, suppliers and contractors, which could have a material adverse effect on the Group's business, results of operations and financial condition.

The on-going development of the legal framework in the jurisdictions in which the Group operates creates an uncertain environment for investment and business activity.

The jurisdictions in which the Group operates continue to develop their legal frameworks. Within the last twenty years, laws relating to foreign investment, subsoil use, licensing, land and other real property, companies, taxes, customs, currency, capital markets, pensions, insurance, banking and competition have been enacted or are still under development in the jurisdictions in which the Group operates. Risks related to the legal framework in such jurisdictions include, among others:

- inconsistencies among laws and regulations;
- limited judicial and administrative guidance on interpreting legislation;
- the relative inexperience of judges, courts and arbitration tribunals in interpreting legislation, particularly business and corporate law;
- difficulty in enforcing court judgments in practice;
- substantial gaps in the regulatory structure due to delay or absence of implementing legislation; and
- a high degree of unchecked discretion on the part of governmental and regulatory authorities.

For example, certain of the Group's mining assets in the Russian Federation consist of companies that have been acquired directly or indirectly from others who acquired them through privatisation such as "Berezitovy Rudnik" LLC and PJSC Buryatzoloto, and the Group may seek to acquire additional companies that have been privatised. In addition, privatization legislation in the Russian Federation is vague, internally inconsistent and in conflict with other pieces of Russian legislation. Although the statute of limitations for challenging transactions entered into in the course of privatisations is generally three years, privatisations may still be vulnerable to challenge, including through selective action by governmental authorities motivated by political or other extra-legal considerations.

If any of the Group's acquisitions are challenged as having been improperly conducted and the Group is unable successfully to defend itself, the Group may lose its ownership interests, which could have a material adverse effect on the Group's business, results of operations and financial condition.

In Kazakhstan, the statutes on subsoil use do not restrict the course of action available to the Government by reference to the gravity of the violation, and a minor violation could conceivably lead to harsh consequences, such as suspension or termination of the subsoil use rights. The Kazakh Subsoil Code dated 27 December 2017 (the "**Kazakh Subsoil Code**") is still considered as relatively new and untested, and accordingly it is difficult to predict the consequences of a violation. As a condition of certain of its subsoil use licenses and contracts, the Group is obliged to maintain certain social programmes for the benefit of local communities and to invest in training the local workforce. These obligations may increase or become more burdensome in the future, upon a change in the government or political climate or otherwise, which could have a material adverse effect on the Group's business, results of operations and financial condition.

Moreover, the delineation of authority and jurisdiction between national, regional and local authorities in the jurisdictions in which the Group operates is, in many instances, unclear and contested, particularly with respect to the division of authority over regulatory matters. Lack of consensus between national, regional and local authorities often results in the enactment of conflicting legislation at various levels that may lead to further political instability, for example, in the areas at securities, corporate legislation and licensing. The transitional state of the legal system in the jurisdictions where the Group operates could affect the Group's ability to enforce its rights under contracts, or to defend itself against claims by others, which could have a material adverse effect on the Group's business, results of operations and financial condition.

The political instability in Ukraine and other states, the international reaction to Russia's actions in connection with Crimea, sanctions imposed by the U.S., U.K., the EU and other countries and other disputes between Russia and other countries could materially adversely affect the economic environment in Russia, and create significant political and economic uncertainty which could in turn materially adversely affect the Group's business, financial condition, results of operations and future prospects.

A substantial part of the Group's production assets are located in Russia. The U.S., U.K. the EU and a number of other countries have imposed sanctions on a number of Russian and Ukrainian persons, including current and former officials, businessmen, banks and companies, as well as companies owned or controlled by such individuals or entities, resulting in, among others, U.S., U.K. and EU persons not being able to do business with such sanctioned persons or provide funds or economic resources to them and, in certain cases, the assets of such sanctioned persons in the relevant sanctioning jurisdictions being blocked. The sanctions imposed a freeze on all assets of the blocked persons and broadly prohibit transactions or other dealings (including the provision of services) for the benefit of the sanctioned persons, in each case involving U.S. persons or any actions which directly or indirectly involve U.S. persons or U.S. territory (including the clearing of U.S. dollar payments through the U.S. financial system). This sanctions regime also extends by operation of law to any entity 50% or more owned by blocked or designated persons, either individually or in aggregate.

In addition, the U.S., U.K. and EU have applied "sectoral" sanctions, whereby entities in certain sectors of the Russian economy are designated as potential targets for sanctions. Currently, such sectors include defence and related materials, financial services and energy. The relevant sectoral sanctions currently provide for restrictions on transactions with new debt or equity securities of designated entities in the financial sector, restrictions on transactions with new debt securities of designated entities in the energy sector, restrictions on transactions with new debt securities of designated entities in the defence sector, and restrictions on the provision of goods, services or technology in support of Russian Arctic offshore, deep water or shale projects with the potential to produce oil. The U.S. has also significantly tightened export controls on the provision of U.S.-origin goods that may be used in the Russian defence or energy sectors.

The current sanctions regime is a result of multiple extensions by the U.S. and EU in the term and scope of sanctions. It is currently unclear how long these sanctions will remain in place and whether new sanctions may be imposed. In addition, in August 2017, the Countering America's Adversaries Through Sanctions Act ("**CAATSA**") became law in the U.S. The CAATSA, among others, (i) codifies sanctions against Russia; certain industries and individuals established prior to the CAATSA; (ii) reduces the permitted terms of financing under the existing sectoral sanctions and further restricts supplies of equipment to certain Russian energy companies; (iii) allows the U.S. President to extend sectoral sanctions to further sectors of the Russian economy (such as railways, metals and mining) and introduce additional sanctions against new persons; and (iv) provides for imposing a set of "secondary sanctions", which target activities of non-U.S. persons, such that foreign persons who engage in certain activities in Russia (in relation to, among others, construction, modernisation and repair of energy export pipelines, intelligence and defence sectors, sanctions evasion, privatisations and activities that undermine the cybersecurity of any person or government) now face the prospect of adverse economic consequences from the United States in the form of a denial of U.S. benefits. Should the secondary sanctions be introduced in respect of the Group, it could have a material adverse impact on the Group's business, financial condition, results of operations and prospects.

The CAATSA also requires the U.S. administration to submit various reports to U.S. Congress, including a report pursuant to Section 241 of the CAATSA Regarding Senior Foreign Political Figures and Oligarchs in the Russian Federation and Russian Parastatal Entities (the "**Report**"). The Report was published in January 2018 and included over 200 Russian political figures determined by reference to their official position and businessmen (including Mr. Mordashov, one of the beneficial owners of the Group) who, according to public sources, have an estimated net worth of U.S.$ 1 billion or more. As of the date of this Registration Document, Mr. Alexey Mordashov indirectly holds 34.98% in the share capital of the Company and does not otherwise exercise control over the Company. Although the Report states that it is not a sanctions list, and the inclusion of individuals or entities in it, its appendices, or its classified annexes does not and in no way should be interpreted to impose sanctions on those individuals or entities, and moreover, the inclusion of individuals or entities in the Report, its appendices, or its classified annexes does not, in and of itself, imply, give rise to, or create any other restrictions, prohibitions, or limitations on dealings with such persons by either U.S. or foreign persons, no assurance can be given that no sanctions will be imposed on the individuals and entities included in the Report or their controlled entities in the future.

In April 2018, pursuant to Executive Orders codified by CAATSA, the U.S. designated 38 Russian businessmen, officials and entities as Special Designated Nationals ("**SDNs**"). U.S. persons are required to block all property

and interests in property of the SDNs and may not deal with any SDNs directly or indirectly. Non-U.S. persons are at risk of the secondary sanctions described above in relation to their dealings with any SDNs. The companies designated as SDNs in this instance included major industrial companies in the power, energy, machinery and aluminium sectors (including, EN+ Group plc, United Company RUSAL plc and JSC EuroSibEnergo). On 26 January 2018, PJSC Power Machines was included in the list of SDNs. Based on publicly available information, as of 31 December 2019, PJSC Power Machines was fully owned by Severgroup LLC, which is controlled by Mr. Alexey Mordashov. The Group has not had in the period under review, and has no plans to have in the future, any relationship with PJSC Power Machines.

In January 2019, the sanctions previously imposed on EN+ Group plc, United Company RUSAL plc and JSC EuroSibEnergo were lifted following negotiations between the U.S. Department of Treasury's Office of Foreign Assets Control and the above companies and the change of shareholder structure of these companies. The above sanctions, however, may herald a new course of implementation and interpretation of U.S. sanctions targeting Russia due to the nature of the targets, the scope of prohibitions and the potentially unpredictable ramifications.

In August 2018, the U.S. State Department imposed new sanctions on Russia under the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 (the "**CBW Act**"). The initial set of sanctions under the CBW Act includes, among other things, termination of sales of any defense articles and services and prohibition on the export to Russia of certain national security-sensitive goods and technology. In November 2018, the U.S. Department of State declared its intention to impose further sanctions following Russia's alleged failure to provide the respective assurances, and on 2 August 2019 pursuant to the CBW Act, OFAC issued a Russia-related Directive prohibiting the U.S. banks to participate in the primary market of non-ruble denominated bonds issued by, and lending non-ruble denominated funds to, any Russian ministry, agency, or sovereign fund, including the Central Bank of Russia, the National Wealth Fund and the Ministry of Finance of the Russian Federation with effect from 26 August 2019.

On 13 February 2019, an updated and expanded version of the 2018 "Defending American Security from Kremlin Aggression Act" bill (the "**DASKA**") was introduced in the U.S. Congress and subsequently revised in December 2019. Among other measures, DASKA (i) introduces a prohibition for U.S. persons to hold and deal in Russian sovereign debt with a maturity exceeding 14 days; (ii) envisages the sanctioning of persons making a substantial investment in liquefied natural gas export facilities or other energy projects outside Russia if such facilities and projects are supported by a Russian parastatal entity or an entity owned or controlled by the Russian Government; and (iii) proposes to introduce blocking sanctions in respect of Russian financial institutions that provide financial or other support to Russian government interference in democratic processes and elections outside Russia. If imposed, such sanctions may have an adverse impact on the Russian economy in general, which in turn may negatively affect the Group's operations.

On 1 January 2021 the National Defense Authorisation Act for Fiscal Year 2021 (the "**Defence Budget 2021**") and the Protecting Europe's Energy Security Clarification Act of 2020 (the "**PEESCA**") as part of the Defence Budget 2021 were enacted into law when the U.S. Congress overrode the U.S. President's veto of the legislation. The Defence Budget 2021 and PEESCA mandate the imposition of sanctions on persons providing vessels for pipe-laying activities for the construction of the Nord Stream 2 and the TurkStream gas export pipelines, persons who facilitate providing those vessels, and persons who provide underwriting, insurance or reinsurance services for those vessels, various technology upgrades, or tethering of those vessels, or provide testing, inspections or certifications for the Nord Stream 2 pipeline.

As at the date of this Registration Document, several draft bills directed at amplifying U.S. sanctions against the Russian Federation have been introduced in the U.S. Congress and are currently under consideration. According to press reports, the U.S. authorities are also considering the introduction of new sanctions against Russia for its alleged role in the hacking of U.S. government agencies and companies in December 2020. The current initiatives, if enacted, could affect, among other things, Russian sovereign debt, Russian energy projects and, the Russian energy and financial sectors. It is currently unclear at which point, if at all, any of these bills could be signed into law and what would be the scope of any new sanctions that may be imposed pursuant to any such laws.

Furthermore, the emergence of new or escalation of existing tensions between Russia and other countries could negatively affect the perception of products of Russian origin, such as the Group's gold, in those countries. Any of this, in turn, could result in a general lack of confidence among international investors in the region's economic and political stability and in Russian investments generally.

No individual or entity within the Group has been designated by any of the U.S., U.K. or the EU as a specific target of their respective sanctions imposed in connection with the Ukrainian crisis or otherwise. Some entities within the Group are U.S., U.K. and EU persons and are therefore required to comply with U.S., U.K. and EU sanctions, respectively. Other Group's entities that are neither U.S., U.K. nor EU persons conduct their business in compliance with U.S., U.K. and EU sanctions to the extent they are applicable. Like many major companies operating in Russia, the Group may from time to time engage with entities that are subject to sanctions and it estimates that such dealings are not material in the context of the overall business of the Group. All of such operations are permissible pursuant to applicable sanctions regime. Should the sanctions regime in respect of these entities be widened or should new and/or secondary sanctions be introduced in respect of the above and/or in respect of other major suppliers or counterparties of the Group, the Group's business could be adversely affected.

Although the Group has no reason to believe that it may be specifically targeted by the U.S., U.K. or EU sanctions, if the Group becomes a blocked person pursuant to U.S., U.K. or EU sanctions, either as a result of the above or through the targeting of a broader segment of the Russian economy, such sanctions will likely have a material adverse impact on the Group's business in a number of ways. For example, the Group might become unable to deal with persons or entities bound by the relevant sanctions, including international financial institutions and rating agencies, acquire equipment from international suppliers or access the Group's assets held abroad, transact in U.S. dollars, raise funds from foreign lenders or access international capital markets, use international settlement, clearing and/or information exchange systems, and/or the Group's existing funds might be blocked. Any of the above could have a material adverse impact on the Group's business, results of operations and financial condition.

Judicial systems in the jurisdictions in which the Group operates may offer less certainty as to the judicial outcome or less effective forms of redress or a more protracted judicial process than is the case in mature economies.

The legal systems in the jurisdictions in which the Group operates are less developed than those in more established economies, which may result in risks such as: potential difficulties in obtaining effective legal redress in their courts whether in respect of a breach of law or regulation or in an ownership dispute; a higher degree of discretion or arbitrary or unpredictable actions on the part of governmental authorities; a lack of judicial or administrative guidance on interpreting applicable rules and regulations; inconsistencies or conflicts between and within various laws, regulations, decrees, orders and resolutions; relative inexperience of the judiciary and courts in such matters; inconsistencies of legal frameworks within various branches or subdivisions of government; substantial gaps in the regulatory structure due to delays in implementing or the absence of implementing legislation; lack of independence of certain members of the judiciary; court systems that are understaffed and underfunded or bankruptcy procedures that are not well developed and are subject to abuse. In addition, the commitment of some local business people, government officials and agencies and the judicial system to abide by legal requirements and negotiated agreements is more uncertain, creating particular concerns with respect to licences and agreements for business. These may be susceptible to arbitrary revision or cancellation and legal redress may be uncertain or delayed.

The property law in the jurisdictions in which the Group operates is subject to uncertainty and contradiction.

Some of the countries in which the Group operates have enacted legislation to protect foreign investments and other property against expropriation and nationalisation without fair compensation, and the principles of international law are to similar effect. However, there is no assurance that such protections would be enforced due to lack of experience in enforcing these provisions or due to political pressure. It may not be clear from applicable law how losses in connection with nationalisation of assets would be calculated nor whether there would be any way to seek to challenge (and therefore to prevent) the confiscation of such assets.

It may also be difficult to determine with certainty the validity and enforceability of title to land in the jurisdictions in which the Group operates and the extent to which it is encumbered. Moreover, in order to use and develop real property , approvals, consents and registrations of various governmental authorities are required, and this can be a lengthy and cumbersome process. Further, it may be unclear which governmental body or official has the right to lease or otherwise regulate the use of real property. In addition, building and environmental regulations often contain requirements that are impossible to fully comply with in practice. Failure to obtain or comply with the required approvals, consents, registrations or other regulations may lead to severe consequences including in respect of any current construction activities. If the title to real property owned or leased by the Group is found not to be in compliance with all applicable approvals, consents, registrations or

other regulations, the Group may lose the right to use such real property. Furthermore, failure to maintain land rights could constitute a breach of licence terms, and, in turn, result in administrative fines or even revocation of the subsoil licence. Any of these factors, should they materialise, could have a material adverse effect on the Group's business, results of operations and the financial condition.

The sale of gold is highly regulated in the jurisdictions in which the Group operates.

The sale of gold is highly regulated in the jurisdictions in which the Group operates. In particular, companies operating in Russia which extract precious metals are required to offer refined precious metals on a priority basis to the relevant governmental authorities, which may use their pre-emptive rights if certain conditions are met. Refined precious metals, which have not been sold to governmental authorities under this priority system, may be sold in the domestic market, used in internal production or exported. Although, the Russian authorities have never acquired any refined gold from the Group on such a priority basis and the applicable law requires the governmental authorities to pay the full market value of purchased gold, there can be no assurance that they will not exercise such priority right in the future, and that such purchases on a priority basis will be made at a market price.

In addition, Russian gold producers are required to obtain a license from the Russian Ministry of Industry and Trade in order to export gold. For non-banking institutions, the Russian Ministry of Industry and Trade only issues such licenses with respect to each particular export contract for a term of no longer than one year. In the period under review, all of the Group's refined gold sales in Russia were made to Russian banks. Depending on market conditions, however, the Group may decide to export its products in the future, for which it would be required to obtain such a license in advance. In Burkina Faso, gold producers need to obtain the prior governmental authorisation for gold export and to keep a record of its gold sales under the supervision of the local competent authority. In Guinea, the sale of gold is governed by a mining agreement entered into by a subsoil user with the government.

Limitations on investment in strategic sectors in Russia could adversely affect the Group's business, results of operations and financial condition.

Russian Federal Law No. 57-FZ "On the Procedure for Implementing Foreign Investment in Commercial Enterprises Having Strategic Importance for Securing National Defence and Security of the State," dated 29 April 2008 as amended (the "**Foreign Strategic Investments Law**"), regulates foreign investments in, and other transactions which may lead to foreign control over, or acquisition of certain rights in relation to or assets of, companies with strategic importance for the national defence and security of the Russian Federation (the "**Strategic Companies**"). The Foreign Strategic Investments Law provides a list of strategic activities, engagement in which makes a company subject to its regulations. Among other things, the list of such activities includes exploration and/or extraction of natural resources on subsoil plots of federal importance. In accordance with Federal Law No. 2395-1 "On Subsoil" dated 21 February 1992 as amended (the "**Russian Subsoil Law**"), such subsoil plots include, amongst others, gold deposits exceeding 50 tonnes of reserves. The list of subsoil plots of federal importance is officially published by the competent state authority. The Foreign Strategic Investments Law contains special provisions for Strategic Companies involved in the exploration or production of natural resources on plots of federal importance (the "**Subsoil Strategic Companies**").

LLC Neryngri-Metallic, a wholly-owned subsidiary of the Company, currently holds a licence for the production and exploration of minerals at the Gross subsoil plot of federal importance and, therefore, is qualified as a Subsoil Strategic Company. Moreover, the Group may in the future discover or acquire one or more deposits which may be recognised as a subsoil plot of federal importance. Investments resulting in a foreign investor obtaining control over Strategic Companies (including Subsoil Strategic Companies) require the prior consent of the Governmental Commission for Control of Foreign Investments in the Russian Federation (the "**Governmental Commission**"). In particular, an acquisition by a foreign investor (or any company of a group to which the foreign investor belongs) directly or indirectly of 25% or more of the voting shares in the share capital of a Subsoil Strategic Company (or 50% or more of the voting shares in a Strategic Company), or veto rights, or 25% or more (by value) of its fixed assets, or the right to appoint the CEO, or 25% of the members of the governing bodies of a Strategic Subsoil Company (or 50% of the members of the governing bodies of a Strategic Company) may require the prior consent of the Governmental Commission. This 25% threshold is lowered to 5% if such foreign investor is a foreign state, international organisation or entity controlled by a foreign state or an international organisation or where such foreign investor fails to disclose its beneficiaries or controlling parties. Foreign investors are required to apply for the consent of the Governmental Commission within three months of obtaining such control. See also *"Regulatory Matters — Investments in Russian Companies of Strategic Importance*".

Moreover, the acquisition directly or indirectly by a foreign investor of more than 5% of the voting shares in a Strategic Company (such as LLC Neryngri-Metallic, a wholly-owned subsidiary of the Company) requires the disclosure of information on the foreign investor's beneficiaries and controlling parties to the Russian Federal Antimonopoly Service ("**FAS**") prior to such acquisition. If beneficiaries and controlling parties are not disclosed, a foreign investor will have to obtain the consent of the Governmental Commission.

In addition, under the Russian Federal Law No. 160-FZ "On Foreign Investments in the Russian Federation," dated 9 July 1999 as amended (the "**Foreign Investments Law**") any acquisition by a foreign investor of a stake in any Russian company (not only a company deemed to be a Strategic Company or a Subsoil Strategic Company) may require a prior approval of the Governmental Commission if the chair of the Governmental Commission (i.e., the Prime Minister of Russia) decides that such transaction may threaten national defence and the state security of Russia.

The requirement to receive the prior consent of the Government Commission and the risk that such consent might not be granted might affect the Group's ability to attract foreign investments in the course of a public offering or otherwise, as well as to create joint ventures with foreign partners with respect to the Group's Strategic Companies, if any. Furthermore, as a result of the composition of the Group's shareholders, some of the Russian subsidiaries of the Group are currently designated under Russian law as companies with foreign participation. The Russian Subsoil Law, provides that, if in the course of geological research at a subsoil plot, a Russian legal entity with foreign participation discovers a deposit which meets the criteria for a subsoil plot of federal importance and, as a result, the national security of the Russian Federation may be threatened, the licensing authorities have the right to revoke the relevant subsoil license or refuse to grant an exploration and production subsoil license.

The Group is subject to anti-monopoly laws, which may result in certain limitations being imposed on the Group's activities, the violation of which may result in civil, administrative and even criminal liability.

The countries in which the Group operates have enacted anti-monopoly legislation that generally prohibits any concerted action, agreement or coordination of business activity that results or may result in, among other things, (a) price fixing, discounts, extra charges or margins; (b) coordination of auction bids; (c) partition of a commodity market by territory, volume of sales or purchases, types of goods, customers or suppliers; (d) refusal to enter into contracts with buyers (customers) for reasons other than economic or technological reasons; (e) imposing unfavourable contractual terms; (f) fixing disparate prices for the same goods, for reasons other than economic or technological reasons; (g) creation of barriers to entering or exiting a market; and (h) restriction of competition in any other way. There is no established court practice on what concerted actions or coordination of business activity is and courts interpret these concepts inconsistently in Russia, Kazakhstan, Guinea and Burkina Faso. As a result, there is significant uncertainty as to what actions may be viewed as violation of the respective anti-monopoly law. For instance, in a number of precedents, Russian courts found concerted actions where market participants acted in a similar way within the same period of time, although, arguably, there have been legitimate economic reasons for such behaviour and the behaviour was not aimed at restriction of competition. Therefore, there is a risk that the Group can be found in violation of the Russian Federal Law No. 135-FZ "On Protection of Competition" dated 26 July 2006, which came into force on 26 October 2006, (the "**Russian Competition Law**") if its market behaviour, vis-à -vis its customers or suppliers is viewed as being similar to behaviour of the Group's competitors and perceived by the FAS as a purported restriction of competition. Such broad interpretations of the Competition Law may result in the FAS imposing substantial limitations on the Group's activities, may limit operational flexibility and may result in civil, administrative and even criminal liability.

Furthermore, the Group has expanded its operations through the acquisition of companies that are incorporated and operating in Russia or assets that are located in Russia. Some of these acquisitions were subject to the prior approval or subsequent notification requirements of the FAS, or its predecessor agencies. Certain portions of these requirements are vaguely worded and there can be no assurance that the Group will be able to comply fully or that the FAS will not challenge the Group's past compliance, which could result in administrative sanctions, required divestitures or limitations on operations.

If the Group's activities are found to be in violation of the anti-monopoly laws in any of the cases described above or in any other cases, the Group could be subject to penalties or ordered to change its business operations in a manner that increases costs or reduces profit margin and sales or other administrative measures, as well as the Group's management could be subject to criminal sanctions, which can adversely affect the Group's business, results of operations and financial condition.

The introduction or maintenance of currency restrictions may limit the Group's ability to execute its strategy or operate its business or could otherwise adversely affect the markets in which it operates.

There can be no assurance that the currency regulation and control regimes in the jurisdictions in which the Group operates will not impose new restrictions or prohibitions. Restrictions or prohibitions on hard currency payments and operations could limit the Group's ability to invest in its capital improvement programmes, pursue attractive acquisition opportunities, purchase materials or sell its products internationally. In addition, such restrictions or prohibitions may limit the Group's ability to repatriate earnings from securities of its subsidiaries located in the country where such restrictions or prohibitions apply, or otherwise have a negative impact on the capital markets of that country. The consequences of any new restrictions or prohibitions could have a material adverse effect on the Group's business, financial condition, results of operations.

The Russian banking system is still developing.

Russia's banking and other financial systems are under on-going development. There are currently a limited number of creditworthy Russian banks, most of which are headquartered in Moscow. Many Russian banks do not meet international banking standards, and the transparency of the Russian banking sector still does not meet internationally accepted norms. Bank supervision may be inadequate with respect to lending criteria, credit quality, loan loss reserves, diversification of exposure or other rules.

In the last five years, a number of Russian non-state banks experienced rapid expansion through acquisitions of smaller, often undercapitalised players, with funding provided by the state, which contributed to liquidity issues for some of them. For example, in the second half of 2017, Bank Otkritie Financial Corporation and BINbank, two major privately owned Russian banks, underwent a bailout by the CBR as part of the CBR's efforts to alleviate their liquidity constraints and bolster their financial solvency. Further, in December 2017, the CBR announced the adoption of similar measures with respect to Promsvyazbank (then Russia's ninth largest lender by assets). While the above has had little to no impact on the Group in the past, there can be no assurances that it will not have a material impact on the Group's business, results of operations and financial condition.

The serious deficiencies in the Russian banking sector, combined with the deterioration in the credit portfolios of Russian banks, may result in the banking sector being more susceptible to the current worldwide credit market downturn and economic slowdown. A prolonged or serious banking crisis or the bankruptcy of a number of large Russian banks could, should they occur in the future, have a material adverse effect on the Group's business and its ability to complete banking transactions in Russia.

Most of the Group's cash reserves are held with some Russian banks. Furthermore, the Group may use debt financing from Russian banks. Accordingly, if a prolonged or serious banking crisis were to occur in Russia, its ability to access this source of financing may be limited, which, in turn, could have a material adverse effect on the Group's business, financial condition, results of operations.

The Group could be subject to arbitrary government action.

Government authorities exercise a high degree of discretion in the markets in which the Group operates and at times appear to act selectively or arbitrarily, without a hearing or prior notice, and sometimes in a manner that may not be in full accordance with the law or that may be influenced by political or commercial considerations. Moreover, government authorities also have the power in certain circumstances, by regulation or government act or any means of political influence, to interfere with the performance of, nullify or terminate contracts.

Unlawful, selective or arbitrary governmental actions could include denial or withdrawal of licenses, sudden and unexpected tax audits, forced liquidation, criminal prosecutions and civil actions. Unlawful, selective or arbitrary government action, if directed at the Group or its shareholders, could have a material adverse effect on the Group's business, results of operations and financial condition.

Crime and corruption could disrupt the Group's ability to conduct its business and could materially adversely affect the Group's financial condition and results of operations.

The Group operates in several jurisdictions, some of which have experienced, and continue to experience, a great deal of economic, political and social instability, which can lead to higher levels of criminal activity and corruption. Social instability caused by criminal activity and corruption could increase support for renewed

centralised authority, nationalism or violence and thus materially adversely affect the Group's ability to conduct its business effectively. While such activities have not had a significant effect on the Group's operations, there can be no assurance that they will not in the future, in which case they could restrict the Group's operations.

Furthermore, the geographic areas in which the Group operates are known to have a high risk of corruption. Although the Group has in place and actively manages policies and internal controls to promote and achieve compliance with applicable anti-corruption laws and regulations, the Group cannot guarantee that its employees, agents or other representatives will not engage in, or that it will not be reported that they have engaged in, improper conduct for which the Group may be held responsible. Any such actions or allegations could restrict the Group's operations or lead to legal proceedings against the Group or reputational damage, any of which could in turn have a material adverse effect on the Group's business, results of operations financial condition,.

Shareholder liability under legislation of certain countries in which the Group operates could cause the Group to become liable for the obligations of its applicable subsidiaries.

Under Russian law, the Group may be primarily liable for the obligations of its Russian subsidiaries jointly and severally with such entities if: (a) the Group has the ability to make decisions for such Russian subsidiaries as a result of its ownership interest, the terms of a binding contract or in any other way; (b) the Group has the ability to issue mandatory instructions to such Russian subsidiaries or joint venture entities and that ability is provided for by the charter of the relevant Russian subsidiary or in a binding contract; and (c) the relevant Russian subsidiary concluded the transaction giving rise to the obligations pursuant to the Group's mandatory instructions. In addition, the Group may have secondary liability for the obligations of its Russian subsidiaries: if: (i) the Group has the ability to make decisions for the relevant Russian subsidiary as a result of its ownership interest, the terms of a binding contract, or in any other way; and (ii) the relevant Russian subsidiary becomes insolvent or bankrupt due to the Group's fault.

Under Kazakh law, the Group may be jointly and severally liable for the obligations of its Kazakh subsidiary if the Group has the ability to make decisions for such Kazakh subsidiary or as a result of its ownership interest or the terms of a binding contract: (i) the Kazakh subsidiary concluded the transaction giving rise to the obligations pursuant to the Group's mandatory instructions; and (ii) the Kazakh subsidiary becomes insolvent or bankrupt due to the Group's fault. If the Group's subsidiaries in Russia or Kazakhstan were to become insolvent, the Group could be liable for the liabilities of such insolvent companies. As a result, there could be a material adverse effect on the Group's business, results of operations and financial condition.

The Group's assets in Burkina Faso and Guinea are subject to various government equity carried interests and royalty and other payments payable to the respective governments.

The Group's assets in Burkina Faso and Guinea are subject to certain government equity interests. The mining laws of Burkina Faso stipulate that the state shall be granted a "free-carried interest" free of any financial obligation, of at least 10%, in the company holding an exploitation license. In Guinea, the mining legislation entitles the state to a 15% free-carried interest in exploitation projects relating to iron ore, bauxite and gold. To comply with these requirements, the Group transferred 10% in each of its mining entities in Burkina Faso, Societe Des Mines de Taparko, Nordgold YEOU SA and Bissa Gold SA and NG SAMTENGA SA, to the state of Burkina Faso as a condition to the issuance of an exploitation permit. The Group transferred 15% in its mining entity in Guinea, SMD, to the state of Guinea in accordance with SMD/DGM Convention de Base (as amended), which requires the Guinean government to hold 15% of the share capital of SMD (see Part VI: "*Regulatory Overview — Republic of Guinea — SMD/DGM Convention de Base*").

Furthermore, mining legislation in Burkina Faso and Guinea provides that the respective government may exercise a right to purchase an additional interest in the share capital of the mining company on terms to be negotiated with each company. For example, the state of Guinea may purchase an up to 20% additional interest in a Guinean mining company. Although the Group believes that it would be entitled to payment if the governments of Burkina Faso or Guinea were to exercise their rights to purchase additional equity in the respective mining entities, there can be no assurance that the Group would be compensated fairly or at all. As the Bissa, Bouly, Taparko and Lefa mines, which are owned through Bissa Gold SA, Societe Des Mines de Taparko, the Nordgold YEOU SA and SMD, account for a significant portion of the Group's proved and probable reserves, any state interference with the Group's ownership rights and, in particular, the denial of those rights without compensation could have a material adverse effect on the Group's business, results of operations and financial condition.

In addition, under the laws of, and pursuant to certain mining conventions in Burkina Faso and Guinea, the Group is required to make royalty and other payments. Notwithstanding any stability agreements with the host governments contained in the relevant mining conventions, the laws and practices of the respective governments as to foreign ownership, control of mining companies or required royalties may change in a manner which adversely affects the Group's business, results of operations and financial condition.

The Group faces certain risks in dealing with malaria and a wide range of infectious diseases.

Malaria, Ebola and a wide range of infectious diseases, pose significant health risks to employees at the Group's operations in Burkina Faso and Guinea. Malaria is a major cause of morbidity and mortality in young children and pregnant women and is a leading cause of absenteeism in the Group employees. For example, an epidemic of the Ebola virus disease in 2014 in parts of West Africa resulted in a substantial number of deaths and the WHO declared it a global health emergency at that time. According to the Guinean National Sanitary Security Agency, in February 2021, the Ebola virus resurfaced in the south region of the country. Waterborne diseases and conditions (such as diarrhea, dysentery and typhoid) are prevalent in rural areas and exacerbated by poor nutrition, lack of clean water and inadequate health services. While the Group has comprehensive malaria control programmes at its mine sites in Burkina Faso and Guinea, if such diseases are uncontrolled, they could have an adverse effect upon productivity and profitability levels of the Group's operations located in these regions. In addition, if HIV and AIDS were to become prevalent in Burkina Faso and Guinea, any such development could have an adverse effect upon the available labour force, and the productivity and profitability of the Group's operations in these regions.

Risks Relating to Taxation

The Group may become subject to unanticipated tax liabilities as a result of its corporate structure that may have a material adverse effect on the Group.

The Group is subject to the tax laws of several jurisdictions, including, without limitation, the United Kingdom, Canada, the Russian Federation, Kazakhstan, Burkina Faso and Guinea. The combined effect of the application to the Group of the tax laws of more than one of these jurisdictions and/or their interpretation by the relevant tax authorities could, under certain circumstances, produce contradictory results (including in relation to recognition of taxable permanent establishments, different applications of transfer pricing rules and double taxation).

Tax liabilities of the Group are determined on the assumption that these companies are not subject to profits tax in the countries when they are not treated as tax residents (except for potentially withholding taxes applicable to income derived from sources in those countries) because they do not have a permanent establishment in those countries. Generally, in most jurisdictions a foreign legal entity may be required to pay income tax if it is a tax resident of such jurisdiction or if its activities constitute a permanent establishment in such a jurisdiction. The concept of permanent establishment and tax residency for legal entities introduced by domestic and international law is subject to interpretation. It is possible that with the evolution of the interpretation of these rules and the changes in the approach of the tax authorities, the non-taxable status of the Group and certain of the subsidiaries of the Group may be challenged in the countries when they are currently not treated as tax residents.

If the Group's tax position was successfully challenged by the applicable tax authorities, or if there were changes in tax laws or the interpretation or application thereof (which could in certain circumstances have retroactive effect) or in the manner in which the Group conducts its activities, the Group could become subject to unanticipated tax liabilities, which could have a material adverse effect on the Group's business, results of operations and financial condition.

The taxation systems in most of the jurisdictions in which the Group operates are in a developmental stage. The interpretation and application of tax laws and regulations are evolving, which significantly increases the risks with respect to the Group's operations and investment in emerging markets.

The Group pays subsoil users' and other taxes, including royalties, commercial discovery bonuses, corporate income tax, value added tax, security tax, land tax, vehicle tax, property tax and customs duties, and has been making, and expects to continue to make, contributions to various social and governmental funds in most of the jurisdictions in which it operates. As tax legislation in those jurisdictions has in many cases been in force for only a relatively short time, tax risks in those countries are substantially greater than in countries with more developed tax systems. Since tax legislation in those countries is evolving, interpretation and application of their laws and regulations is often unclear, unstable or non-existent. Different interpretations of tax regulations may exist both among and within government bodies, increasing uncertainty and leading to the inconsistent enforcement of these tax laws and regulations in practice.

In particular, the Russian tax system continues to be characterised by inconsistent judgment of local tax authorities and the failure by Russian tax authorities to address some of the existing problems. It is possible that transactions and activities of the Group that have not been challenged in the past may be challenged in the future, which may have a material adverse effect on the Group's business, financial condition and results of operations and/or prospects. In Kazakhstan due to numerous ambiguities in its tax legislation, the tax authorities may make arbitrary assessments of tax liabilities and challenge previous tax assessments, thereby rendering it difficult for companies to ascertain whether they are liable for additional taxes, penalties and interest. As a result of the uncertainty of legal interpretation and implementation of the Kazakh Tax Code, which entered into force on 1 January 2018, as well as a lack of an established system of precedent or consistency in legal interpretation, the legal and tax risks involved in doing business in Kazakhstan are substantially greater than those in jurisdictions with more developed legal and tax systems. In addition, the certain provisions of the Kazakh Tax Code will come into force gradually until 1 January 2024. Additional tax exposure could have a material adverse effect on companies operating in Kazakhstan. In Burkina Faso the taxation system remains to be inconsistent among the General Tax Code of Burkina Faso dated 1 January 2018 (the "**General Tax Code of Burkina Faso**"), which is amended each year by the adoption of a new finance law, and a number of tax regulations. The interpretation and application of the tax rules in Burkina Faso are unclear or unstable. The lack of court practice in interpreting enacted tax legislation in Burkina Faso and resolving disputes with the tax authorities, as well as administrative guidance regarding the interpretation of the applicable rules resulted in a tendency to resolve any issues with the tax authorities of Burkina Faso out of court.

In addition, the amount of tax that the Group pays could substantially increase as a result of changes in, or new interpretations of, taxation laws applicable to mining companies. In particular, in recent years, there have been various calls for the imposition of windfall taxes on companies in the mining and energy sectors. There can be no guarantee that any or all of the jurisdictions in which the Group operates will not unilaterally increase taxes or impose windfall taxes on mining companies, including the Group. Were this to occur, this could have a material adverse effect on the Group's business, results of operations and financial condition.

Furthermore, the Group enjoys certain tax reliefs in some of the jurisdictions in which it operates. In particular, the Group applied a zero coefficient to mining tax for Gross until the end of 2020, following which it increases by 0.2 over each subsequent twenty-four month period, until the mining tax coefficient is 1. In addition, the Group applied a 0% tax rate for profits generated at Gross from 2019 to 2020. On 1 January 2021, the applicable regional tax rate for profits generated at Gross increased to 10% due to changes in the regional regulation. Starting from 1 January 2024, the Group will be subject to a 13.5% regional tax rate for profits generated at Gross. The federal tax rate remains at 0%. The Group also benefits from a reduced rate of corporate income tax of 17.5% (instead of 27.5%) at Bissa and a fixed mining tax of 3% (instead of fluctuating rate of 3% to 5 %) at Taparko in accordance with the respective mining investment agreements with the government of Burkina Faso (see Part VI: "*Regulatory Overview — Burkina Faso — Mining Concessions*").

In addition, the Group benefits from certain tax reliefs in Guinea pursuant to the SMD/DGM Convention de Base. In particular, according to the Third Amendment, the tax regime set out under the SMD/DGM Convention de Base shall have primacy over Guinean laws. SMD is subject to the Guinean tax laws unless it would result in additional taxation of SMD or would adversely affect the tax, accounting and customs regime provided in the SMD/DGM Convention de Base or would make the reporting or accounting obligations provided in the SMD/DGM Convention de Base more onerous. In addition, the Third Amendment provides that SMD may, upon request, benefit from any tax provisions of new more favourable legislation.

There can be no assurance that these tax reliefs will not be amended or cancelled at all, in which case the Group's mining tax expenses would increase, which would adversely affect the Group's business, financial condition, results of operations.

The Russian tax system is in a developmental stage and frequent changes to the Russian tax laws could negatively impact the Group's business.

A substantial part of the Group's assets and operations is connected with Russia. The Group, therefore, is subject to a broad range of taxes imposed at federal, regional and local levels in Russia. Accordingly, weaknesses in the Russian tax system could adversely affect the Group.

Laws related to these taxes and duties, such as the Tax Code of the Russian Federation (the "**Tax Code**"), have been in force for a relatively short period of time in comparison with tax legislation in more developed market economies, and the Russian government's implementation of such legislation is often unclear or inconsistent.

Historically, the system of tax collection has been relatively ineffective, resulting in continuous changes being introduced into existing laws and the interpretation thereof. Although the Russian tax climate and the quality of tax legislation have generally improved with the introduction of the Tax Code, the possibility exists that the Russian Federation may impose arbitrary and/or onerous taxes and penalties in the future. Russia's inefficient tax collection system increases the likelihood of such events, which could materially and adversely affect the Group's business.

Since Russian federal, regional and local tax laws and regulations have been subject to frequent changes and some of the sections of the Tax Code relating to the aforementioned taxes are comparatively new, the interpretation and application of these laws and regulations is often unclear, unstable or non-existent. Differing interpretations of tax laws and regulations may exist both among and within government bodies at federal, regional and local levels, increasing the amount of uncertainty and tax risks and leading to the inconsistent enforcement of these laws and regulations. Furthermore, the taxpayers, the Ministry of Finance and the Russian tax authorities often interpret tax laws differently. There can be no assurance that the Russian tax authorities will not take positions contrary to those set out in the private clarification letters issued by the Ministry of Finance to specific taxpayers' queries. In some instances, the Russian tax authorities have applied new interpretations of tax laws retroactively, issued tax claims for periods for which the statute of limitations had expired and reviewed the same tax period several times. During the past several years the Russian tax authorities have shown a tendency to take more assertive positions in their interpretation of tax legislation.

As taxpayers and the Russian tax authorities often interpret tax laws differently, taxpayers often have to resort to court proceedings to defend their position against the Russian tax authorities. In the absence of binding precedent or consistent court practice, rulings on tax or other related matters by different courts relating to the same or similar circumstances may be inconsistent or contradictory. Clarifications of the Russian tax authorities and the Ministry of Finance in practice may be revised by courts in a way that is unfavourable for the taxpayer.

The Russian tax system continues to be characterised by inconsistent judgment of local tax authorities and the failure by Russian tax authorities to address some of the existing problems. It is possible that transactions and activities of the Group that have not been challenged in the past may be challenged in the future, which may have a material adverse effect on the Group's business, financial condition and results of operations.

Tax declarations, together with related documentation, are subject to tax audit by the Russian tax authorities. Generally, tax declarations, together with the related documentation, remain subject to inspection by the Russian tax authorities for a period of three calendar years immediately preceding the year in which the decision to conduct a tax audit is taken. The fact that a particular year has been reviewed by the Russian tax authorities does not prevent further review and investigation by the Russian tax authorities of any tax declarations and other documentation relating to that year during the three-year limitation period. Therefore, previous tax audits may not preclude subsequent claims relating to the audited period.

Additionally, the Tax Code provides for possible extension of the three-year statute of limitations for liabilities for tax offences if the taxpayer has actively obstructed the performance of the tax audit and such obstruction has become an insurmountable obstacle for the tax audit. As the terms "obstructed" and "insurmountable obstacles" are not specifically defined in Russian tax law or any other branches of Russian law, the Russian tax authorities may attempt to interpret these terms broadly, effectively linking any difficulty experienced by them in the course of their tax audit with obstruction by the taxpayer and use that as a basis to seek tax adjustments and penalties beyond the three-year limitation period. Therefore, the statute of limitations is not entirely effective with respect to liability for tax offences in Russia. An extended tax audit, if it is concluded that the Group had significant tax underpayments relating to previous tax periods, may have a material adverse effect on the Group's business, results of operations and financial condition. Tax audits may also impose an additional administrative burden on the Group by diverting the attention of its management and financial personnel and requiring resources for defending the Group's tax-filing position, including for any tax litigation.

Federal Law as of 18 July 2017 No 167-FZ "On amending Parts I and II of the Tax Code of the Russian Federation" introduced the concept of an "unjustified tax benefit". Coming into force on 18 August 2017, this concept defines that an unjustified tax benefit occurs due to a decrease of tax due based on misrepresentation of facts relating to taxpayer's business activities. The introduction of an "unjustified tax benefit" concept replaces the previously existing approach set by the Resolution of 12 October 2006 No 53 of the Plenum of the Supreme Arbitration Court of the Russian Federation (the "**Resolution No 53**"). This concept defines "unjustified tax benefit" mainly by reference to circumstances such as absence of business purpose or transactions where the form does not match the substance. Application of this concept to the Group may lead to disallowance of tax

benefits resulting from the transaction. It can be seen from the cases relating to Resolution No 53 that have been brought to courts that the Russian tax authorities have often attempted applying the "unjustified tax benefit" concept in a broader manner than may have been intended. Due to the fact that the court practice related to application of the new rules is still limited and underdeveloped, no assurance could currently be given as to the exact effect such rules may have on taxpayers.

Recently, Russian tax policy has focused on curtailing Russian businesses from using foreign companies mostly or only for tax reasons and Russia has introduced policies to allow Russian tax authorities to tax foreign income attributable to Russian companies.

In the framework of such policies, the provisions of Federal Law No. 376-FZ dated 24 November 2014 "On amending Parts I and II of the Tax code of the Russian Federation (in respect of taxation of profits of controlled foreign companies and income of foreign organisations)" and follow up amendments to this law ("**Federal Law**") are the result of the joint work undertaken by the Ministry of Finance and the Russian government to implement measures previously announced under the Russian government's action plan to counteract the "offshorisation" of the Russian economy.

The main provisions of the Federal Law cover rules governing the taxation of "controlled foreign companies" (without limitation of jurisdictions to which this definition applies which residents may fall under), determination of the tax residency status of legal entities, definition of "beneficial owner" and taxation of capital gains derived from the sale of shares in real estate rich companies (more than 50% of the value of the assets of which directly or indirectly consist of real estate located in Russia). Changes proposed by Federal Law came into force on 1 January 2015 and imposed significant limitations on tax planning. These factors raised the risk of a sudden imposition of arbitrary or onerous taxes on operations in Russia and abroad, and the application of the abovementioned rules may result in the imposition of fines, penalties and enforcement measures, which could have a material adverse effect on the Group's business, financial condition and results of operations.

The Tax Code has recently been amended to allow in certain cases for judicial recovery of outstanding tax arrears of subsidiary/ associated companies from principal (dominant or interest holding) companies that follows preceding trends in the court practice. These amendments and initiatives may have a significant effect on the Group and may expose the Group to additional tax and administrative risks, as well as to extra costs necessary to secure compliance with the new rules. These facts create tax risks for the Group in Russia that may be substantially more significant than typically found in countries with more developed tax systems.

In 2017, the Russian Government announced fundamental changes to the Russian tax system that will have a substantial impact on its structure. Labour taxes (social security contributions), indirect taxes and personal income tax were affected by these changes.

In 2017, country-by-country reporting ("**CbCR**") requirements were introduced in the Tax Code. Introduction of mandatory filing of CbCR is in general in line with the Organisation for Economic Co-operation and Development ("**OECD**") recommendations within the Base Erosion and Profit Shifting ("**BEPS**") initiative. This initiative could potentially give rise to new adjustments and interpretations of the Russian tax law on the basis of international best practice that would cause additional tax burden for the Group's business.

On 1 January 2019, amended transfer pricing rules increased the VAT rate from 18% to 20% and corporate property tax on movable property was abolished.

On 1 May 2019, the Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting (the "**MLI**") was ratified by the Russian Federation. Starting from 2020, MLI could limit tax benefits granted by most double tax treaties to which Russia is a party.

On 25 March 2020, the President of the Russian Federation announced a number of tax measures, aimed at boosting the state budget and private business during and after the COVID-19 pandemic. One of the President's initiatives related to the increase of the withholding tax rate applied to dividends and interest paid to certain jurisdictions channelling significant resources from the Russian Federation. The President instructed the Russian government to specify the list of Russian double tax treaties to be amended in response to the above announcement and prepare corresponding amendments to such double tax treaties by increasing the withholding tax rate applied to interest income and dividends to 15%. If respective states refuse to accept the above proposal to amend double tax treaties, such double tax treaties will be unilaterally denounced by the Russian Federation. Relevant proposals to change double tax treaties were sent to Cyprus, Luxembourg, Malta and the Netherlands.

On 30 December 2020, the Russian Federation ratified amendments to the double tax treaty between the Government of the Russian Federation and the Government of the Republic of Cyprus. Based on official information message of the Ministry of Finance of the Russian Federation amendments to respective double tax treaty were also agreed with Malta. There is no officially announced outcome of the negotiations with the other jurisdictions listed above. It remains to be seen whether and which amendments to the above double tax treaties will be made or whether such or other Russian double tax treaties will eventually be denounced or terminated.

It is currently not fully clear what effect these provisions may have on the Group. The imposition of additional tax liabilities because of the application of introduced rules and concepts to transactions carried out by the Group may have a material adverse effect on the Group's business, financial condition and results of operations.

These changing conditions create tax risks in the Russian Federation that are more significant than those typically found in jurisdictions with more developed tax systems and complicate tax planning and related business decisions of the Group. In addition, there can be no assurance that the current tax rates will not be increased, that new taxes will not be introduced or that additional sources of revenue or income, or other activities, will not be subject to new taxes, charges or similar fees in the future. There also can be no assurance that the Tax Code will not be changed in the future in a manner adverse to the stability and predictability of the tax system.

It is expected that Russian tax legislation will progressively become more sophisticated. There can be no assurance that the current tax rates will not be increased and that new taxes will not be introduced. Amendments to current rules of taxation may materially and adversely affect the Group's overall tax efficiency and may result in significant additional tax liabilities. Such additional tax exposures could have a material adverse effect on the Group's business, financial condition and results of operations.

The Group is subject to risks relating to transfer pricing legislation in the jurisdictions in which the Group operates.

Russian transfer pricing legislation has been effective from 1 January 2012. The rules are technically elaborate, detailed and, to a certain extent, aligned with the international transfer pricing principles developed by the OECD.

The rules allow the Russian tax authorities to make transfer pricing adjustments and impose additional tax liabilities in respect of transactions which are considered "controlled" for Russian transfer pricing purposes. The list of "controlled" transactions includes transactions performed with related parties and certain types of cross-border transactions. The rules have considerably increased the compliance burden for the taxpayers compared to the law which was in effect before 2012 due to, among others, shifting the burden of proving market prices from the Russian tax authorities to the taxpayer and obliging the taxpayer to keep specific documentation. Furthermore, the taxpayers are obliged to notify the Russian tax authorities on "controlled" transactions. Although the transfer pricing rules are supposed to be in line with international transfer pricing principles developed by the OECD, there are certain significant differences of how these principles are reflected in the local rules. Special transfer pricing rules apply to transactions with securities and derivatives. It is difficult to evaluate what effect transfer pricing rules may have on the Group.

Since the date when Russian transfer pricing rules came into force transactions between affiliated parties have been examined by the Russian tax authorities for conformance with "arm's-length principle". The Russian Tax Code stipulates that an audit of the proper calculation and payment of taxes in connection with the conclusion of transactions between interdependent persons shall be performed by the Federal Tax Service. However, currently territorial tax authorities try to scrutinise terms and conditions in transactions concluded between related parties for "unjustified tax benefit" concept.

In Kazakhstan, all cross-border and certain other transactions are subject to the domestic transfer pricing regulations, which state that transaction prices for tax purposes are to be determined based on market prices. There are special procedures in Kazakh tax regulations to determine the applicable market price for a given transaction. Where the prices of the Group's exports in Kazakhstan deviate from the applicable market prices, the Kazakh tax authorities are entitled to make tax adjustments and assessments to corporate income tax and any other taxes affected, as well as assess fines and late payment interest if such adjustments lead to an increase in tax payments by an entity. Audits of transfer pricing issues are routinely carried out by the tax authorities in respect of exporters of oil, gas and minerals. Kazakhstan's tax laws are not always clearly expressed, have not always been applied in a consistent manner and continue to evolve. The uncertainty of application and evolution of tax laws creates a risk of additional and substantial payments of tax by the Group, which could have a material

adverse effect on the Group's business, financial condition, and results of operations. The Kazakh tax authorities are entitled to conduct tax audits and raise additional tax assessments within the statute of limitation for three and for five years, in cases provided for by Kazakh tax regulations, after the end of the relevant tax period. In certain cases, the tax authorities may be entitled to conduct a tax audit of a previously audited period. While local tax authorities are entitled to provide their opinion or position on certain tax matters addressed to them by taxpayers, those opinions are not legally binding on the tax authorities or courts and may be retracted by the tax authorities if their position on any given tax matter changes in the future.

Under the General Tax Code of Burkina Faso, any company operating in Burkina Faso is required to provide the tax authorities with documents justifying the pricing policy used in domestic and cross-border transactions with affiliated parties operating in Burkina Faso. The affiliated enterprises may enter into an advance pricing agreement with the Burkina Faso tax authorities.

Due to uncertainties in the interpretation of the transfer pricing legislation in the jurisdictions in which the Group operates, no assurance can be given that the tax authorities will not challenge the Group's transfer prices and make adjustments which could materially and adversely affect the Group's tax position unless the Group is able to confirm the use of market prices with respect to "controlled" transactions supported by the appropriate transfer pricing documentation. The imposition of additional tax liabilities under the transfer pricing rules may have a material adverse effect on the Group's business, financial condition, and results of operations.

PART II

IMPORTANT INFORMATION

General

Investors should only rely on the information in any final prospectus published by the Company. No person has been authorised to give any information or to make any representations in connection with the Group, other than those contained in this Registration Document and, if given or made, such information or representations must not be relied upon as having been authorised by or on behalf of the Company or its Directors or its shareholders. The delivery of this Registration Document does not create any implication that there has been no change in the business or affairs of the Group since the date of this Registration Document or that the information contained herein is correct as of any time subsequent to its date.

A copy of this Registration Document has been filed with, and approved by, the FCA, as competent authority under the UK Prospectus Regulation, and has been made available to the public in accordance with the Prospectus Regulation Rules. The FCA only approves this Registration Document as meeting the standards of completeness, comprehensibility and consistency imposed by the UK Prospectus Regulation. Such approval should not be considered as an endorsement of the Company.

This Registration Document may be combined with a securities note and summary to form a prospectus in accordance with the Prospectus Regulation Rules. A prospectus is required before an issuer can offer transferable securities to the public or request the admission of transferable securities to trading on a regulated market. However, this Registration Document, where not combined with the securities note and summary to form a prospectus, does not constitute an offer or invitation to sell or issue, or a solicitation of an offer or invitation to purchase or subscribe for, any securities in the Company in any jurisdiction, nor shall this Registration Document alone (or any part of it), or the fact of its distribution, form the basis of, or be relied upon in connection with, or act as any inducement to enter into, any contract or commitment whatsoever with respect to any offer or otherwise. The Company is now considering undertaking an initial public offering of all of the ordinary shares of the Company to certain institutional and professional investors, and applying for admission of the Shares to the premium listing segment of the Official List of the FCA and to trading on London Stock Exchange plc's main market for listed securities.

The contents of this Registration Document are not to be construed as legal, business, financial and/or tax advice.

This Registration Document is not intended to provide the basis of any credit or other evaluation and should not be considered as a recommendation by any of the Company, the Directors, any of the Company's advisers or any of their respective affiliates or representatives regarding the securities of the Company.

Presentation of Financial Information

Financial Information

Unless otherwise stated, the financial information included in Section B of Part XI: "*Historical Financial Information*" of this Registration Document has been prepared in accordance with the requirements of the UK Prospectus Regulation, the Listing Rules and the accounting policies set out in Note 3 of Part B of Part XI: "*Historical Financial Information*" of this Registration Document.

The Company's financial year ends on 31 December. The financial information as at and for the three years ended 31 December 2018, 2019, 2020 included in Section B of Part XI: "*Historical Financial Information*" of this Registration Document is covered by the accountant's report included in Section A of Part XI: "*Historical Financial Information*", which was prepared in accordance with the Standards for Investment Reporting issued by the Financial Reporting Council in the United Kingdom.

Unless otherwise stated in this Registration Document, financial information in relation to the Group referred to in this Registration Document has been extracted without material adjustment from the historical financial information in Part XI: "*Historical Financial Information*" of this Registration Document or has been extracted from those of the Group's accounting records and its financial reporting and management systems that have been used to prepare that financial information.

Unless otherwise indicated, none of the financial information relating to the Group or any operating data or key performance indicators relating to the Group have been audited (even where such operating data or key performance indicators include certain financial metrics).

Non-IFRS Financial Measures (unaudited)

This Registration Document includes certain measures that are not measures defined by IFRS (non-IFRS measures). These non-IFRS measures include Adjusted EBITDA, Adjusted EBITDA margin, all-in sustaining cost, total cash cost, free cash flow, Net Debt and Net Debt / Adjusted EBITDA ratio, Gross Debt, Net Working Capital and they are used by the management of the Group to assess the Group's financial performance and operational efficiency from period to period and to facilitate comparison with its peers. However, these measures should not be used instead of, or considered as alternatives to, the Group's historical financial results based on IFRS. There are no generally accepted principles governing the calculation of these measures and the criteria upon which these measures are based can vary from company to company.

Adjusted EBITDA and Adjusted EBITDA Margin

Adjusted EBITDA is calculated as profit for the period, adjusted for income tax, gains on the disposal of available-for-sale investments, finance income and finance costs, foreign exchange gains / (losses), depreciation and amortisation, impairment / (reversal of impairment) of non-current assets, net losses on the disposal of property, plant and equipment, work-in-progress impairment recognised in cost of sales, provisions charged for previously recognised contingent liabilities. Adjusted EBITDA margin is Adjusted EBITDA as a percentage of sales.

Information regarding Adjusted EBITDA and Adjusted EBITDA margin or similar measures is sometimes used by investors to evaluate the efficiency of a company's operations and its ability to employ its earnings toward repayment of debt, capital expenditures and working capital requirements. None of these measures by itself provides a sufficient basis to compare the Group's performance with that of other companies or should be considered in isolation or as a substitute for operating profit or any other measure as an indicator of operating performance, or as an alternative to cash generated from operating activities as a measure of liquidity.For the reconciliation of Adjusted EBITDA and Adjusted EBITDA margin, see Part X: "*Operating and Financial Review — Reconciliation of Profit before Income Tax to Adjusted EBITDA*".

AISC

All-in sustaining cost ("**AISC**") refers to costs related to sustaining production, and is calculated as the amount of production cash costs, plus cash selling general and administrative expenses, plus taxes other than income tax and other cash operating results, with the addition of capital expenditure spent on sustaining the production level, which includes maintenance capital expenditure at all mines, exploration capital expenditure at operating mines, and capitalised stripping together with underground development works performed at operating mines. The AISC metric was proposed by the World Gold Council to help investors, governments, and other stakeholders to understand the sustaining cost of production over the life cycle of a mine. AISC is used by the Group's management to monitor current production costs in conjunction with the capital expenditure required to maintain production in the future, and is calculated by ounce of gold produced. For the reconciliation of the Group's AISC, see Part X: "*Operating and Financial Review — Reconciliation of Total Cash Cost and All-In Sustaining Cost*".

Total Cash Cost

Total cash cost ("**TCC**") comprises cost of sales and general and administrative expenses adjusted for depreciation and amortisation, allowances for slow-moving and obsolete inventories, work-in-process impairment, changes in finished goods, a provision charge for previously recognised contingent liability, sales by-products, and corporate overheads. TCC is used by the Group's management to monitor and manage cash costs directly related to gold produced and is calculated by ounce of gold produced. For the reconciliation of the Group's TCC, see Part X: "*Operating and Financial Review — Reconciliation of Total Cash Cost and All-In Sustaining Cost*".

Free Cash Flow

Free cash flow comprises cash generated from operating activities less cash funds used for payments related to factoring arrangements, payments related to property, plant and equipment and payments related to exploration and evaluation activity. For the reconciliation of the Group's free cash flow, see Part X: "*Operating and Financial Review — Reconciliation of Free Cash Flow*".

Net Debt, Net Debt / Adjusted EBITDA ratio and Gross Debt

Net debt ("**Net Debt**") is defined as the short- and long-term borrowings (including lease liabilities) and derivative financial instruments less cash and cash equivalents. Net Debt is an indication of a company's ability to repay its debts if they have become due on the reporting date. Net Debt / Adjusted EBITDA ratio is calculated as Net Debt divided by Adjusted EBITDA. Gross debt ("**Gross Debt**") comprises the sum of the short- and long-term borrowings (including lease liabilities) and derivative financial instruments. For the reconciliation of the Group's Net Debt and Gross Debt see Part X: "*Operating and Financial Review — Reconciliation of Net Debt and Gross Debt*".

Net Working Capital

Net working capital is calculated as current and non-current inventories, plus current and non-current VAT receivables, plus accounts receivable, minus accounts payable, minus factoring arrangements and short term lease liabilities, minus net taxes payable (ex. VAT), minus provisions. For the reconciliation of the Group's net working capital see Part X: "*Operating and Financial Review — Reconciliation of Net Working Capital*".

Currency Presentation

Unless otherwise indicated, all references in this Registration Document to:

"**Canadian dollars**" or "**CAD**" are to the lawful currency of Canada;

"**CFA francs**" are to the Communauté Financière Africaine franc, the lawful currency of Burkina Faso;

"**Euro**" or "**EUR**" are to the lawful currency of the European Union;

"**Roubles**", "**roubles**" or "**RUB**" are to the lawful currency of the Russian Federation;

"**sterling**", "**pounds sterling**", " **GBP**", "**£**", or "**pence**" are to the lawful currency of the United Kingdom;

"**tenge**" or "**KZT**" are to the lawful currency of Kazakhstan; and

"**U.S. dollars**" or "**U.S.$**" are to the lawful currency of the United States.

Exchange Rate Information

The average exchange rates of the Group's main functional currencies, other than the U.S. dollar, are shown relative to the U.S. dollar below. The average rates in the table below are daily weighted averages, but they are not necessarily the rates used to translate the Group's results due to the seasonality of its earnings. These exchange rates should not be construed as representations that the relevant currency could be converted into sterling at the rate indicated or at any other rate:

Rate against U.S. dollar on	Pounds sterling	Rouble	Tenge	Canadian dollar	CFA franc
31 May 2021	1.4212	0.01358	0.0023	0.8277	0.00186
30 April 2021	1.3845	0.01344	0.0023	0.8141	0.00183
31 March 2021	1.3783	0.01321	0.0024	0.7952	0.00179
28 February 2021	1.3930	0.01343	0.0024	0.7898	0.00184
31 January 2021	1.3705	0.01311	0.0024	0.7798	0.00185
31 December 2020	1.3649	0.01348	0.0024	0.7835	0.00187
30 November 2020	1.3353	0.01309	0.0024	0.7704	0.00182
31 October 2020	1.2924	0.01259	0.0023	0.7497	0.00178

Average rate against U.S. dollar for the year ended	Pounds sterling	Rouble	Tenge	Canadian dollar	CFA franc
31 December 2020	1.2918	0.01367	0.0024	0.7457	0.00175
31 December 2019	1.2807	0.01548	0.0026	0.7557	0.00170
31 December 2018	1.3315	0.01596	0.0029	0.7694	0.00180

Sources: For pounds sterling, the Bank of England (except where stated otherwise); for rouble, the Central Bank of the Russian Federation; for tenge, the National Bank of the Republic of Kazakhstan; for Canadian dollars, the Bank of Canada; for CFA franc, the Bloomberg Nominal Rate. The average in respect of a year is calculated as the average of the exchange rates on the last business day of each month for the relevant year.

Rounding

Certain figures included in this Registration Document have been subject to rounding adjustments; accordingly, figures shown for the same category presented in different tables may vary slightly, and figures shown as totals in certain tables may not be the arithmetic aggregation of the figures which precede them.

Market, Economic and Industry Data

The Group has obtained certain statistical and market information that is presented in this Registration Document on such topics as historical gold prices, historical factors affecting gold prices and related subjects from third-party sources including Bloomberg, London Bullion Market Association (LBMA), Wood Mackenzie and World Gold Council.

Industry publications and market research generally state that the information they contain has been obtained from sources the Directors believe to be reliable but that the accuracy and completeness of such information is not guaranteed and any estimates or projections they contain are based on a number of significant assumptions.

In some cases, there is no readily available external information (whether from trade and business organisations and associations, government bodies or other organisations) to validate market related analyses and estimates, requiring the Group to rely on internally developed estimates. The Group does not intend, and does not assume any obligation, to update industry or market data set forth in this Registration Document. Because market behaviour, preferences and trends are subject to change, prospective investors should be aware that market and industry information in this Registration Document and estimates based on any data therein may not be reliable indicators of future market performance or the Group's future results of operations.

Where third-party information has been used in this Registration Document, the source of such information has been identified. The Company confirms that all third-party information contained in this Registration Document has been accurately reproduced and, so far as the Company is aware and able to ascertain from information published by that third party, no facts have been omitted that would render the reproduced information inaccurate or misleading. However, while the Directors believe the third-party information included herein to be reliable, the Company has not independently verified such third-party information.

Mineral Reserve and Mineral Resource Reporting

The Mineral Resource and Ore Reserve estimates presented in this Registration Document have been prepared by the Company and reviewed, audited and reported by SRK Consulting (UK) Limited ("**SRK**") in accordance with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "**JORC Code**") using accepted industry practices. See Part I: "*Risk Factors — The Group's stated Ore Reserves and Mineral Resources are only estimates based on a range of assumptions and there can be no assurance that the anticipated tonnages or grades will be achieved*").

Mineral Resource figures are estimates of the quantity and quality of material in the ground that has the potential to be exploited and ore reserve figures are estimates of that material which has been planned to be exploited as at the date of the estimate. The Ore Reserve and Mineral Resource estimates contained herein inherently include a degree of uncertainty and depend on geological assumptions and statistical inferences which may ultimately prove to have been unreliable. Consequently, Ore Reserve and Mineral Resource estimates are regularly revised based on actual production experience or new information and should therefore be expected to change. Notably, should the Group encounter mineralisation or formations different from those predicted by past drilling, sampling and similar examinations, Ore Reserve and Mineral Resource estimates may have to be adjusted and mining plans may have to be altered in a way that might adversely affect the Group's operations. Moreover, if the price of gold declines, or stabilises at a price lower than recent levels, or if production costs increase or recovery rates decrease, it may become uneconomical to recover Ore Reserves containing relatively lower grades of mineralisation and consequently both the Ore Reserves and Mineral Resources may decrease. Similarly, should the price of gold stabilise at a materially higher price than currently assumed, or if production costs decrease or recovery rates increase, it may become economical to recover material at lower grades than that assumed here and consequently both the Ore Reserves and Mineral Resources may increase.

Production and Mineral Resource and Ore Reserve Reporting provided herein have not been adjusted to give effect to minority interests.

No Incorporation of Website Information

The contents of the Company's website do not form part of this Registration Document.

Definitions and Glossary

Certain terms used in this Registration Document, including all capitalised terms and certain technical and other items, are defined and explained in Part XIII: "*Definitions and Glossary"*.

Information not Contained in this Registration Document

No person has been authorised to give any information or make any representation other than those contained in this Registration Document and, if given or made, such information or representation must not be relied upon as having been so authorised. The delivery of this Registration Document shall not, under any circumstances, create any implication that there has been no change in the affairs of the Company since the date of this Registration Document or that the information in this Registration Document is correct as of any time subsequent to the date hereof.

Forward-looking statements

This Registration Document includes forward-looking statements. These forward-looking statements involve known and unknown risks and uncertainties, many of which are beyond the Group's control and all of which are based on management's current beliefs and expectations about future events. Forward-looking statements are sometimes identified by the use of forward-looking terminology such as "believe", "expects", "targets", "may", "will", "could", "should", "shall", "risk", "intends", "estimates", "aims", "plans", "predicts", "continues", "assumes", "positioned" or "anticipates" or the negative thereof, other variations thereon or comparable terminology. These forward-looking statements include all matters that are not historical facts. They appear in a number of places throughout this Registration Document and include statements regarding the intentions, beliefs or current expectations of management or the Company concerning, among other things, the results of operations, financial condition, prospects, growth, strategies and dividend policy of the Company and the industry in which it operates. In particular, the statements under the headings Part I: "*Risk Factors*", Part V: "*Business Description*" and Part X: "*Operating and Financial Review*" regarding the Company's strategy, targets and expectations in respect of the Group's expected sales, profit, growth, accounting tax rates, and capital expenditure upon the operating results of the Group as well as other expressions of the Group's targets and expectations and other future events or prospects are forward-looking statements.

Forward-looking statements involve significant known and unknown risks, assumptions, uncertainties and other factors that may cause actual future realities or anticipated events to differ materially from those expressed or implied in any forward-looking information and, accordingly, should not be read as guarantees of future performance or realities. Material factors or assumptions that were applied in formulating the forward-looking statements contained herein include the assumption that the business and economic conditions affecting the Group's operations will continue substantially in their current state, including, without limitation, with respect to industry conditions, general levels of economic activity, market prices for gold, competition for and scarcity of gold mining assets, achievement of anticipated mineral reserve and mineral resource tonnages or grades, ability to develop additional Ore Reserves, acquisition of funding for capital expenditures, adequacy and availability of production, processing and product delivery infrastructure, electricity costs, continuity and availability of personnel and third party service providers, local and international laws and regulations, foreign currency exchange rates and interest rates, inflation, taxes, and that there will be no unplanned material changes to the Group's facilities, equipment, customer and employee relations and credit arrangements. The Company cautions that the foregoing list of material factors and assumptions is not exhaustive. Many of these assumptions are based on factors and events that are not within the control of the Group and there is no assurance that they will prove correct.

These forward-looking statements, and other statements contained in this Registration Document regarding matters that are not historical facts, involve predictions. No assurance can be given that such future results will be achieved; actual events or results may differ materially as a result of risks and uncertainties facing the Group. Such risks and uncertainties could cause actual results to vary materially from the future results indicated, expressed or implied in such forward-looking statements. Important factors that could cause the Group's actual results to so vary include, but are not limited to:

- the Group's ability to execute its development and exploration plans;
- the Group's financial and operation performance;
- civil disturbance, armed conflict or securities issues at the mineral projects of the Group;
- political factors;
- the capital requirements associated with the Group's operations;
- dependence on key personnel;
- compliance with environmental regulations;
- estimated production, Ore Reserves and Mineral Resources of the Group's mineral projects;
- competition;
- other risk factors that are set forth in the section Part I: "*Risk Factors*".

The forward-looking statements contained in this Registration Document speak only as at the date of this Registration Document. Actual performance or achievement could differ materially from that expressed in, or implied by, any forward-looking statements in this Registration Document and, accordingly, investors should not place undue reliance on any such forward-looking information. Subject to the requirements of the Prospectus Regulation Rules, the Disclosure Guidance and Transparency Rules, the Listing Rules, the UK Market Abuse Regulation, the EU Market Abuse Regulation or applicable law, the Directors, the Company and the Group explicitly disclaim any intention, obligation or undertaking to publicly release the result of any revisions to any forward-looking statements in this Registration Document that may occur due to any change in the Directors', the Company's or the Group's expectations or to reflect events or circumstances after the date of it. All forward-looking statements contained in this Registration Document are qualified by such cautionary statements. New risk factors emerge from time to time, and it is not possible for management to predict all of such risk factors and to assess in advance the impact of each such factor on the Group's business or the extent to which any factor, or combination of factors, may cause actual realities to differ materially from those contained in any forward-looking statements.

PART III

DIRECTORS, SECRETARY, REGISTERED AND HEAD OFFICE AND ADVISERS

Directors	Michael Nossal Nikolai Zelenski Evgeny Tulubensky Alexey Mordashov David Morgan Brian Beamish John Munro Gregor Mowat Yulia Chekunaeva
Company Secretary	Evgeny Tulubensky
Registered office of the Company	4th Floor, 27 Dover Street, Mayfair London, W1S4LZ United Kingdom
English and U.S. legal advisers to the Company	Latham & Watkins (London) LLP 99 Bishopsgate London EC2M 3XF United Kingdom
Auditor and Reporting Accountant	Deloitte LLP 1 New Street Square London EC4A 3HQ United Kingdom

PART IV

MARKET OVERVIEW

Unless stated otherwise, the statements on markets and competition provided below are based on management beliefs and estimates, some of which were, in turn, derived from various sources it believes to be reliable, including industry publications and from surveys or studies conducted by third-party sources, including the World Gold Council and Bloomberg. The Board compiled its projections for the market and competitive data beyond 2020 in part on the basis of such historical data and in part on the basis of assumptions and methodology which it believes to be reasonable, as well as various sources it believes to be reliable. In light of the absence of publicly available information on a significant proportion of participants in the industry, and the inherent uncertainties involved in forecasting, data on market sizes and projected growth rates should be viewed with caution. Additional factors, which should be considered in assessing the usefulness of the market and competitive data and, in particular, the projected growth rates, are described elsewhere in this Registration Document, including those set out in the sections titled "Risk Factors" and "Forward-Looking Statements".

Gold Market Overview

Background

Gold is a dense, relatively soft and rare precious metal which occurs in natural form as nuggets or grains in rocks, underground veins and alluvial deposits. Over time, gold mining operations throughout the world have evolved from predominantly deep-level underground mines to large low-grade open pit operations with gold currently able to be commercially extracted from ore grades as low as 0.5 g/t. Until recently, many economies used gold as the basis for international monetary standards, and it remains a popular investment tool. Due to its malleability, ductility, reflectivity, resistance to corrosion and excellent thermal and electric conductivity, gold is also used in a wide variety of industrial and medical applications.

Historically, jewellery has been by far the most important market for gold, however gold is increasingly used in many different applications. Gold is also used as a coinage metal. Apart from gold coins, gold ingots and gold bars, gold is available in numerous forms, including pure gold and alloys, such as gold flakes, foil gauzes, grain, powders, sheet, sponges, tubes, wires and even single gold crystals.

In recent years, gold catalysts have become increasingly useful in the chemical industry. Many other gold compounds, including neutral gold halides, aurates, gold cyanides, gold oxides, phosphine gold complexes, gold hydroxides and gold nitrates, are available to industrial users.

Gold is also widely used in electronics due to its inert nature and other physical properties. Examples of the use of gold in electronics include electrical contacts, bonding wire, solder alloys and electroplating. Gold is also a useful brazing material, and manufacturers use it for coating space satellites, since it reflects infrared light well and is inert.

As an alloy, gold is used extensively for dentistry in gold teeth, dental attachments, inserts and solders and is used increasingly for medical implants in eyes and ears, as well as in many other medical wires, tubes, sheets and foils.

The significant majority of the gold mined throughout history is still in circulation today in one form or another due to the exceptional physical characteristics of gold.

Demand

Demand for gold includes demand related to the production of goods, the main components of which are jewellery fabrication, investment demand, (which includes total bar and coin demand, physical bar demand, official coins, and exchange traded funds ("**ETFs**") and similar products), use in technology (which includes electronics, other industrials, and dentistry), and official gold purchases by central banks, government bodies and supranational organisations. In 2020, global gold demand decreased by 14.3% compared to 2019, totalling 3,760 tonnes and marking the first sub-4,000t year since 2009, according to the World Gold Council's latest annual Gold Demand Trends report. This decrease was largely driven by the coronavirus pandemic suppressing consumer demand; this was partially offset by an increase in investment demand, in particular in ETFs and similar products.

The main components of total global gold demand in 2020 included jewellery fabrication (approximately 1,412 tonnes in 2020 versus 2,123 tonnes in 2019), investment demand (approximately 1,773 tonnes in 2020 versus 1,269 tonnes in 2019), technology applications (approximately 302 tonnes versus 326 tonnes in 2019) and implied net investment (the sum of total bar and coins demand, central banks' net purchases and ETFs and similar products) at 2,046 tonnes in 2020 versus 1,938 tonnes in 2019.

In 2018, annual jewellery demand remained stable at 2,248 tonnes, and accounted for 51.1% of total demand for gold. China was the main engine of growth in 2018, despite a slowdown at the end of the year as the trade war with the US and slowing economic growth rate weighed on demand. Economic hardship, relatively weak currencies and the after-effects of tax changes impacted Turkey and Middle Eastern markets to varying degrees. In 2019, demand volumes fell by 5.6% to 2,123 tonnes, and accounted for 48.4% of total gold demand. This was primarily due to an important Q3 jump in gold price impacting affordability and weakness in China and India. Demand was subdued in China by a slowing economy, rising inflation, global trade disputes and the younger generation's shifting tastes, and in India by a domestic economic slowdown and muted rural demand. In 2020, annual jewellery demand dropped by 33.5% to its lowest annual level on record, 1,412 tonnes, hit by the combination of the global pandemic and record high gold prices during an economic slowdown. China and India, the two largest markets, were the major contributors to the decline.

In 2018, total investment demand for gold (including demand from central banks and other financial institutions) increased by 7.3% to approximately 1,817 tonnes. The share of Russia, Kazakhstan and Turkey fell to 58% of total central bank and other institutions demand, as other central banks chose to significantly increase their gold reserves, notably European central banks. In 2019, total annual investment demand grew by 6.6% to 1,938 tonnes. Central bank and other institutions net purchases reached the second highest level of annual purchases for 50 years (650 tonnes), with 15 central banks, exclusively from emerging markets, increasing their reserves by at least one tonne, highlighting the breadth of demand. In 2020, total investment demand grew by 5.6% to 2,046 tonnes. Although central banks were net purchasers for the 11th consecutive year, demand decreased by 59%, reaching the lowest amount since 2010. Turkey was the largest annual gold buyer, and while Russia suspended its gold buying programme at the end of March, it remained the third largest buyer in 2020. Notably, the second half of 2020 saw an increase in sales volumes as seven central banks reduced their gold reserves.

Several more liquid gold investment vehicles including ETFs have facilitated further investment in gold in addition to physical bullion purchases over the past few years. The amount of annual inflows into ETFs and similar products was 70 tonnes in 2018, 398 tonnes in 2019, and 877 tonnes in 2020, increasing by 120% as global gold-backed ETFs holdings reached record year-end levels. The market uncertainty caused by the COVID-19 pandemic coupled with strong fiscal and monetary responses from authorities have largely fuelled the sustained and important inflows.

Bar demand had been stable for the five years prior to 2019, with annual demand anchored between a low of 781 tonnes in 2014 and a high of 797 tonnes in 2016. However, after a 2019 record low, 2020 saw a new 10-year low in bar demand, reaching 529 tonnes. By contrast, official coin demand was the best retail investment performer of the year, reaching a record high of 298 tonnes, explained by a strong and persistent investment interest in Western markets.

Full-year gold demand in the technology sphere increased to 335 tonnes in 2018, the highest since 2014, primarily due to strong demand for consumer electronics and ongoing electrification in the automotive sector. In 2019, demand decreased by 2.6% to 326 tonnes, driven by a 2.1% decline in electronics due to a weak year for the whole sector. In 2020, demand fell by 7.4% to 302 tonnes, with volumes used in electronics decreasing by 5.4% as supply chains were disrupted and manufacturing sites had to close for lockdowns, coupled with weaker consumer demand. Dental demand decreased by 14.9% continuing its long-term decline, and other industrial demand fell by 15.6%.

The Group believes that the outlook for gold demand is strategically positive, as investment demand is currently expected to remain strong on the back of continued uncertainty in the global financial markets and inflation expectations. The Group also believes that demand for gold will be supported by economic recovery in the emerging markets, with demand from China and India recovering from the lows of last year, although consumer demand may remain subdued in other regions in the near-term as economies operate below potential whilst navigating the coronavirus pandemic. However, due to the relatively high price sensitivity of jewellery demand, coupled with uncertainties due to the coronavirus pandemic, it is likely that investment will remain the key component of overall demand in the short term.

Supply

Supply of gold consists of new production from mining, the recycling of gold scrap and releases from existing stocks of bullion. In 2020, total gold supply was approximately 4,633 tonnes, decreasing by 3.9% compared to

4,820 tonnes in 2019, the first annual decline since 2017. Net mine production supply was 3,336 tonnes (net of 3,401 tonnes of mine production and 65 tonnes of net producer de-hedging) and supplies from scrap were 1,297 tonnes. Mine production represents the most important source of supply and has been steadily growing since 2009, when production increased by 145 tonnes or 6% compared to 2008, driven by strong growth from several new projects and operating mines, until the 2019 decline.

Total mine production declined by 3.7% in 2020, being the second consecutive annual decline in production, and the first two continuous years of decline since 1975. This was primarily driven by COVID-19 disruptions, with the impact varying both geographically and over the year. Asian and CIS producers were mostly hit in Q1'20, while Africa and Americas were mostly in Q2, and Oceania over the whole year. Peru had the biggest decline in production (28%), followed by Papua New Guinea (27%), while Turkey, Burkina Faso, Kazakhstan and Russia increased production due to brownfield expansions and newly commissioned mines. Notably, production was negatively impacted in Oceania by the cessation of Pogera operations and failing grades at several Australian producers, while in Russia the Taborny mine expansion and higher ore grades at Gross had a positive effect.

Recycled supply has consistently represented the second largest source of gold supply. Gold recycling reached 1,282 tonnes in 2019 and 1,297 tonnes in 2020, the highest level since 2013 but only increasing by 1.2%. This was a lower than expected rise given the gold price rally, and can be explained by little distressed selling of gold.

Lastly, producer de-hedging was important during the period of record gold prices as miners adopted a "wait-and-see" approach.

The Group believes that whilst mine production is likely to recover in 2021 after the 2020 decrease, as production interruptions diminished due to major companies largely having introduced procedures in response to the pandemic, the outlook for mine production from all gold mining companies over the next five to ten years is one of gradual decline. The primary drivers for the global decline include production from lower grade ores by many producers, increasing delays and impediments in bringing projects (especially large-scale projects) to the production stage, inflationary pressures on capital costs, and a lack of global exploration successes in recent years. A decrease in global industry production may potentially lead to an increase in the sustainable long-term gold price, assuming demand for gold remains at the current level.

Pricing

The market for gold is relatively liquid compared to other commodity markets, with London being the world's largest gold trading market. Gold is also actively traded via futures and forward contracts.

Gold is not consumed like most commodities and most above-ground stocks of gold can be brought back to market. As a result, variations in new gold output from mines may not have an immediate material impact on the gold price as the amount of gold produced in any single year represents a small portion of the total potential supply of gold available for sale. Thus the price of gold has historically been less volatile than that of most other commodities. However, rising investment demand, including the demand from the public sector, and relatively flat supply has resulted in a steadily increasing gold price.

The price and inflation expectations of gold have historically been significantly influenced by macroeconomic factors, such as inflation, exchange rates, reserve policy and global political and economic events. Gold is often purchased as a safe haven of value in periods of price inflation and weakening currency.

London has the world's largest pool of gold liquidity, with trading conducted primarily via an over-the-counter format in 400-ounce gold bars with a purity of 9,950 parts per 10,000 or higher. The LBMA fixes the gold price twice daily in London (at 10.30 a.m. and 3.00 p.m.) using prices derived from five fixing members of the LBMA. These price fixings are used as a key indicator for gold market participants around the world. Leading gold futures markets are the COMEX in New York and TOCOM in Tokyo.

In 2008, due to the global financial crisis, the price of gold increased significantly, and in August 2011, gold traded to a then record high price of U.S.$1,920 per ounce.

From that point forward, gold prices have been in a decline. This has been influenced by improving economic expectations in the United States and changes in U.S. monetary policy. These forces put downward pressure on the gold price level and restrained investment demand.

In 2016 however, the gold price performed well, rising by 6% in U.S. Dollar terms (higher in most other currencies) and amassed multi-year record inflows through physically-backed gold ETFs — making it one of the best performing assets that year. In 2017 and 2018, gold prices generally remained flat or increased. Since 2019, amidst geopolitical uncertainties, low interest rates and physical investment demand, gold prices have experienced a significant run, reaching a LBMA Gold Price PM record high of U.S.$2,067.15/oz in early August in 2020, followed by a price correction due to, among others, positive COVID-19 news.

The following chart illustrates the price performance of gold for the last ten years in U.S.$/oz:

Source: World Gold Council. www.gold.org

Market outlook

The Group believes a number of factors appear supportive of future gold demand and prices, including uncertainty in the global financial markets, the amount of monetary stimulus being injected into the global economy, possible inflationary pressures in the medium term from an exceptionally low interest rate environment and the possibility of currency revaluations, including U.S. dollar depreciation.

PART V

BUSINESS DESCRIPTION

Overview of the Group

The Group is a leading, pure-play, internationally diversified gold producer, producing over one million ounces of gold per annum, anchored in the Gross Region of Yakutia, the Russian Federation, with approximately 15.2 Moz of proved and probable gold reserves and 42.1 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020 (see "*Business — Summary of the Group's Ore Reserves and Mineral Resources*"). Since 2008, the Group's gold production has increased at a CAGR of approximately 15%, from approximately 193 koz in 2008 to approximately 1,046 koz in 2020, including as a result of the Group's acquisition of the Berezitovy, Irokinda, Zun-Holba, Suzdal, Taparko, Lefa and Taborny mines between 2007 and 2011, and the construction and commencement of operations of three new mines between 2013 and 2018 (Bissa, Bouly and Gross), each of which was constructed by the Group on time and on budget, and which newly constructed mines in aggregate represented approximately 50% of the Group's total gold production in 2020. While producing approximately 5.3 Moz of gold between 2015 and 2020, the Group increased its proved and probable gold reserves by approximately 6.5 Moz, which represents more than 120% replenishment of the Group's reserve base.

Operating Assets

The Group's current operating assets consist of nine operating mines located in the Russian Federation, Kazakhstan, Burkina Faso and Guinea:

- *Gross*. An open-pit gold mine located in the Gross Region of the Republic of Yakutia, in the Russian Federation, with 6.6 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 278 koz of gold produced in 2020. The Group is currently expanding operations at the Gross mine with a view to increasing its processing capacity from the current 16 million to 18 million tonnes of ore per year in 2021 and further to approximately 26 million tonnes of ore per year in 2023, which is expected to result in additional 130 koz of annual production from 2024, thereby leading to a weighted average annual production of approximately 350 Koz in the period between 2025 and 2035 at an AISC of approximately U.S.$740/oz. The Group owns a 100% interest in the Gross mine.
- *Taborny*. An open-pit gold mine located in the Gross Region of the Republic of Yakutia, in the Russian Federation, with 0.96 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 77.3 koz of gold produced in 2020. The Group owns a 100% interest in the Taborny mine.
- *Irokinda*. An underground gold mine located in the Republic of Buryatia, in the Russian Federation. As at 31 December 2020, Irokinda had 0.2 Moz of proved and probable gold reserves, according to the JORC Code, and produced approximately 39.4 koz of gold in 2020. The Group owns a 92.53% interest in Irokinda mine.
- *Berezitovy*. An open-pit gold mine with underground extension located in the Amur region of the Russian Federation, with 0.11 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 68.7 koz of gold produced in 2020. The Group owns a 100% interest in the Berezitovy mine.
- *Suzdal*. An underground gold mine located in Suzdal, in eastern Kazakhstan, with 0.98 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 75.6 koz of gold produced in 2020. The Group owns a 100% interest in the Suzdal mine.
- *Lefa*. An open-pit gold mine located in Guinea, West Africa, with 1.28 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 177.5 koz of gold produced in 2020. The Group owns an 85% interest in Lefa mine.
- *Taparko*. An open-pit gold mine located in Burkina Faso, West Africa, with 0.21 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 94.8 koz of gold produced in 2020. The Group owns a 90% interest in the Taparko mine.
- *Bissa and Bouly*. Two open-pit gold mines (Bissa and Bouly) located in Burkina Faso, West Africa, with 1.1 Moz and 0.96 Moz of proved and probable gold reserves attributable to Bissa and Bouly,

respectively, according to the JORC Code, as at 31 December 2020, and approximately 148.2 koz and 78.6 koz of gold produced in 2020 by Bissa and Bouly, respectively. The Group owns a 90% interest in the Bissa and Bouly mines.

Production and mineral resource and reserve reporting provided herein have not been adjusted to give effect to minority interests.

The Group's operations are anchored around the Gross Region of the Republic of Yakutia, the Russian Federation, which encompasses the Group's largest mine, Gross, and the Taborny mine, where the Group achieves low-cost production with a weighted average life of mine ("**LoM**") AISC of approximately U.S.$715/oz.

Exploration and Development Projects

The Group also has a geographically diverse portfolio of exploration and development projects, including:

- *Tokko*. An open-pit gold mine development project located in the Gross Region of the Republic of Yakutia, the Russian Federation with 3.6 Moz of measured, indicated and inferred gold mineral resources, according to the JORC Code, as at 31 December 2020. The Group has completed a preliminary economic assessment for Tokko which is expected to result in additional 220 koz of average annual production in the period between 2025 and 2030 and an average life of mine AISC of approximately U.S.$585/oz. The Group owns a 100% interest in Tokko.
- *Montagne d'Or*. An open-pit gold mine development project located in French Guiana with 2.7 Moz of proved and probable gold reserves and 4.8 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 55.01% interest.
- *Uryakh*. An open-pit and underground gold mine advanced stage exploration project located in the Irkutsk Region of the Russian Federation with 1.9 Moz of measured, indicated and inferred gold mineral resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 100% interest.
- *Pistol Bay*. An open-pit and underground gold mine advanced stage exploration project located in Canada with 1.6 Moz of measured, indicated and inferred gold mineral resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 100% interest.

In addition, on 11 May 2020, the Group and the Australian-based explorer Mako Gold Limited (ASX: MKG) entered into a definitive sales contract to acquire Niou Gold project located 50 kilometers southwest of the Bissa mine in Burkina Faso. Under the terms of the sales contract, upon completion, the Group will pay to Mako Gold Limited U.S.$700,000 upfront cash consideration for the sale and Mako Gold Limited will retain a 1% Net Smelter Royalty ("NSR") payable if the Group discovers an NI 43-101 compliant resource of at least 2 Moz gold and advances the resource to production. The Group has the right to repurchase the NSR at any time for U.S.$4.5 million. The acquisition has not yet completed and remains conditional on receipt of the approval of the Minister of Mines of Burkina Faso.

Environmental, Social and Governance Framework

The Group has implemented a robust ESG (environmental, social and governance) and sustainable development framework throughout the organisation, which is implemented and overseen by the Board's Safety and Sustainable Development Committee together with the Director of ESG.

The health and safety of our employees and other stakeholders is of paramount importance to the Group. HSE programmes are implemented both though universal HSE policies and best practice combined with local initiatives and risk mitigations which seek to ensure the highest levels of safety across all the Group's businesses. This commitment is reflected in management remuneration, with 15% of management bonus tied to HSE performance: 10% linked to Adjusted LTIFR and 5% linked to the implementation of HSE programmes. This focus has contributed to a significant reduction in adjusted LTIFR from 0.33 injuries per 200,000 hours worked in 2019 to 0.14 in 2020, compared to an industry median of 0.18. The Group is committed to achieving zero fatalities and life altering injuries across its business and seeks to continuously improve its safety programs and training towards that objective.

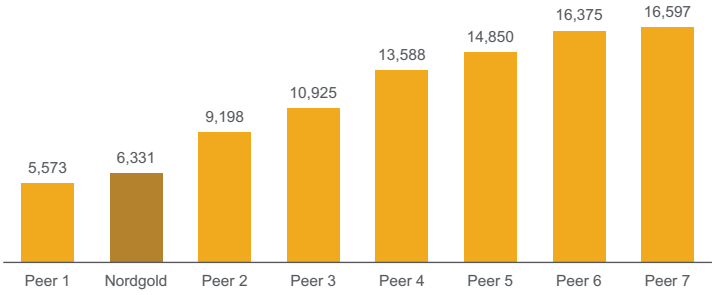
The Group's future success will in part be driven by its ability to nurture and promote talent within the organization and the Group is committed to fostering a diverse business that empowers women and local

workforces. In 2020, there was 90% parity between male and female same-role salaries and 17.1% female representation at management level in the Group. The Group aims to achieve 25% female representation in managerial roles by 2023.

The Group is dedicated to reducing the impact it has on the environment through reducing its carbon emissions, increasing recycled water usage, and reducing the amount of waste it produces. The Group achieved 0.0226 tCO_2/tOre processed in 2020and targets a three per cent. reduction in emissions intensity by 2023. The Group has also set an ambitious target of net zero carbon emissions by 2050 and will announce a further emissions target for 2030 during the course of 2021. Energy sources and usage are one of the key criteria considered when the Group assesses new projects and is currently evaluating the potential to transition its Suzdal, Gross, Tokko and Bissa mines to renewable power sources; in fact, hydropower plants currently power the Berezitovy mine.

The Group recognizes that water is a vital resource and is focused on the responsible use of water and seeks to minimize its impact on the freshwater ecosystems close to its facilities. In 2020 the Group recycled 85 per cent. of its water (2019: 84%) and is one of the most water-efficient producers in the industry, using 6,331 m^3 of water per million U.S. dollars of revenue.

The following chart shows the water efficiency of the gold mining peer group (m3/ $m of revenue from continuing operations, 2019)(1)



Notes:

(1) Peers include AngloGold Ashanti Limited, B2Gold Corporation, Barrick Gold Corporation, Endeavour Mining Corporation, Kinross Gold Corporation, Newmont Corporation, Polymetal International plc, PJSC Polyus

The Group seeks to be a responsible corporate citizen and created U.S.$1.85 billion of direct economic value in 2020, of which more than U.S.$330 million was paid to local and national suppliers and U.S.$123 million was paid in taxes, contributing significantly to the tax revenues of Guinea and Burkina Faso.

The Group has a deep commitment to support and empower its host communities, with each business unit creating a consultation framework for its host communities to allow for collaborative and ongoing engagement. This involves regular meetings with local authorities, political and spiritual leaders, and women's associations to identify the needs of the community and to agree and fund projects to help the community. The Group also has numerous empowerment programmes aimed at the sustainable development of the communities, including education of women in money-generating activities, such as weaving and livestock breading, more efficient farming methods, and the provision of healthcare and educational facilities. The Group aims to increase its work with its host communities by doubling its direct community investments (i.e. excluding social development taxes) by 50% by 2023 (from 2019 base).

The Group is dedicated to the highest standards of corporate governance and is fully compliant with the UK Corporate Governance Code, with a majority independent Board of Director, including an independent Chairman. The Group is supported by a majority shareholder that is aligned with the interests of new and existing shareholders (see Part XII "*Additional Information—Interests of significant shareholders*" for further information).

The Group ranks in the 1st quartile of the Sustainalytics Precious Metals Rankings, based on Sustainalytics' Precious Metals Companies Summary Report dated 6 December 2020 and ranked 12th in the WWF's Environmental Transparency ranking for Russian mining and metals companies in 2020.

Financial position

The Group has achieved, and intends to maintain, a strong financial position, including as a result of its focus on operational efficiency through technical excellence and increased automation and digitalisation. This has enabled the Group to distribute cash to its shareholders in each of the previous 8 years (from 2013 to 2020) in an

aggregate amount of approximately U.S.$0.5 billion, which includes dividends and share/GDR buybacks. The following table sets out certain financial data for the Group for the periods indicated:

	As at and for the year ended 31 December (*U.S. $m*)		
	2020	**2019**	**2018**
Adjusted EBITDA[(1)]	1,016.9	667.3	470.2
Adjusted EBITDA margin (%)[(1)]	54.6	46.1	41.1
Free cash flow[(2)]	551.9	171.5	(156.0)
Net Debt[(3)]	251.8	791.9	917.2
Net Debt / Adjusted EBITDA ratio[(3)]	0.2	1.2	2.0

Notes:

(1) See Part II: "*Important Information — Presentation of Financial Information — Adjusted EBITDA and Adjusted EBITDA* Margin". For a reconciliation of profit before income tax to Adjusted EBITDA, see Part X: "*Operating and Financial Review — Overall Performance*".

(2) See Part II: "*Important Information — Presentation of Financial Information — Free Cash Flow*". For a reconciliation of free cash flow, see Part X: "*Operating and Financial Review — Overall Performance*".

(3) See Part II: "*Important Information — Presentation of Financial Information — Net Debt and Net Debt / Adjusted EBITDA* ratio". For a reconciliation of net debt, see Part X: "*Operating and Financial Review — Overall Performance*".

The table below sets forth the Group's gold production with a breakdown by operating asset for the periods indicated.

		Gold Production[(1)], Koz Year ended 31 December		
Operating asset	**Location**	**2020**	**2019**	**2018**
Gross	Russia	278.0	259.2	59.2
Taborny (former Neryungri)[(2)]	Russia	77.3	76.4	99.8
Suzdal	Kazakhstan	75.6	75.8	83.5
Irokinda	Russia	39.4	38.5	41.9
Zun-Holba[(3)]	Russia	7.3	19.2	22.8
Berezitovy	Russia	68.7	60.1	48.4
Taparko	Burkina Faso	94.8	68.2	102.2
Lefa	Guinea	177.5	189.8	187.8
Bissa-Bouly	Burkina Faso	226.8	253.8	261.5
Bissa	Burkina Faso	148.2	152.0	154.9
Bouly	Burkina Faso	78.6	101.8	106.6
Total		**1,045.6**	**1,041.1**	**907.0**

Notes:

(1) Gold production includes gold and gold equivalent production of silver.

(2) The Neryungri segment was split into Gross and Taborny from 1 January 2019.

(3) Zun-Holba mine was sold outside the Group on 26 April 2021 through the sale by the Group of its entire participatory interest in LLC Zun-Holba to Chesio Limited.

Strengths

The Directors believe that the Group has a compelling combination of competitive advantages that position the Group as a leading pure-play, internationally diversified gold producer. In particular, the Directors believe that the business benefits from the following key competitive strengths that will help the Group succeed in the future:

Diversified with a strong presence in CIS and West Africa

The Group is a pure-play internationally diversified gold producer with over 1.0 Moz of annual gold production, operating a portfolio of nine mines located in the Russian Federation, Kazakhstan, Burkina Faso and Guinea. In the year ended 31 December 2020, the Group produced 1,045.6 Koz of gold, with approximately 52% attributable to Russia and Kazakhstan and the remaining 48% to West Africa, and $1,016.9 million of EBITDA, 65% attributable to Russia and Kazakhstan and the remaining 35% to West Africa.

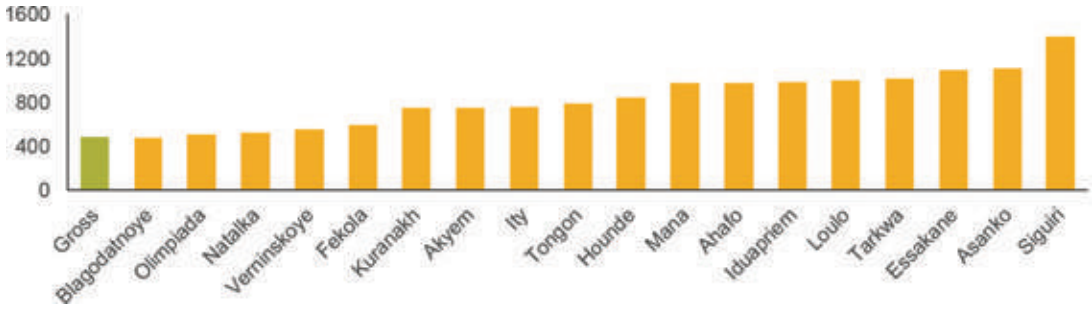
The Group's internationally diversified geographic footprint presents clear strategic advantages, with an operating presence across 4 countries and 2 regions. The Group believes that the scale of its reserves and resources base, together with the geographic diversity of its asset portfolio, reduce regional / country concentration risks and provides it with better security of production than that enjoyed by many of its

competitors. The Group also believes that its presence and extensive experience of acquiring, constructing, and operating mines in different jurisdictions enable it to identify and participate in more attractive growth opportunities than those of its competitors that are focused on a single country (see "*Strategy—Pursue selective acquisitions of high-value-add gold projects*"). The Group's international management team and highly agile culture enables it to benefit strongly from the aforementioned international footprint.

Strong position in world-class Gross Region with ~350koz low-risk low-cost growth and vast exploration potential

The Group's operations are centered on its largest and lowest cost mine — Gross, and near-term development plans are anchored by the highly prospective Gross Region (the "**Region**") in Russia's Southern Yakutia, which the Group believes has the potential to develop into a new world-class gold producing region given its substantial resource base, favourable geology, low mining costs and developed infrastructure. In the year ended 31 December 2020, Gross — the flagship mine of the Region and the Group, ranked first by AISC among the top largest gold mines in Russia and West Africa.

Figure 1. 2020 AISC of top 20 West African and Russian gold mines by gold production for 2020, U.S.$/oz



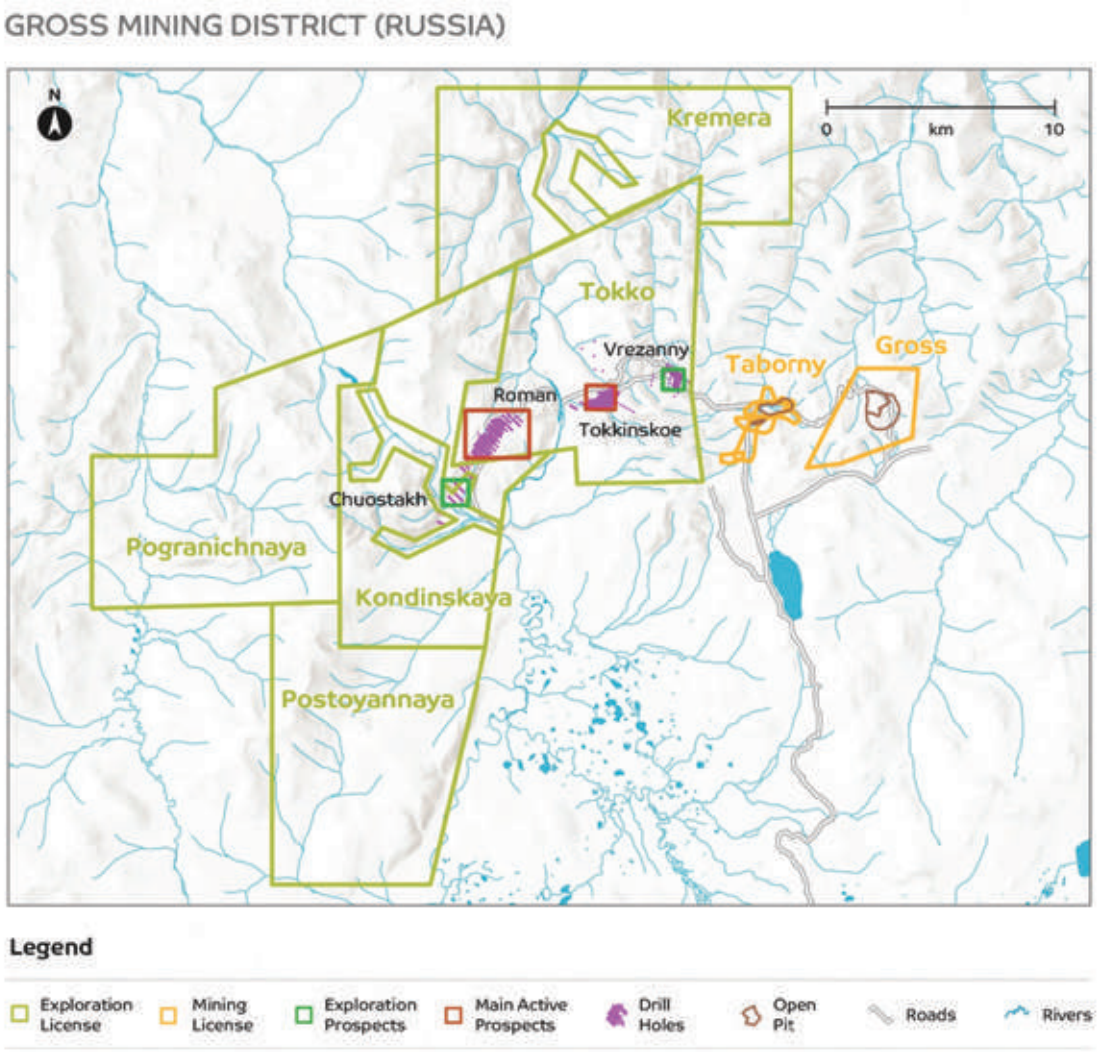
The Group believes that the Gross Region has significant potential to expand its resources and reserves as its reserves and mineable resources base exceeded 10 Moz as of 31 December 2020. Additionally, the Group sees a near / mid-term opportunity to increase annual production in the region to approximately 640 Koz at a compelling 2025-30 weighted average AISC of approximately U.S.$715/oz, following the completion of the Gross mill capacity expansion and construction of the Tokko project.

Gross Region projects include two near-term initiatives with high potential — a processing capacity expansion at Gross mine and the development of Tokko, which are collectively expected to contribute approximately 350 Koz of additional production per annum:

1. Production expansion at Gross is anticipated to add approximately 130 Koz gold production by increasing ore processing capacity from the current level of 16 mtpa to 26 mtpa in 2023. Notably the Group expects its first stage, partial expansion to 18 mtpa, to be completed in 2021.
2. Tokko is a development project near the Gross and Taborny mines, with the potential to become the third low-cost mine in the Group, with expected annual gold production of approximately 220 Koz (2025-2030 average). Preliminary Economic Assessment for Tokko has already been completed and, in 2022, the Group expects to receive the necessary permissions and will finish the project feasibility study to prepare the project for construction in 2022-2023, with commissioning expected in 2024.

See also "*Operating Mines*" for further information. Additionally, the Group sees further exploration potential in the broader Gross Region area as the main geologic structure continues its trend into the adjacent Kondinsky and then potentially Postoyannaya and Pogranichnaya license areas, which are also owned by the Group.

Figure 2. Map of Gross Region



Portfolio of global expansion and standalone projects in the Russian Federation and abroad

The Group has a well identified and geographically diversified development pipeline. One of the largest West African brownfield projects, which is expected to add approximately 120 Koz to annual gold production after launch in 2022, is the Lefa Underground mine development with estimated Mineral Resources of approximately 14.3Mt containing 1.2 Moz of gold as at 31 December 2020. The Group completed preliminary economic assessment in the first quarter of 2020 and aims to complete the Pre-feasibility Study for the project during the fourth quarter of 2021 and the first quarter of 2022.

The Group has also built a portfolio of standalone development and exploration projects, with further upside potential to increase the Group's reserves base in a wide range of geographies, including the Pistol bay project in Canada, Montagne D'or project in French Guiana, Uryakh project in the Russian Federation and the Niou project in Burkina Faso.

Given its track record of organic growth, selective acquisitions, asset optimisation and project development, the Group believes that it is well-positioned to convert its reserves and resources base into gold production while achieving a long-term sustainable low-cost profile.

Unique track record of mine construction enhanced by successful M&A

The Group has a unique and proven track record of building new mines with high returns on invested capital. From 2013 to 2018, the Group launched three new standalone mines — Bissa, Bouly and Gross — which currently contribute approximately 50% to the Group's total production.

All these mines were built on time and on budget within a 24 month period and had short payback periods on the invested capital, being less than 3 years each.

Gross, the largest mine in the Group's portfolio with the lowest mining costs, was constructed in two years and achieved a payback period of less than 2 years despite sizeable U.S.$347 million capital expenditures which were in line with the Feasibility Study. The Bouly mine was launched after approximately 15 months of construction and paid back the capital expenditures in less than three years and was completed under budget. Finally, Bissa, located close to the Bouly mine and launched in the beginning of 2013, has become unique in terms of cost management: the project's actual capital expenditures of U.S.$250 million was significantly below the budget of U.S.$300 million. Rapid production ramp-up enabled the Group to achieve a payback period of less than 2 years.

The Group considers its expertise in identifying high-quality greenfield projects, coupled with efficient mine construction and experience of launching mines with short ramp-up periods as its key competitive advantages, which will be brought to bear on the execution of future value accretive opportunities.

This track record of developing mines has been enhanced by successful public and private M&A, with acquisitions proven to be value accretive. The Group has pursued a highly disciplined strategy focusing on development projects providing the highest return potential, with key public M&A transactions in the past including the acquisition of Celtic Resources Holdings, Crew Gold Corporation, and High River Gold Mines Ltd. The disciplined and returns focused approach was exemplified by the Group's withdrawal from the bidding war over Cardinal Resources in December 2020.

By making development-stage investments as opposed to acquiring producing assets at a premium, the Group aims to maximize shareholder returns and utilize its strong development capabilities. The Group's selection criteria target projects with over 2 Moz potential mineable mineral resources, production of above 150koz, favourable ore with low development capex, close proximity to other projects to benefit from regional synergies and economies of scale, and short payback period to maximize return. Mines in favourable jurisdictions are also sought, presenting low political risk, an economy and export profile to which mining contributes a significant share, and an attractive and low local cost base with favourable FX rates. However, while M&A created substantial value for Nordgold over the years, the Group views M&A as a supplementary capability to its core organic growth strategy.

Focus on operational efficiency to drive margin and cash flow

The Group focuses on improving the operational efficiency of its mines, applies the latest technologies to maximise safety and profitability and constantly reviews industry best practices to identify the relative performance of operating efficiency systems.

The Group operates top-class geological modelling and mine planning tools and systems enabling the Group to achieve above 80% mine compliance (adherence to the mine plan) in 2020 (with a target of 85% in 2021) and models reconciliation (accuracy of geological models compared to actual gold volumes extracted) within 5% in 2020 at a Group level. Deployment of industry best practice of geotechnical stability solutions, including the establishment of defined ground control management plans at all mines, led to zero geotechnical incidents at key mines.

The implementation of lean transformation projects at the Group's mines, focused on productivity improvement across the entire production value chain, resulted in achieving equipment availability levels of 84%, 85% and 83% for loader, trucks and drills, respectively, and mill availability of 91% in 2020. At the same time, the Group is pursuing margin improvement initiatives resulting in highly competitive open pit and underground mining costs of 1.6 U.S.$/t and 15.7 U.S.$/t respectively as well as processing costs for Heap Leach and CIL of 3.4 U.S.$/t and 11.2 U.S.$/t respectively, in 2020.

In addition to the above mentioned initiatives, the Group is focused on implementing innovative digital and IT projects to enhance its cost efficiency and optimise internal processes. Such initiatives include the implementation of automated fleet and plant management systems as well as smart platform systems for planning and performance analysis, consumption control and inventory optimisation. Advanced technologies are also utilised for HSE management, in particular in 2020, the Group launched a custom-designed mobile application which is used for incident registration, allowing an immediate response to any incidents.

The strategic focus on innovation and technology has already brought quantifiable gains. The implementation of a fleet management system (Wenco), which is designed to track equipment performance, automatically assign and dispatch equipment, control payloads and streamline haul cycles, has improved mining equipment productivity by 10% at Lefa, Bissa-Bouly and Gross. The smart Oniqua artificial intelligence system for inventory level optimization and automated re-ordering decreased the Group's stock turnover levels to 40 days

from 55 days in 2018. Furthermore, implementation of Cyanide TAC-1000 analyser enabled the Group to achieve a significant cyanide consumption reduction of approximately 10% at Berezitovy mine in 2014, at Taborny mine in 2017 and at Bissa mine in 2019.

The Group believes that these measures improve its production capacity and enable it to maintain operating costs at competitive levels, and that its focus on operational efficiency and cost control supports its operating performance and profitability at all mines.

Consistent FCF generation, return of capital and low leverage

Over the last three years, the Group has demonstrated robust financial performance, which has enabled it to achieve and maintain strong profitability and a robust liquidity position. Between 1 January 2018 and 31 December 2020, the Group's gold production increased by 15.3% in the year ended 31 December 2020 compared to the year ended 31 December 2018, while Adjusted EBITDA increased by 116.3% and EBITDA margin improved by 14 ppt.

Given such strong operational performance coupled with a high average gold price and a relatively low capital expenditure in 2020, the Group managed to achieve free cash flow of U.S.$551.9 million and to decrease its leverage to as low as 0.2x as at 31 December 2020.

The Group's free cash flow per ounce benchmarks favourably against peers. In a peer set of PJSC Polyus, Polymetal International Plc, Kinross Gold Corporation and Endeavour Mining, Nordgold ranked second only to Polyus in 2020 (Endeavour figures as of 9M 2020) with a free cash flow per ounce of US$527/oz excluding net proceeds from the sale of stake in Cardinal.

Figure 3. FCF per ounce benchmarking

Free cash flow generation of the Group has been strong over the last 8 years. Since 2013, the Group generated positive free cash flow in seven out of eight years. Historically the Group has consistently paid dividends to shareholders, making payments each year since 2013. The Group plans to distribute dividends in accordance with its dividend policy. See Part VIII: "*Dividend Policy*".

The Group believes that its strong financial performance has allowed it to continue to enhance its reserve and resource base, to finance its exploration programmes and its balanced pipeline of low-cost capital efficient development projects.

Strong governance, backed by aligned majority shareholder

The Group is committed to high standards of corporate governance and transparency and is committed to full compliance with the UK Corporate Governance Code. The Group has an experienced Board of Directors, which consists of international mining executives and experts who oversee the Group's management processes, identify material risks and ensure the effective functioning of the necessary risk management and internal control systems. The Board of Directors comprises 9 directors, of which 2 are executive directors (the CEO and Chief Legal Officer, Director of ESG), and 7 are non-executive directors, 5 of whom are INEDs. The Board of Directors is led by Michael Nossal, the independent chairman, who has a wide experience in a number of industries, including the mining industry, having held positions at NewCrest Mining Ltd, WMC Resources Ltd, and MMG Ltd.

Mr. Alexey Mordashov, being one of the ultimate beneficial owners of the Company, will remain a member of the Board of Directors. Mr Mordashov has a strong track record of successful development of public metals and mining companies, including PAO Severstal, where Mr. Mordashov is a controlling shareholder, which has delivered compelling total shareholder returns since its IPO in November 2006 as compared to its global peers in the steel industry.

Experienced and diverse international management team

The Group benefits from the diverse background and experience of its senior management team, which combines highly qualified professionals with gold mining, general mining, operational, consulting and financial backgrounds. The Group's core management team has led the Group since its formation in 2007 and has a proven track record of completing major projects (such as the Bissa, Bouly and Gross mines), successfully executing acquisitions and increasing operational efficiency. The management team has in-depth knowledge of, and expertise across the full cycle of project development from exploration to construction, operation and optimisation and broad experience across the full range of the Group's gold mining operations, including both underground and open-pit mines, processing facilities ranging from standard heap-leach operations at Gross and Taborny to highly complex BIOX facilities at Suzdal.

The Group believes that its ability to recruit and motivate its skilled workforce is one of its most significant competitive advantages. The Group has implemented comprehensive employee assessment, development and training programmes and places significant emphasis on creating a collaborative and respectful corporate culture with health and safety being the highest priority.

Strategy

The Group's long-term strategic objective is to be a best-in-class, globally competitive gold mining company and an industry leader in terms of health and safety, ESG, operational efficiency and asset quality. The Group seeks to achieve these aims through safe, sustainable and profitable production growth with a view to ensuring that it is in an optimal position to create value and generate returns for its shareholders and the communities in which it operates. To this end, the Group's strategy focuses on the following seven key priorities:

Expand operations in Gross Region

The Group believes that the Gross Region is a world class mining district with high development potential which represents a solid foundation of the Group's current performance and future low cost growth. Beyond the two producing mines and Tokko project, which currently contains estimated Mineral Resources of 172.6Mt containing 3.6 Moz of gold, the district carries a significant exploration potential, particularly to the west and south west of Tokko project. Geophysical studies have indicated the potential for continued mineralisation and identified significant anomalies in these parts of the district. These anomalies have been confirmed by geochemical analysis, and active exploration programme of the district, including initial drilling, which will continue in 2021. In order to further expand its operations in the Gross Region, the Group received three new exploration licenses granting the right of geological survey of Kremera, Pogranichnaya and Postoyannaya subsoil plots and submitted applications for licenses with respect to two additional subsoil plots located in this district. The Group intends to successfully complete two near-term initiatives with high potential in the Gross Region consisting of the expansion of Gross and the development of Tokko project and continue exploration activities in the region to aiming to discover new prospect deposits. The Group is targeting approximately 20% production growth and a reduction in operating costs over the next 5 years, primarily as a result of the development of the Gross Region. See also " *— Strengths — Low-risk low-cost growth*", " *— Operating Mines—Gross" and* " *— Development and Exploration Projects — Tokko".*

Pursue selective acquisitions of high-value add gold projects

The Group will continue to seek growth through selective acquisitions and partnerships in high-value-add gold projects. The Group has historically acquired gold reserves, development properties and operating mines, either as stand-alone assets or as a part of companies. For example, in October 2016, the Group acquired a 100% interest in the Pistol Bay project, in March 2017, the Group acquired a 55.01% interest in the Montagne d'Or project, and, in May 2020, the Group and Mako Gold Limited entered into a definitive sales contract to acquire the Niou Gold project in the central part of Burkina Faso. The acquisition has not yet completed and remains conditional on receipt of the approval of the Minister of Mines of Burkina Faso. The Group's decisions to bid for and/or acquire and/or divest these and other properties have historically been based on a variety of factors including historical operating results, estimates of and assumptions about future reserves, cash and other operating costs, estimations of potential optimisation and cost reduction measures and their effect, the gold price

and projected economic returns, the age and quality of processing plant and available technology, the ability to integrate a target's operations and financial systems and procedures into the Group's operations, and financial systems and evaluations of existing or potential liabilities associated with a property and its operations. In particular, the Group's project selection criteria include, but are not limited to, potential mineable mineral resources in excess of 2 moz, production potential in excess of 150 koz, favorable ore with low development capital expenditures, close proximity to other projects to benefit from economies of scale and a short payback period to maximize return. The Group will continue to consider new opportunities for acquiring premium-quality projects at competitive valuations to further enhance its asset portfolio.

Expand resources and reserve base

The Group aims to expand its resource and reserve base through organic growth and selective acquisitions of high-value projects, while pursuing a balanced pipeline of exploration and development projects and increasing the lives of existing mines through focused exploration and optimisation programmes. As at the date hereof, the Group has nine operating mines and a number of exploration and development projects, including Tokko and Uryakh in the Russian Federation, Montagne d'Or in French Guiana and Pistol Bay in Canada.

The Group intends to continue to invest in exploration and development activities, near its existing mines, at satellite deposits and at new locations, with the objective of offsetting depletion and expand its resources and reserves base. For example, the Group launched the Gross mine in September 2018, and in the first half of 2019 it identified the Tokko deposit, located close to the Gross and Taborny mines, as a result of its near-mine exploration programmes, and the Group is working towards the expansion of Gross and the development of Tokko project with a view to increasing its reserves and resources base and overall production (see " — *Expand operations in Gross Region*"). In years ended 31 December 2018, 2019 and 2020, the Group invested U.S.$41 million, U.S.$50.7 million and U.S.$46.1 million, respectively, in its exploration and evaluation programmes.

Increase operational efficiency

The Group intends to continue to successfully invest in new facilities and equipment and improve the quality of its existing facilities in order to increase operational efficiency, reduce risk, reduce costs, recover more gold from the ore it mines and expand capacity when it is required. The Group has developed a range of initiatives targeting various groups of its assets, which include the development of industry best practice asset management standards, reducing mining costs, process optimisation, the outsourcing of auxiliary functions as well as a number of other cost-efficiency projects described in " — *Strengths — Focus on operational efficiency to drive margin and cash flow*."

Deliver strong financial performance and create long-term shareholder value

The Group intends to generate strong and sustainable operating cash flows, which should enable it to continue to finance its exploration and development capital expenditure programmes as well as to maintain low leverage.

The Group is aiming to generate positive free cash flow at all of its mines through the ongoing improvement of operational performance, cost efficiency and monitoring of capital expenditures.

The Group had a Net Debt / Adjusted EBITDA ratio of 0.2 as at 31 December 2020. As at the date of hereof, the Group continues to have a comfortable leverage profile with limited repayments in the next few years and a strong cash position, which the Group believes will allow it to meet its financing obligations and planned capital expenditures programme. The Group will continue to actively manage its debt portfolio by refinancing and extending the maturity profile if necessary.

In addition, historically, the Group has consistently paid dividends to shareholders, making payments each year since 2013, and plans to distribute dividends in accordance with its dividend policy. The Group intends to declare a fixed dividend for 2021 in the amount of U.S.$400 million paid in two equal instalments following the release of the Group's financial results for the six months ended 30 June 2021 and the year ended 31 December 2021. Starting from 2022, the Group intends to pay a fixed dividend payout of at least 50% of the Group's free cash flow pre-growth capital expenditure, subject to a Net Debt / EBITDA threshold of 1.5x. The Group intends to pay dividends twice a year on a semi-annual basis. See also Part X: "*Operating and Financial Review — Equity — Dividends*" and Part VIII: "*Dividend Policy*".

Maintain stringent health and safety standards

The Group is committed to achieving zero harm for its employees and contractors. The safety of its employees and contractors remains a priority, as demonstrated by the steady improvement of the lost time injury frequency rate ("**LTIFR**") from 0.33 in 2019 to 0.14 in 2020. The Group had zero employee fatalities and one contractor fatality at its mines during 2020. The Group continues to review existing processes with particular emphasis on improving their quality and effectiveness, these include such areas as safety behaviour audits, improving health and safety standard operating procedures, safety and environmental training, and contractor safety policies and capabilities. The Group will continue to implement its comprehensive risk management process in order to make sure risks are identified, assessed and managed, risk registers are regularly reviewed by their owners at various levels, hazards are identified and managed, enabling continuous improvement in health and safety performances. The Group observes local legislation requirements in all of its operating regions, as well as best practice in the broader field of health and safety. The Group conducts a health and safety audit on OHSAS 18001 standards at all of its mines once a year. The Group has started official certification under the ISO 14001 and 45001 standards in 2021, which reflects the Group's commitment to the continuous development of its environmental and safety procedures. After an analysis of the audit results, the Group ensures that any new best practices are identified and then implemented at all other mines. Each business unit director is required to assess and report on how these practices are working at the mine they are responsible for on a regular basis.

Minimise environmental and social impact of operations

The Group is committed to responsible environmental stewardship and strives to minimise its impact on the environment in all regions of its operations. The Group's priority is to encourage and strengthen a shared, company-wide culture of environmentally responsible stewardship that will enable the Group to greatly minimise environmental incidents and, in doing so, become the industry leader in this field. In addition, the Group currently complies with all applicable national standards, environmental laws and regulatory requirements at each of its mines, and strives to adhere to international best practices across its asset base.

The Group will continue to implement its robust ESG (environmental, social and governance) and sustainable development framework, which is overseen by the Board's Safety and Sustainable Development Committee together with the Director of ESG. The Group ranks in the 1st quartile of the Sustainalytics Precious Metals Rankings, based on Sustainalytics' Precious Metals Companies Summary Report dated 6 December 2020 and will work towards its target of net zero carbon emissions by 2050.

History

Key milestones

The following table represents key milestones of the Group's history:

Year	Milestone
2007	Severstal Group, a Russia-based international steel and mining conglomerate headed by PAO Severstal, began to expand into gold mining in 2007, with the acquisition in August 2007 of a 22% stake in Celtic Resources Holdings plc (now Celtic Resources Holdings DAC) ("**Celtic Resources**"), which at the time held interests in the licenses for the Suzdal and Zherek mines in Kazakhstan. In October 2007, Severstal Group purchased the Aprelkovo and Neryungri mines from subsidiaries of the Arlan Investment Company through acquisitions of 100% shares in the Russia-based companies LLC Neryungri-Metallik ("**Neryungri-Metallik**") and CJSC Mine Aprelkovo, which held licenses for the Neryungri and Aprelkovo mines, respectively. In December 2007, Severstal Group acquired a controlling 86.3% interest in the Celtic Resources.
2008	In November 2008, Severstal Group acquired a 53.8% controlling stake in High River Gold Mines Ltd. ("**High River**") (including the Irokinda, Zun-Holba and Berezitovy mines in Russia and the Taparko mine in Burkina Faso, as well as the Bissa exploration project in Burkina Faso and a 50.0% interest in the Prognoz-Silver silver exploration project in Russia).
2009	In July 2009, Severstal Group began a reorganisation of its gold mining operations which resulted in the Group acquiring all Severstal Group's gold mining assets.

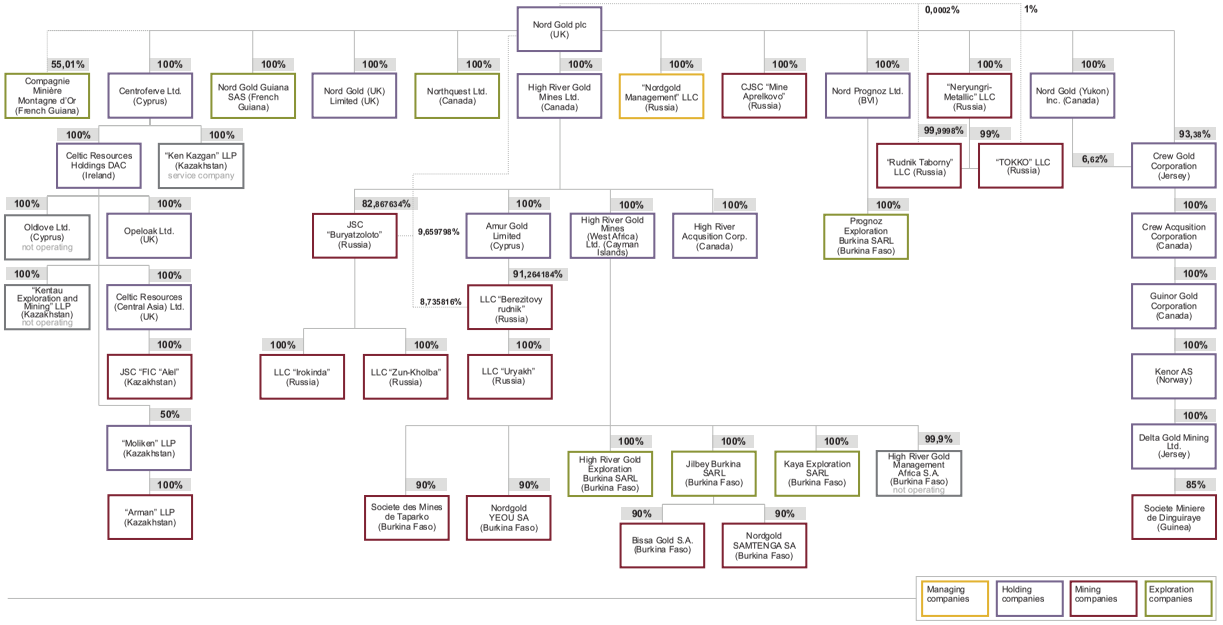
Year	Milestone
2010	In February 2010, Severstal Group acquired a 26.6% stake in Crew Gold Corporation ("**Crew Gold**"), which holds the Lefa gold mine in Guinea and which was listed on the Toronto Stock Exchange and the Oslo Stock Exchange.
	Severstal Group subsequently transferred its interest in Crew Gold to the Group, and through a series of transactions in July to September 2010, the Group increased its interest in Crew Gold to 93.4%.
	In August and October 2010, the Group exercised warrants to increase its interest in High River to 72.6%.
2011	In January 2011, the Group increased its interest in Crew Gold to 100%.
	In July 2011, the Group's indirect subsidiary in Burkina Faso, Bissa Gold S.A., was granted a mining license for the Bissa project by the Burkina Faso government.
	In August 2011, the Group increased its interest in High River to 75.1%.
2012	In January 2012, the Group was spun off from Severstal through a share exchange offer and listed its GDRs, representing 10.6% of the Group's shares, on the main market of the London Stock Exchange.
	In December 2012, the Group increased its interest in High River to 97.9% pursuant to a takeover bid.
2013	In January 2013 the Group launched the Bissa mine;
	In March 2013, the Group completed a plan of arrangement with High River under Canadian law to increase its interest to 100%.
	In April 2013, the Group issued U.S.$500 million notes due 2018.
	In June 2013 the Group received a gold and silver mining licence for the Gross project in Yakutia, the Russian Federation.
	In September 2013, the Group entered into a binding letter of intent with Columbus Gold Corp. ("**Columbus Gold**") in respect of a 50.01% stake in the Montagne d'Or project in French Guiana.
2014	In February 2014, the Group started Gross pilot stage operations.
	In May 2014, the Group entered into an agreement to acquire a stake in Northquest Ltd. ("**Northquest**"), a Toronto-based gold explorer which owned the Pistol Bay exploration project in Nunavut Territory, Canada.
	In October 2014, the Group acquired a stake of approximately 9% in Columbus Gold — the Group's partner in the Montagne d'Or project.
	In December 2014, the Group increased its voting stake in PJSC Buryatzoloto to 90.6%.
2015	In January 2015, the French Government approved Columbus Gold's agreement with the Group on the Montagne d'Or project in French Guiana.
	In February 2015, the Group approved a share and GDR buyback programme. In 2015, the Group repurchased 10,282,212 GDRs for total aggregate consideration of U.S.$29.3 million, of which 10,176,851 GDRs were cancelled by 31 December 2015.
	In June to November 2015, the Group increased its stake in Northquest from 23.8% to 52.3% and then announced its intention to make an all-cash offer for Northquest.
2016	In June 2016, the Group started the construction of the Gross mine in Yakutia, Russia.
	In September 2016, the Group expanded its Bissa mine with the launch of a heap leach facility at the Bouly deposit in Burkina Faso.
	In October 2016, the Group completed the acquisition of Northquest.
	In November 2016, the Group completed a buyback programme to purchase 319,849 GDRs for total aggregate consideration of U.S.$852,117.

Year	Milestone
2017	In March 2017, the Group delisted its GDRs from the LSE.
	In September 2017, the Group acquired a 55.01% stake in the Montagne d'Or project in French Guiana and signed a shareholders' agreement with Columbus Gold.
	In December 2017, the Group completed the repurchase of 2,236,757 ordinary shares which remained underlying after the termination of the Company's GDRs programme, from Deutsche Bank Trust Company Americas.
2018	In March 2018, the Group signed a U.S.$300 million, five-year unsecured debt facility with a group of international banks including ING, JSC Raiffeisenbank, Raiffeisenbank Bank International AG, PJSC Rosbank, Societe Generale Corporate & Investment Banking and JSC UniCredit Bank.
	In July and October 2018, 3,089,545 ordinary shares were purchased through a tender offer conducted in accordance with a plan announced in connection with the Group's de-listing in February 2017.
	In September 2018, the Group launched the Gross mine in Yakutia, Russia.
2019	In July 2019, the Company repurchased and subsequently cancelled 20,297 ordinary shares in the final stage of a series of tender offers conducted in accordance with a plan announced in connection with Group's de-listing in February 2017.
	In October 2019, the Group raised U.S.$400 million in the Eurobond markets by issuing 5- year 4.125% Guaranteed Notes due 2024.
2020	In March 2020, the Company acquired 98,443,593 shares, or 19.9 percent, in Cardinal Resources Limited ("Cardinal Resources"), a West African gold-focused exploration and development company, which develops Namdini gold project, for the total consideration of U.S.$27.2 million. Between July and September 2020, the Group acquired additional 50,901,121 shares for total consideration of U.S.$33.8 million resulting in the Group's interest in Cardinal Resources increasing to 27.8%. In July 2020, the Group made an unconditional offer to acquire all of the outstanding ordinary shares it did not already own in the share capital of Cardinal Resources. Following a competitive bidding process between the Group and Shandong Gold Mining (Hong Kong), the Group decided to withdraw its offer and to accept the takeover offer from Shandong Gold Mining (Hong Kong). As a result, in December 2020, the Group sold all of its shares in Cardinal Resources for a total cash consideration of U.S.$122.9 million (of which U.S.$120 million was paid in December 2020 and U.S.$2.9 million was paid in January 2021).
	In April 2020, the Group entered into an Engineering, Procurement and Construction agreement to design and construct a 33 megawatt power plant at its Lefa mine.
	In April 2020, the Group begun a Preliminary Economic Assessment of the Tokkinsky project for a potential open pit gold mine in the Yakutia region.
	On 1 May 2020, the Group entered into a binding term sheet with the Australian-based explorer Mako Gold Limited (ASX: MKG) to acquire the Niou Gold project located 50 kilometers southwest of the Bissa mine in Burkina Faso. On 11 May 2020, the Group and Mako Gold Limited entered into a definitive sales contract to acquire Niou Gold project. The acquisition has not yet completed and remains conditional on receipt of the approval of the Minister of Mines of Burkina Faso.
2021	On 23 March 2021, the Company was converted into a public limited company registered in England and Wales (PLC) under company number 13287342.

Corporate Structure

The following chart illustrates the principal subsidiaries of the Group, together with the percentage of votes attaching to all voting securities of the subsidiaries beneficially owned, or controlled or directed, directly or indirectly, by the Group and the jurisdiction of incorporation, formation or organisation of each such subsidiary.

This chart includes only those companies in which the Company holds, directly or indirectly, 50% or more of the share capital
** (LLC Neryungri-Metallic owns the Gross deposit)



Operational and Financial Performance

The following table shows the Group's selected operational and financial data for the periods indicated:

	Year ended 31 December		
	2020	2019	2018
Run of mine, kt[1]	211,706	202,959	172,439
Waste mined, kt[1]	168,010	162,256	139,376
Ore mined, kt	44,996	42,098	34,279
Stripping ratio, t/t[1]	3.84	3.99	4.22
Ore processed, kt[2]	46,215	43,704	34,830
Grade in ore processed, g/t	0.84	0.92	1.02
Recovery, %	81.4	79.4	79.6
Refined gold produced, koz[10]	1,045.6	1,041.1	907.0
Refined gold sold, koz[13]	1,046.3	1,034.5	901.7
Average realised gold price per ounce sold, U.S.$/oz	1,779	1,399.0	1,268.0
LTIFR[9]	0.14	0.33	0.19
Total cash cost, U.S.$m[3]	774.5	741.2	643.2
Total cash cost per ounce produced, U.S.$/oz[11]	751	722	712
All-in sustaining cost U.S.$m[4]	1,056.6	1,051.3	949.3
All-in sustaining cost, U.S.$/oz[4][12]	1,024	1,023	1,051
Capital expenditure, U.S.$m	382.3	429.0	514.7
Payments for exploration and evaluation activity, U.S.$m[5]	46.1	50.7	41.0
Adjusted EBITDA, U.S.$m[6]	1,016.9	667.3	470.2
Free cash flow[7]	551.9	171.5	(156.0)
Net Debt, U.S.$m[8]	251.8	791.9	917.2

Notes:

(1) Presented only for open pit mines.

(2) Includes ore processed at the Berezitovy heap leach.

(3) See Part II: "*Important Information — Presentation of Financial Information — Total Cash Cost*". For a reconciliation of AISC and TCC, see Part X: "*Operating and Financial Review — Overall Performance*".

(4) See Part II: "*Important Information — Presentation of Financial Information — All-In Sustaining Cost*". For a reconciliation of AISC and TCC, see Part X: "*Operating and Financial Review — Overall Performance*".

(5) These amounts are included in the line item "Capital expenditure" above.

(6) See Part II: "*Important Information — Presentation of Financial Information — Adjusted EBITDA and Adjusted EBITDA Margin*". For a reconciliation of profit before income tax for the period to Adjusted EBITDA, see Part X: "*Operating and Financial Review — Overall Performance*".

(7) See Part II: "*Important Information — Presentation of Financial Information — Free Cash Flow*". For a reconciliation of free cash flow, see Part X: "*Operating and Financial Review — Overall Performance*".

(8) See Part II: "*Important Information — Presentation of Financial Information — Net Debt and Net Debt / Adjusted EBITDA ratio*". For a reconciliation of the Group's net debt, see Part X: "*Operating and Financial Review — Overall Performance*".

(9) LTIFR number comparable with gold mining industry practice.

(10) Includes 6.4 thousand, 4.75 thousand and 3.69 thousand of gold equivalent ounces of silver production in 2020, 2019 and 2018, respectively (based on the ratio of gold to silver used for the purpose of calculating the gold equivalent of 1:87 Au/Ag, 1:87 Au/Ag and 1:81 Au/Ag, respectively).

(11) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production).

(12) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production).

(13) Includes gold equivalent ounces of silver.

See Part X: "*Operating and Financial Review — Overall Performance*" and Part X: "*Operating and Financial Review — Discussion of Operations*" for a more detailed discussion of financial and operating results.

Summary of the Group's Ore Reserves and Mineral Resources

Proved and Probable Ore Reserves

As at 31 December 2020, the Group's Proved and Probable gold Ore Reserves totalled 15.2 Moz. The following table presents a detailed breakdown of the Group's Proved and Probable gold Ore Reserves as at 31 December 2020, as reviewed, audited and reported by SRK in accordance with the JORC Code (see also Part XIV: "*Competent Person's Report*" pages 70–72):

			Proved			Probable			Proved + Probable		
Mineral Asset	**Deposit**	**CoG Au (g/t)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**
Gross	Oxide	0.24	394	0.4	6	373,160	0.5	5,901	373,554	0.5	5,907
	Transitional	0.24	—	—	—	28,260	0.5	494	28,260	0.5	494
	Stockpiles	0.24	3,749	0.3	39	13,878	0.3	143	17,627	0.3	182
	Total Gross		**4,144**	**0.3**	**45**	**415,297**	**0.5**	**6,539**	**419,441**	**0.5**	**6,583**
Taborny	Oxide	0.2	35	0.5	0.5	65,318	0.4	920	65,352	0.4	920
	Stockpiles		—	—	—	3,766	0.3	37	3,766	0.3	37
	Total Taborny		**35**	**0.5**	**0.5**	**69,083**	**0.4**	**957**	**69,118**	**0.4**	**957**
Berezitovy	Open pit	0.3	—	—	—	3,032	0.9	85	3,032	0.9	85
	Underground	1.1	—	—	—	383	1.4	18	383	1.4	18
	Stockpiles	0.3	—	—	—	142	0.8	4	142	0.8	4
	Heap Leach	0.3	—	—	—	138	0.4	2	138	0.4	2
	Total Berezitovy		**—**	**—**	**—**	**3,695**	**0.9**	**108**	**3,695**	**0.9**	**108**
Irokinda	Serebryakovskaya	1.3	—	—	—	591.8	5.0	94.9	591.8	5.0	94.9
	Tuluinskaya	1.6	—	—	—	311.5	4.1	40.6	311.5	4.1	40.6
	Visokaya	1.4	—	—	—	510.6	3.8	61.6	510.6	3.8	61.6
	Stockpiles	2.0	—	—	—	10.5	2.8	1.0	10.5	2.8	1.0
	Total Irokinda		**—**	**—**	**—**	**1,424**	**4.3**	**198**	**1,424**	**4.3**	**198**
Suzdal	Underground	2.6-3.2	382	5.7	70	4,741	5.3	814	5,123	5.4	884
	Stockpiles	2.0	—	—	—	34	5.2	6	34	5.2	6
	Tailings retreat.	2.0	—	—	—	483	5.6	87	483	5.6	87
	Total Suzdal		**382**	**5.7**	**70**	**5,258**	**5.4**	**907**	**5,639**		**5.4**
Total Russia & Kazakhstan			**4,560**	**0.8**	**115**	**494,757**	**0.5**	**8,708**	**499,317**	**0.5**	**8,823**
Lefa	Lero Karta	0.3	—	—	—	10,362	1.1	370	10,362	1.1	370
	Fayalala	0.3	—	—	—	12,407	0.8	319	12,407	0.8	319
	Kankarta	0.3	—	—	—	2,322	1.2	91	2,322	1.2	91
	Firifirini	0.3	—	—	—	3,307	1.0	108	3,307	1.0	108
	Banko South	0.4	—	—	—	104	1.7	6	104	1.7	6
	GoldRing	0.4	80	1.1	3	277	1.1	10	357	1.1	13
	Banora	0.4	—	—	—	1,028	1.4	45	1,028	1.4	45
	Toume Toume	0.6	—	—	—	137	1.0	4	137	1.0	4
	DTM	0.4	—	—	—	—	—	—	—	—	—
	Diguili Central	0.3	—	—	—	2,313	1.1	78	2,313	1.1	78
	Kassa Kassa	0.5	—	—	—	180	1.5	9	180	1.5	9
	Sikasso	0.4	101	0.8	3	10	1.0	0	111	0.9	3
	Nyerema	0.4	—	—	—	123	0.8	3	123	0.8	3
	Total Ore Mined		181	0.9	6	32,571	1.0	1,042	32,751	1.0	1,048
	LK Stockpiles		—	—	—	2,541	0.6	46	2,541	0.6	46
	Fayalala Stockpiles		—	—	—	4,259	0.6	78	4,259	0.6	78
	Total Stockpiles		—		—	6,800	0.6	124	6,800	0.6	124
	Heap Leach		—	—	—	5,659	0.6	109	5,659	0.6	109
	Total Lefa		**181**	**0.9**	**6**	**45,029**	**0.9**	**1,275**	**45,210**	**0.9**	**1,281**
Bissa	Bissa Mine: (SW, IOSE, 51, 52)	Variable	1,459	1.3	62	3,155	1.7	177	4,614	1.6	239
	Stockpiles		—	—	—	10,134	0.7	212	10,134	0.7	212
	Satellite Pits: (Gougre N, Zandkom, Ronguen, Samtenga, Yimiougou)	Variable	1,849	1.1	66	14,137	1.3	605	15,986	1.3	671
	Sat. Stockpiles		—	—	—	923	0.8	22	923	0.8	22
	Total Bissa		**3,308**	**1.2**	**128**	**28,349**	**1.1**	**1,015**	**31,657**	**1.1**	**1,144**
Bouly	Open Pit	Variable	15,552	0.5	241	39,505	0.5	589	55,057	0.5	831
	Stockpiles		—	—	—	12,173	0.3	126	12,173	0.3	126
	Total Bouly		**15,552**	**0.5**	**241**	**51,678**	**0.4**	**715**	**67,230**	**0.4**	**957**

Mineral Asset	Deposit	CoG Au (g/t)	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Taparko	Open Pits	Variable	624	2.1	42	788	2.1	53	1,412	2.1	95
	Stockpiles		—	—	—	2,597	0.9	72	2,597	0.9	72
	35 Underground	1.8	59	3.1	6	375	3.1	37	434	3.1	43
	Total Taparko		**683**	**2.2**	**48**	**3,760**	**1.3**	**163**	**4,443**	**1.5**	**211**
Total West Africa			**19,724**	**0.7**	**423**	**128,816**	**0.8**	**3,169**	**148,539**	**0.8**	**3,592**

Mineral Asset	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Montagne d'Or (Total*)	8,245	2.0	527	45,868	1.5	2,218	54,113	1.6	2,745

Mineral Asset	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Gross	4,144	0.3	45	415,297	0.5	6,539	419,441	0.5	6,583
Taborny	35	0.5	1	69,083	0.4	957	69,118	0.4	957
Berezitovy	—	—	—	3,695	0.9	108	3,695	0.9	108
Irokinda	—	—	—	1,424	4.3	198	1,424	4.3	198
Suzdal	382	5.7	69.9	5,258	5.4	907	5,639	5.4	977
Lefa	181	0.9	5.5	45,029	0.9	1,275	45,210	0.9	1,281
Bissa	3,308	1.2	128.5	28,349	1.1	1,015	31,657	1.1	1,144
Bouly	15,552	0.5	241	51,678	0.4	715	67,230	0.4	957
Taparko	683	2.2	48	3,760	1.3	163	4,443	1.5	211
Montagne d'Or	8,245	2.0	527	45,868	1.5	2,218	54,113	1.6	2,745
Total Nordgold	**32,529**	**1.0**	**1,065**	**669,441**	**0.7**	**14,096**	**701,970**	**0.7**	**15,161**

Notes:

(1) The long-term commodity price assumption relied on for ensuring that the Ore Reserves are potentially economic is U.S.$1,400/oz for gold;

(2) All open-pit Ore Reserves are reported based on an optimised pit shell at a gold price of U.S.$1,400/oz, and were depleted for mining up to 31 December 2020;

(3) All underground Ore Reserves are reported based on optimised mine stopes ("MSO") at a gold price of U.S.$1,400/oz, and were depleted for mining up to 31 December 2020;

(4) The Ore Reserves are reported on a 100% basis and do not account for minority shareholdings;

(5) All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

Measured, Indicated and Inferred Mineral Resources

As at 31 December 2020, the Group's Measured, Indicated and Inferred gold Mineral Resources totalled 42.1 Moz. The following table presents a detailed breakdown of the Group's Measured, Indicated and Inferred gold Mineral Resources as at 31 December 2020, as reviewed and audited by SRK in accordance with the JORC Code (see also Part XIV*: "Competent Person's Report*" pages 67–69):

			Measured Mineral Resources			Indicated Mineral Resources			Measured + Indicated Mineral Resources			Inferred Mineral Resources			Total Mineral Resources		
Mineral Asset	**Deposit**	**CoG Au (g/t)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**
Gross	Gross	0.27	751	0.44	11	581,056	0.55	10,316	581,807	0.55	10,327	125,649	0.46	1,850	707,456	0.54	12,177
	Stockpiles		—	—	—	17,627	0.32	182	17,627	0.32	182	—	—	—	17,627	0.32	182
	Total Gross		**751**	**0.44**	**11**	**598,683**	**0.55**	**10,498**	**599,434**	**0.55**	**10,509**	**125,649**	**0.46**	**1,850**	**725,083**	**0.53**	**12,359**
Taborny	Taborny + Temny	0.20	—	—	—	92,100	0.49	1,454	92,100	0.49	1,454	26,035	0.44	367	118,135	0.48	1,822
	Visoky	0.20	—	—	—	1,167	1.17	44	1,167	1.17	44	541	0.82	17	1,708	1.10	61
	Vrezanny	0.20	—	—	—	—	—	—	—	—	—	9,623	0.61	188	9,623	0.61	188
	Stockpiles		—	—	—	3,766	0.30	37	3,766	0.30	37	—		—	3,766	0.30	37
	Total Taborny		—	—	—	**97,033**	**0.49**	**1,535**	**97,033**	**0.49**	**1,535**	**36,198**	**0.49**	**572**	**133,232**	**0.49**	**2,107**
Berezitovy	Open pit	0.26	—	—	—	3,231	0.94	98	3,231	0.94	98	685	0.89	20	3,916	0.93	117
	Crown Pillar	0.88	—	—	—	108	3.91	14	108	3.91	14	27	5.31	5	136	4.19	18
	Underground	0.88	—	—	—	279	2.88	26	279	2.88	26	79	3.12	8	358	2.94	34
	Stockpiles / HL		—	—	—	2,698	0.39	34	2,698	0.39	34	—	—	—	2,698	0.39	34
	Total Berezitovy		—	—	—	**6,316**	**0.84**	**171**	**6,316**	**0.84**	**171**	**791**	**1.27**	**32**	**7,107**	**0.89**	**204**
Irokinda	Irokinda UG	1.16	—	—	—	822	9.04	239	822	9.04	239	1,901	9.20	563	2,723	9.15	802
	Stockpiles		—	—	—	11	2.81	1	11	2.81	1	—	—	—	11	2.81	1
	Total Irokinda		—	—	—	**832**	**8.96**	**240**	**832**	**8.96**	**240**	**1,901**	**9.20**	**563**	**2,734**	**9.13**	**802**
Tokko	Tokkinskoe	0.20	—	—	—	15,100	1.08	524	15,100	1.08	524	33,900	0.72	781	49,000	0.83	1,305
	Roman	0.20	—	—	—	—	—	—	—	—	—	123,600	0.58	2,305	123,600	0.58	2,305
	Total Tokko		—	—	—	**15,100**	**1.08**	**524**	**15,100**	**1.08**	**524**	**157,500**	**0.61**	**3,086**	**172,600**	**0.65**	**3,611**
Uryakh	Open Pit	0.75	—	—	—	11,730	2.59	978	11,730	2.59	978	826	4.76	126	12,556	2.74	1,104
	Crown Pillar	1.20	—	—	—	561	2.60	47	561	2.60	47	41	4.09	5	601	2.70	52
	Underground	1.20	—	—	—	6,705	2.84	612	6,705	2.84	612	1,652	2.97	158	8,357	2.86	770
	Total Uryakh		—	—	—	**18,996**	**2.68**	**1,637**	**18,996**	**2.68**	**1,637**	**2,518**	**3.57**	**289**	**21,515**	**2.78**	**1,926**
Suzdal	Suzdal UG	2.3	492	7.48	118	4,822	6.55	1,016	5,314	6.64	1,135	1,713	5.38	296	7,028	6.33	1,431
	Stockpiles		—	—	—	34	5.17	6	34	5.17	6	—	—	—	34	5.17	6
	Tailings Retreat.		—	—	—	483	5.60	87	483	5.60	87	—	—	—	483	5.60	87
	Total Suzdal		**492**	**7.48**	**118**	**5,339**	**6.46**	**1,109**	**5,831**	**6.55**	**1,227**	**1,713**	**5.38**	**296**	**7,544**	**6.28**	**1,524**
Total Russia & Kazakhstan			**1,243**	**3.23**	**129**	**742,300**	**0.66**	**15,714**	**743,543**	**0.66**	**15,843**	**326,272**	**0.64**	**6,689**	**1,069,814**	**0.66**	**22,532**

			Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
Mineral Asset	**Deposit**	**CoG Au (g/t)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**	**(kt)**	**Au (g/t)**	**Au (koz)**
Lefa	Lero Karta OP	0.27	—	—	—	21,167	1.12	759	21,167	1.12	759	756	0.88	21	21,923	1.11	781
	Lero Karta Crown Pillar	1.40	—	—	—	500	2.23	36	500	2.23	36	1,220	2.48	97	1,720	2.40	133
	Lero Karta UG	1.40	—	—	—	4,358	2.77	388	4,358	2.77	388	9,955	2.39	766	14,313	2.51	1,154
	Firifirini	0.31	—	—	—	6,289	1.08	219	6,289	1.08	219	894	1.15	33	7,183	1.09	252
	Fayalala East	0.29	—	—	—	34,478	0.78	866	34,478	0.78	866	4,867	1.07	167	39,345	0.82	1,033
	Kankarta	0.33	—	—	—	5,127	1.23	202	5,127	1.23	202	733	1.10	26	5,860	1.21	228
	Toume Toume	0.33	—	—	—	234	1.04	8	234	1.04	8	600	1.16	22	834	1.12	30
	Banora East	0.48	—	—	—	2,655	1.51	129	2,655	1.51	129	480	1.57	24	3,135	1.52	153
	Gold Ring	0.31	114	1.35	5	493	1.38	22	606	1.38	27	136	1.81	8	742	1.46	35
	Banko South	0.30	—	—	—	1,023	1.16	38	1,023	1.16	38	618	1.26	25	1,641	1.19	63
	DTM	0.28	24	1.84	1	223	1.93	14	247	1.93	15	159	1.81	9	406	1.88	25
	Sikasso	0.32	130	1.19	5	680	1.08	24	810	1.10	29	306	1.09	11	1,116	1.10	39
	KassaKassa	0.33	41	0.86	1	917	1.12	33	959	1.11	34	484	1.41	22	1,443	1.21	56
	Diguili Bougoufe	0.40	—	—	—	—	—	—	—	—	—	210	1.22	8	210	1.22	8
	Dar Salaam	0.32	—	—	—	—	—	—	—	—	—	801	1.04	27	801	1.04	27
	Solabe	0.31	—	—	—	—	—	—	—	—	—	179	0.99	6	179	0.99	6
	Amina	0.28	—	—	—	—	—	—	—	—	—	503	0.95	15	503	0.95	15
	Nyerema	0.28	—	—	—	330	1.00	11	330	1.00	11	111	1.09	4	441	1.02	14
	Diguili Central	0.43	—	—	—	3,045	1.03	101	3,045	1.03	101	3,125	0.73	73	6,170	0.88	174
	Stockpiles / HL		—	—	—	12,559	0.58	234	12,559	0.58	234	—	—	—	12,559	0.58	234
	Lefa Total		**309**	**1.25**	**12**	**94,078**	**1.02**	**3,083**	**94,387**	**1.02**	**3,095**	**26,137**	**1.62**	**1,365**	**120,524**	**1.15**	**4,460**

Mineral Asset	Deposit	CoG Au (g/t)	Measured (kt)	Measured Au (g/t)	Measured Au (koz)	Indicated (kt)	Indicated Au (g/t)	Indicated Au (koz)	Measured + Indicated (kt)	Measured + Indicated Au (g/t)	Measured + Indicated Au (koz)	Inferred (kt)	Inferred Au (g/t)	Inferred Au (koz)	Total Mineral Resources (kt)	Total Mineral Resources Au (g/t)	Total Mineral Resources Au (koz)
Bissa	BH	0.36	367	2.00	24	99	2.41	8	467	2.08	31	4	0.94	0	471	2.08	31
	IOSE	0.41	—	—	—	4,533	1.00	145	4,533	1.00	145	1,190	0.99	38	5,723	1.00	183
	SW	0.54	434	2.33	33	1,739	2.73	153	2,174	2.65	185	2	10.15	1	2,176	2.66	186
	51	0.43	1,505	1.54	75	2,776	1.63	145	4,281	1.60	220	1,881	1.80	109	6,162	1.66	329
	52	0.46	3,703	1.28	153	3,749	1.38	167	7,452	1.33	320	2,538	1.35	110	9,990	1.34	430
	Gougre	0.55	639	1.69	35	2,690	1.92	166	3,328	1.88	201	778	1.96	49	4,107	1.89	250
	Ronguen	0.46	—	—	—	5,022	1.58	256	5,022	1.58	256	138	0.85	4	5,160	1.56	259
	Zinigma	0.59	—	—	—	3,001	1.18	114	3,001	1.18	114	187	1.51	9	3,189	1.20	123
	Yimiougou	0.65	—	—	—	3,372	1.76	190	3,372	1.76	190	160	1.64	8	3,532	1.75	199
	Samtenga	0.72	159	2.86	15	801	3.02	78	960	2.99	92	72	3.58	8	1,032	3.03	101
	Zandkom	0.43	—	—	—	12,806	1.11	459	12,806	1.11	459	5,664	1.07	194	18,470	1.10	653
	Stockpiles		—	—	—	11,194	0.66	238	11,194	0.66	238	—		—	11,194	0.66	238
	Total Bissa		**6,808**	**1.52**	**333**	**51,783**	**1.27**	**2,119**	**58,591**	**1.30**	**2,451**	**12,614**	**1.31**	**530**	**71,205**	**1.30**	**2,982**
Bouly	Bouly	0.23	21,269	0.49	338	158,766	0.51	2,584	180,035	0.50	2,922	117,907	0.51	1,930	297,942	0.51	4,853
	Stockpiles		—	—	—	12,173	0.32	126	12,173	0.32	126	—	—	—	12,173	0.32	126
	Total Bouly		**21,269**	**0.49**	**338**	**170,939**	**0.49**	**2,710**	**192,208**	**0.49**	**3,048**	**117,907**	**0.51**	**1,930**	**310,115**	**0.50**	**4,978**
Bissa-Bouly Total			**28,078**	**0.74**	**671**	**222,721**	**0.67**	**4,829**	**250,799**	**0.68**	**5,500**	**130,522**	**0.59**	**2,461**	**381,321**	**0.65**	**7,960**

Mineral Asset	Deposit	CoG Au (g/t)	Measured (kt)	Measured Au (g/t)	Measured Au (koz)	Indicated (kt)	Indicated Au (g/t)	Indicated Au (koz)	Measured + Indicated (kt)	Measured + Indicated Au (g/t)	Measured + Indicated Au (koz)	Inferred (kt)	Inferred Au (g/t)	Inferred Au (koz)	Total Mineral Resources (kt)	Total Mineral Resources Au (g/t)	Total Mineral Resources Au (koz)
Taparko	35 OP	0.76	**3**	**1.39**	**0**	**244**	**3.63**	**28**	**248**	**3.59**	**29**	**—**	**—**	**—**	**248**	**3.59**	**29**
	35 Crown Pillar	1.20	100	3.23	10	109	3.73	13	208	3.49	23	52	4.67	8	260	3.73	31
	35 UG	1.00	88	3.73	11	917	3.90	115	1,005	3.88	125	898	3.69	106	1,903	3.79	232
	GT	0.76	81	3.30	9	210	4.77	32	290	4.36	41	212	3.97	27	502	4.20	68
	2N2K	0.77	160	1.82	9	679	2.11	46	838	2.05	55	14	2.16	1	852	2.05	56
	Bouroum	0.90	591	2.16	41	506	2.62	43	1,097	2.37	84	0	1.39	0	1,098	2.37	84
	Yeou	0.99	—	—	—	271	2.08	18	271	2.08	18	55	2.63	5	326	2.18	23
	Goengo	0.96	49	3.30	5	122	2.46	10	170	2.70	15	92	1.51	4	263	2.28	19
	Tangarsi	0.84	103	1.53	5	364	2.15	25	467	2.01	30	107	2.78	10	574	2.15	40
	Tangarsi East	1.09	—	—	—	24	2.45	2	24	2.45	2	4	2.22	0	28	2.41	2
	Nayiri	0.90	—	—	—	365	1.98	23	365	1.98	23	207	2.26	15	571	2.08	38
	Bissinga	0.93	25	3.85	3	96	3.77	12	120	3.79	15	15	2.84	1	135	3.69	16
	Stockpiles		—	—	—	3,497	0.82	92	3,497	0.82	92	—	—	—	3,497	0.82	92
Taparko Total			**1,199**	**2.42**	**93**	**7,402**	**1.93**	**459**	**8,601**	**2.00**	**552**	**1,657**	**3.34**	**178**	**10,259**	**2.21**	**730**

Mineral Asset	Deposit	CoG Au (g/t)	Measured (kt)	Measured Au (g/t)	Measured Au (koz)	Indicated (kt)	Indicated Au (g/t)	Indicated Au (koz)	Measured + Indicated (kt)	Measured + Indicated Au (g/t)	Measured + Indicated Au (koz)	Inferred (kt)	Inferred Au (g/t)	Inferred Au (koz)	Total Mineral Resources (kt)	Total Mineral Resources Au (g/t)	Total Mineral Resources Au (koz)
Montagne d'Or		0.4	10,328	1.80	599	74,818	1.35	3,247	85,146	1.41	3,846	20,202	1.48	964	105,348	1.42	4,810
Pistol Bay	Vickers	0.9	—	—	—	—	—	—	—	—	—	22,370	2.20	1,581	22,370	2.20	1,581

Mineral Asset	Measured Mineral Resources Tonnes (kt)	Measured Mineral Resources Grade (g/t Au)	Measured Mineral Resources Au (koz)	Indicated Mineral Resources Tonnes (kt)	Indicated Mineral Resources Grade (g/t Au)	Indicated Mineral Resources Au (koz)	Measured + Indicated Mineral Resources Tonnes (kt)	Measured + Indicated Mineral Resources Grade (g/t Au)	Measured + Indicated Mineral Resources Au (koz)	Inferred Mineral Resources Tonnes (kt)	Inferred Mineral Resources Grade (g/t Au)	Inferred Mineral Resources Au (koz)	Total Mineral Resources Tonnes (kt)	Total Mineral Resources Grade (g/t Au)	Total Mineral Resources Au (koz)
Gross	751	0.44	11	598,683	0.55	10,498	599,434	0.55	10,509	125,649	0.46	1,850	725,083	0.53	12,359
Taborny	—	—	—	97,033	0.49	1,535	97,033	0.49	1,535	36,198	0.49	572	133,232	0.49	2,107
Berezitovy	—	—	—	6,316	0.84	171	6,316	0.84	171	791	1.27	32	7,107	0.89	204
Irokinda	—	—	—	832	8.96	240	832	8.96	240	1,901	9.20	563	2,734	9.13	802
Tokko	—	—	—	15,100	1.08	524	15,100	1.08	524	157,500	0.61	3,086	172,600	0.65	3,611
Uryakh	—	—	—	18,996	2.68	1,637	18,996	2.68	1,637	2,518	3.57	289	21,515	2.78	1,926
Suzdal	492	7.48	118	5,339	6.46	1,109	5,831	6.55	1,227	1,713	5.38	296	7,544	6.28	1,524
Lefa	309	1.25	12	94,078	1.02	3,083	94,387	1.02	3,095	26,137	1.62	1,365	120,524	1.15	4,460
Bissa	6,808	2	333	51,783	1.27	2,119	58,591	1.30	2,451	12,614	1.31	530	71,205	1.30	2,982
Bouly	21,269	0	338	170,939	0.49	2,710	192,208	0.49	3,048	117,907	0.51	1,930	310,115	0.50	4,978
Taparko	1,199	2	93	7,402	1.93	459	8,601	2.00	552	1,657	3.34	178	10,259	2.21	730
Montagne d'Or	10,328	2	599	74,818	1.35	3,247	85,146	1.41	3,846	20,202	1.48	964	105,348	1.42	4,810
Pistol Bay	—	—	—	—	—	—	—	—	—	22,370	2.20	1,581	22,370	2.20	1,581
Total Nordgold	**41,156**	**1.14**	**1,505**	**1,141,320**	**0.74**	**27,331**	**1,182,476**	**0.76**	**28,836**	**527,159**	**0.78**	**13,236**	**1,709,636**	**0.77**	**42,073**

Notes:

(1) All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate ore reserves.

(2) The Mineral Resources are reported on a 100% basis and do not account for minority shareholdings.

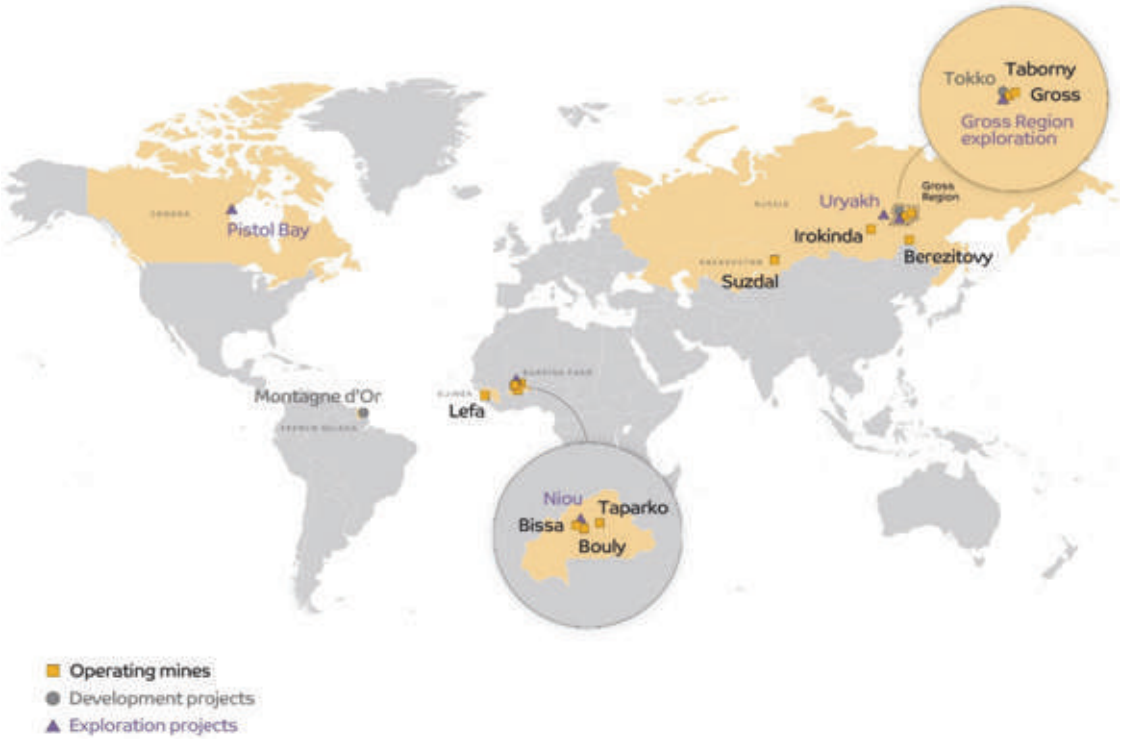
(3) The long-term commodity price assumption relied on for ensuring that the Mineral Resources are potentially economic is U.S.$1,750/oz for gold.

(4) All open-pit Mineral Resources are reported based on an optimised pit shell at a gold price of U.S.$1,750/oz, and were depleted for mining up to 31 December 2020.

(5) All underground Mineral Resources are reported based on optimised mine stopes (MSO) at a gold price of U.S.$1,750/oz, and were depleted for mining up to 31 December 2020.
(6) Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.
(7) All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

Principal Operations

The map below shows the location of the Group's operating mines and development and exploration projects.



The Group's current operating assets consist of nine operating mines located in the Russian Federation, Kazakhstan, Burkina Faso and Guinea:

- *Gross*. An open-pit gold mine located in the Gross Region of the Republic of Yakutia, in the Russian Federation, with 6.6 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 278 koz of gold produced in 2020. The Group is currently expanding operations at the Gross mine with a view to increasing its processing capacity from the current 16 million to 18 million tonnes of ore per year in 2021 and further to approximately 26 million tonnes of ore per year in 2023, which is expected to result in additional 130 koz of annual production from 2024, thereby leading to a weighted average annual production of approximately 350 koz in the period between 2025 and 2035 at an AISC of approximately U.S.$740/oz. The Group owns a 100% interest in the Gross mine.
- *Taborny*. An open-pit gold mine located in the Gross Region of the Republic of Yakutia, in the Russian Federation, with 0.96 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 77.3 koz of gold produced in 2020. The Group owns a 100% interest in the Taborny mine.
- *Irokinda*. An underground gold mine located in the Republic of Buryatia, in the Russian Federation. As at 31 December 2020, Irokinda had 0.2 Moz of proved and probable gold reserves, according to the JORC Code, and produced approximately 39.4 koz of gold in 2020. The Group owns a 92.53% interest in Irokinda mine.
- *Berezitovy*. An open-pit gold mine with underground extension located in the Amur region of the Russian Federation, with 0.11 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 68.7 koz of gold produced in 2020. The Group owns a 100% interest in the Berezitovy mine.

- *Suzdal*. An underground gold mine located in Suzdal, in eastern Kazakhstan, with 0.98 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 75.6 koz of gold produced in 2020. The Group owns a 100% interest in the Suzdal mine.
- *Lefa*. An open-pit gold mine located in Guinea, West Africa, with 1.28 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 177.5 koz of gold produced in 2020. The Group owns an 85% interest in Lefa mine.
- *Taparko*. An open-pit gold mine located in Burkina Faso, West Africa, with 0.21 Moz of proved and probable gold reserves, according to the JORC Code, as at 31 December 2020, and approximately 94.8 koz of gold produced in 2020. The Group owns a 90% interest in the Taparko mine.
- *Bissa and Bouly*. Two open-pit gold mines (Bissa and Bouly) located in Burkina Faso, West Africa, with 1.1 Moz and 1 Moz of proved and probable gold reserves attributable to Bissa and Bouly, respectively, according to the JORC Code, as at 31 December 2020, and approximately 148.2 koz and 78.6 koz of gold produced in 2020 by Bissa and Bouly, respectively. The Group owns a 90% interest in the Bissa and Bouly mines.

Production and mineral resource and reserve reporting provided herein have not been adjusted to give effect to minority interests.

The Group also has a geographically diverse portfolio of exploration and development projects, including:

- *Tokko*. An open-pit gold mine development project located in the Gross Region of the Republic of Yakutia, the Russian Federation with 3.6 Moz of measured, indicated and inferred gold mineral resources, according to the JORC Code, as at 31 December 2020. The Group has completed a preliminary economic assessment for Tokko which is expected to result in additional 220 koz of average annual production in the period between 2025 and 2030 and an average life of mine of approximately U.S.$585/oz. The Group owns a 100% interest in Tokko.
- *Montagne d'Or*. An open-pit gold mine development project located in French Guiana with 2.7 Moz of proved and probable gold reserves and 4.8 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 55.01% interest.
- *Uryakh*. An open-pit and underground gold mine advanced stage exploration project located in the Irkutsk Region of the Russian Federation with 1.9 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 100% interest.
- *Pistol Bay*. An open-pit and underground gold mine advanced stage exploration project located in Canada with 1.6 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020, in which the Group holds a 100% interest.

In addition, on 11 May 2020, the Group and the Australian-based explorer Mako Gold Limited (ASX: MKG) entered into a definitive sales contract to acquire Niou Gold project located 50 kilometers southwest of the Bissa mine in Burkina Faso. Under the terms of the sales contract, upon completion, the Group will pay to Mako Gold Limited U.S.$700,000 upfront cash consideration for the sale and Mako Gold Limited will retain a 1% Net Smelter Royalty ("NSR") payable if the Group discovers an NI 43-101 compliant resource of at least 2 Moz gold and advances the resource to production. The Group has the right to repurchase the NSR at any time for U.S.$4.5 million. The acquisition has not yet completed and remains conditional on receipt of the approval of the Minister of Mines of Burkina Faso.

Operating Mines

Gross

Location and history.

Gross is a single open-pit mine located in the southwestern part of the Republic of Sakha (Yakutia) of the Russian Federation, some 125 km northeast of the Ikabya station on the BAM railway. It is located 5 km from the Taborny mine, accessible by an all-season road. The proximity of Taborny creates a number of synergies allowing the Group to benefit from economies of scale, expert knowledge of local geology and experienced personnel. Gross is the third greenfield project developed by Nordgold from exploration to production since 2013.

In 2013, the Group received a mining license and a pilot stage mining permit for Gross. The feasibility study at Gross was completed in 2014, and its reserves were approved by the Russian State Commission of Mineral Reserves (GKZ) in November 2014. In 2016, the construction of the Gross mine was started, and, in September 2018, the Gross mine was launched. The payback period on Gross was 20 months from the date of its commissioning. The overall construction of Gross lasted for 24 months.

Until 1 January 2019, the Group's results for Gross were reported together with the results for Taborny as part of the same reportable segment, Neryungri. With effect from 1 January 2019, Neryungri was split into two separate reporting segments representing Taborny and Gross, respectively.

The Gross mine is owned by the Group through "Neryungri-Metallik" LLC, in which the Group holds a 100% interest.

Geology and mineralisation.

The Gross mine is hosted by early Proterozoic sandstones of the Olonnokonskiy Formation. The sandstones are massive, fine to medium grained, and of quartz-feldspar and feldspar-quartz composition. The sandstones are horizontal or shallow dipping to the north, northeast and east, typically at dips of 10-30 degrees. A diabase dyke of Riphean Age, striking from east to west and dipping at 70 degrees to the south is heavily altered and disrupted, has a maximum thickness of 25 metres, a proven strike length of 700 metres and is mineralised, often carrying good gold grades. Gross comprises a complex set of ore bodies occurring in altered sandstone and diabase. Gold bearing mineralisation occurs in all altered rocks types, notably including the diabase dyke.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence under which the Gross mine is operated by the Group:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Gross	LLC Neryngri-Metallic	Open pit	Gold and silver	Production and exploration licence(1)	June 2033

Note:

(1) Production and exploration license grants the right of geological exploration, assessment and production of minerals within the license area.

Resources and reserves.

As at 31 December 2020, Gross' mineral resources amounted to measured and indicated mineral resources of approximately 10.51 Moz of gold and inferred mineral resources of approximately 1.85 Moz of gold, and Ore Reserves amounted to 6.58 Moz, making it the largest deposit in the Group's portfolio by total gold resources and reserves.

Mining and processing.

Gross is a conventional open pit gold mine utlisiling a traditional mining method consisting of drilling, blasting, loading, hauling, dumping and stockpiling. Operations at Gross utilise a low cost dynamic heap-leach processing method, due to the favorable metallurgical properties of the highly oxidised low-grade ore. Gross had an estimated LoM of 19 years as of 31 December 2020.

Gross has a 2000t/h two-stage gyratory and cone crushing circuit, overland and mobile conveyors, a mobile radial stacker, a dynamic leach pad and a spent ore reclaimer system. The dynamic leach pad has an annual capacity of up to 14 million tonnes of ore and is divided into ten panels each having a capacity of 1.2 million tonnes of ore. At any time during the leach cycle five panels are irrigated, one is prepared for irrigation, one is loaded with ore and one is unloaded to the lined leached ore dump.

The leach solution at Gross is heated to largely eliminate the impact from low winter temperatures on leach kinetics. The leached Gold is adsorbed from pregnant leach solution in carbon in solution columns, followed by desorption, electro-winning and smelting to produce gold doré.

Electricity is generated on site by a coal-fired 16MW power plant with capacity to provide sufficient electric power and heat for cyanide solution heating for high recovery during winter seasons. The Company is assessing the possibility of transitioning to hydroelectric power generation.

In 2020, the Group invested approximately U.S.$37 million to expand and upgrade the mining fleet at the Gross mine with a view to improving the effective management of the Gross mining fleet and ensuring high performance of the Gross deposit. In particular, the Group purchased five haul trucks, two excavators, one drill rig and additional support equipment for a total of U.S.$18 million. In addition, four haul trucks, two drill rigs and one excavator purchased by the Group for a total of U.S.$19 million were delivered on site in early 2021.

As part of the equipment efficiency enhancement program, all mining fleets at the Gross mine were equipped with Wenco Automated Fleet Management System in order to continuously improve the equipment dispatching process, increase productivity and reduce idle-time costs.

The Group also seeks to implement a powerhouse improvement programme at Gross mine with the aim to improve efficiencies and to achieve approximately 8% decrease in coal consumption and approximately a 57,700 tonne reduction of greenhouse gas emissions for 2021 and 2022.

Operational results.

The table below sets forth certain operational and financial information on the Gross segment as at and for the years ended 31 December 2020, 2019 and 2018:

Gross[1]	2020	2019	2018
Run of mine, kt	60,540	44,776	21,734
Ore mined, kt	16,125	14,540	7,469
Waste mined, kt	44,415	30,236	14,265
Stripping ratio, t/t	2.75	2.08	1.91
Ore processed, kt	16,459	14,525	5,345
Grade in ore processed, g/t	0.54	0.59	0.60
Recovery, %	87.5	84.6	83.2
Gold production[2], Koz	278.0	259.2	59.2
Gold sold[2], Koz	278.1	260.8	56.3
Average realised gold price per ounce sold, U.S.$/oz	1,793	1,409	1,224
Revenue, U.S.$m	498.7	367.6	68.9
Adjusted EBITDA, U.S.$m	405.9	282.8	55.6
Capital expenditures, U.S.$m	91.5	68.6	174.0
Total Cash Cost[3], U.S.$/oz	316	314	233
All-In Sustaining Cost[4], U.S.$/oz	469	407	342

Note:

(1) Previously accounted for as part of the Neryungri segment. The Neryungri segment was split into Gross and Taborny (former Neryungri) from 1 January 2019.

(2) Includes gold equivalent ounces of silver.

(3) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(4) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Gross increased by 9.2 million tonnes, or 274%, from 5.3 million tonnes in 2018 to 14.5 million tonnes in 2019 and further increased by 1.9 million tonnes, or 13.8%, to 16.5 million tonnes in 2020. The average head grade in ore processed was 0.54 g/t in 2020 compared to 0.59 g/t and 0.60 g/t in 2019 and 2018, respectively, and the recovery rate was 87.5% in 2020 compared to 84.6% and 83.2% in 2019 and 2018, respectively.

Gold production at Gross increased by 18.8 Koz, or 7%, from 259.2 Koz of gold in 2019 to 278 Koz of gold in 2020. The increase was primarily driven by higher mined and processed ore volumes, as well as recovery rates, partially offset by lower head grades.

Gold production at Gross increased by 200 Koz, or 338%, to 259.2 Koz from 59.2 Koz of gold in 2018, which was primarily because the gold production at Gross started only in September 2018.

Total refined gold sold at Gross increased by 17.3 Koz, or 7%, from 260.8 Koz in 2019 to 278.1 Koz in 2020 due to an increase in gold production in 2020. Average realised gold price per ounce sold was U.S.$ 1,793 per ounce in 2020 compared to U.S.$ 1,409 per ounce in 2019.

Total refined gold sold at Gross increased by 204.5 Koz, or 363%, to 260.8 Koz in 2019 from 56.3 Koz in 2018 due to an increase in gold production in 2019. Average realised gold price per ounce sold was U.S.$ 1,409 per ounce in 2019 compared to U.S.$ 1,224 per ounce in 2018.

In 2020, 2019 and 2018, Gross had sustaining capital expenditures in the amount of U.S.$40.5 million, U.S.$21 million, U.S.$11 million, respectively, and development capital expenditures in the amount of U.S.$51 million, U.S.$47 million, U.S.$163 million, respectively.

In 2020, Gross had LTIFR of 0.084 compared to 0.43 and nil in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

The Group is currently expanding operations at the Gross mine pursuant to an expansion programme. The expected overall production expansion potential is approximately 130 koz per year. The current expansion

programme consists of three main stages: (i) the installation of additional processing equipment, including a new 22 meter stacker, three adsorption columns, five new pumps and associated electrical infrastructure; (ii) an increase in the mining fleet by the addition of ten new haul trucks, one excavator and two drilling rigs and a number of auxiliary vehicles, including buses, fuel trucks, mobile repair units, a crane truck and a front loader; and (iii) the expansion of auxiliary infrastructure, including new camp facilities and laboratory equipment. Total capital expenditure on the project is expected to be approximately U.S.$58.1 million.

The Group has completed a preliminary economic assessment in the first quarter of 2021 with a view to increasing the Gross mine's processing capacity from the current 16 million to 18 million tonnes of ore per year by the end of 2021 and further to approximately 26 million tonnes of ore per year by the end of 2023, which, if successful, will be followed by a corresponding feasibility study expected to be completed in the second half of 2021. This additional expansion from 18 to 26 million tonnes of ore per year would be expected to require approximately U.S.$208 million of capital expenditure till the end of construction and increase annual production by approximately 130 thousand ounces of gold starting from the end of 2023, thereby increasing the Gross annual production to approximately 350 thousand ounces. The expected AISC after expansion is approximately U.S.$740 per ounce by 2025.

The Group expects to increase ore reserves and mineable resources in the Gross region by more than 10 Moz of reserves and mineable resources. Also, the Group intends to achieve a weighted average gold production of approximately 640 Koz per annum (including 350 Koz production at Gross, 220 Koz at Tokko and 70 Koz at Taborny) between 2025 and 2030, and a weighted average AISC of approximately U.S.$715 per ounce by 2025.

Gross segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$91.5 million, U.S.$68.6 and U.S.$174 million, respectively (see Part X: "*Operating and Financial Review — Operating Segments*").

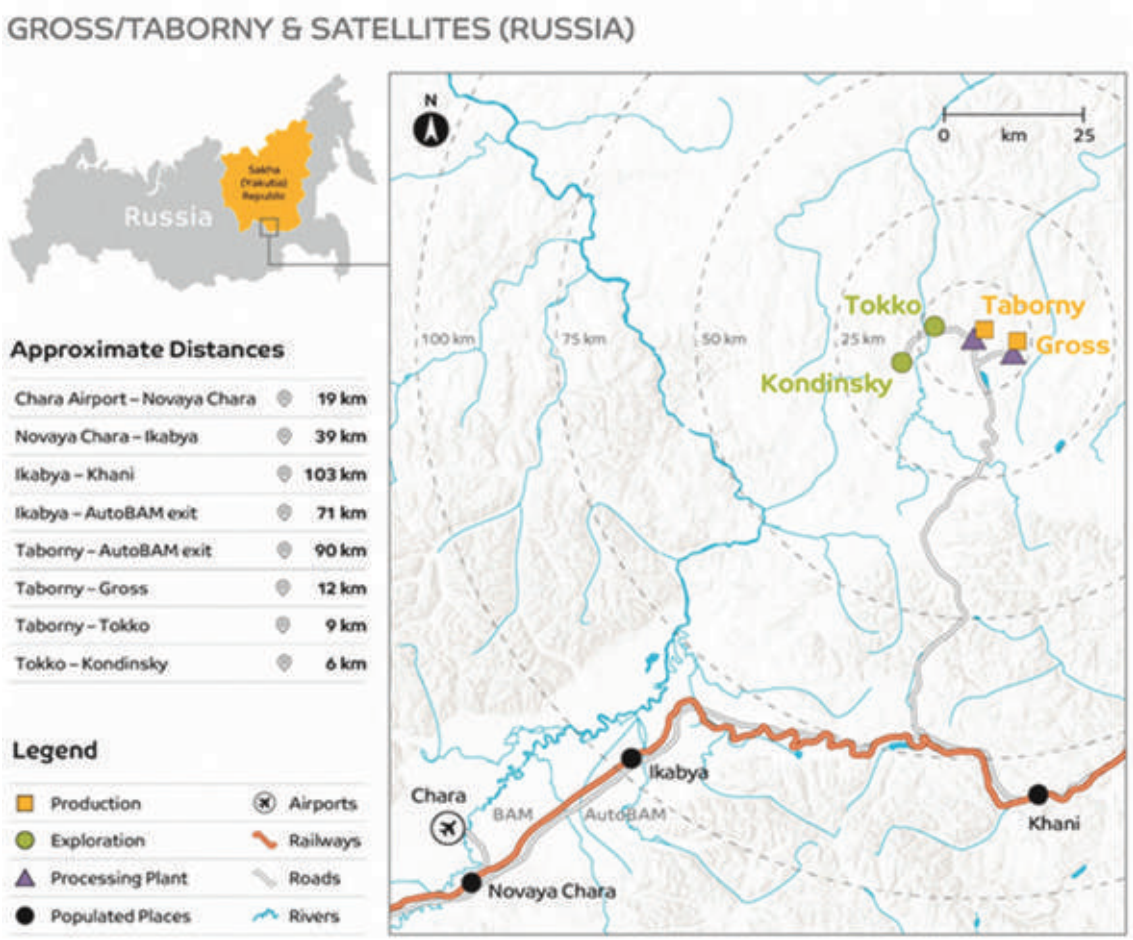
Taborny

Location and history.

Taborny is an open-pit mine located in the South West of the Sakha (Yakutia) Republic in the Far East of Russia, approximately 125km northeast of the Ikabya station of the Baikal-Amur railway. It is approximately 200 km from the town of Chara and is accessible by an all-season road.

The mine was acquired by the Group in 2007 from subsidiaries of the Arlan Investment Company through the acquisition of 100% shares in LLC Neryungri-Metallik, which held licenses to Neryungri mine (see "*History*"). Until 1 January 2019, the Group's results for Taborny were reported together with the results for Gross as part of the same reportable segment, Neryungri. With effect from 1 January 2019, Neryungri was split into two separate reporting segments representing Taborny and Gross, respectively.

The Taborny mine is owned by the Group through "Rudnik Taborny" LLC, in which the Group holds a 100% interest.



Geology and mineralisation.

The Taborny mine is hosted by early Proterozoic sandstones of the Olonnokonskiy Formation. The sandstones are massive, fine to medium grained, and of quartz-feldspar and feldspar-quartz composition. The sandstones are horizontal or shallow dipping to the north, northeast and east, typically at dips of 10-30 degrees. A diabase dyke of Riphean Age, striking from east to west and dipping at 70 degrees to the south is heavily altered and disrupted, has a maximum thickness of 25 metres, a proved strike length of 700 metres and is mineralised, often carrying good gold grades. Taborny comprises a complex set of ore bodies occurring in altered sandstone and diabase. Gold bearing mineralisation occurs in all altered rocks types, notably including the diabase dyke.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence, under which Taborny mine is operated by the Group:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Taborny	LLC Rudnik Taborny	Open pit	Gold and silver	Combined licence(1)	December 2021(2)

Notes:

(1) Combined license — grants the right of geological survey, exploration, assessment and production of minerals within the license area.

(2) Licence was initially to expire on 31 December 2020 but was automatically prolonged for one year in accordance with the Regulation of the Government of the Russian Federation No. 440 "On extension of permits and on peculiarities of permission documentation" dated 3 April 2020 and in May 2021, the Group extended the licence until 31 December 2022. The Group intends to apply for extension of the license for a further five year period in December 2021.

Resources and reserves.

As at 31 December 2020, Taborny's mineral resources amounted to measured and indicated mineral resources of approximately 1.54 Moz of gold and inferred Ore Reserves of approximately 0.57 Moz of gold, and mineral reserves amounted to 0.96 Moz.

Mining and processing.

Operations at Taborny utilise a low cost and predominantly run of mine stacked static heap leach processing method, due to the favorable metallurgical properties of the highly oxidised low-grade ore. As at 31 December 2020, Taborny had an estimated LoM of 14 years.

Taborny has two Jaw crushing circuits, overland and mobile conveyors, a mobile radial stacker onto a static leach pad. The bulk of the ore is however run of mine truck stacked with a total combined annual capacity of up to 7.5 million tonnes of ore.

Gold is adsorbed from pregnant leach solution in carbon in solution columns, followed by desorption, electro-winning and smelting to produce gold doré. Gold production at the mine is subject to significant seasonal variation due to harsh winter temperatures, the low temperatures of the cyanide leach solution have a significant negative effect on the gold dissolution kinetics and ability of the solution to penetrate the ore. The majority of gold extraction occurs from June to November.

Taborny utilises diesel generators for electricity generation and diesel boilers for leach solution heating.

In 2020, the Group increased the processing capacity of Taborny from 5 million to 7.5 million tonnes of ore per year. As part of the capacity expansion initiative, the Group installed a two-line Metso crusher and a radial stacker and built an irrigation pumping station at the mine's heap leaching site comprising four Sulzer pumps, each with a capacity of 400 cubic meters per hour. To ensure processing capacity can meet the corresponding increase in mining activity, Taborny purchased two additional hauling trucks, an excavator, a grader, two Epiroc drilling rigs and a number of pieces of auxiliary equipment.

As part of the equipment efficiency enhancement program, all mining fleet at Taborny has been equipped with the Wenco automated Fleet Management System, which the Group expects will allow to continuously improve the equipment dispatching process, increase productivities and reduce idle-time costs.

Operational results

The table below sets forth certain operational and financial information on Taborny segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Taborny (former Neryungri)[1]	**2020**	**2019**	**2018**
Run of mine, kt	30,048	20,774	17,288
Ore mined, kt	7,507	5,104	5,224
Waste mined, kt	22,541	15,670	12,065
Stripping ratio, t/t	3.0	3.07	2.31
Ore processed, kt	7,939	6,065	5,622
Grade in ore processed, g/t	0.46	0.52	0.73
Recovery, %	69.2	70.6	75.2
Gold production, Koz[2]	77.3	76.4	99.8
Gold sold, Koz[2]	77.3	77.0	99.0
Average realised gold price per ounce sold, U.S.$/oz	1,801	1,409	1,258
Revenue, U.S.$m	139.3	108.5	124.5
Capital expenditures, U.S.$m	33.8	49.1	16.9
Adjusted EBITDA, U.S.$m	90.8	65.4	78.9
Total Cash Cost[3], U.S.$/oz	623	559	498
All-In Sustaining Cost[4], U.S.$/oz	967	893	634

Note:

(1) Previously accounted for as part of the Neryungri segment. The Neryungri segment was split into Gross and Taborny (former Neryungri) from 1 January 2019.

(2) Includes gold equivalent ounces of silver.
(3) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).
(4) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Taborny decreased by 0.4 million tonnes, or 8%, from 5.6 million tonnes in 2018 to 6.1 million tonnes in 2019 and further increased by 1.8 million tonnes, or 31%, to 7.9 million tonnes in 2020. The average head grade in ore processed was 0.46 g/t in 2020 compared to 0.52 g/t and 0.73 g/t in 2019 and 2018, respectively, and the recovery rate was 69.2% in 2020 compared to 70.6% and 75.2% in 2019 and 2018, respectively.

Gold production at Taborny increased by 0.9 Koz, or 1.2%, from 76.4 Koz of gold in 2019 to 77.3 Koz of gold in 2020. The increase was primarily due to higher mined and processed ore volumes. Gold production at Taborny decreased by 23.4 Koz, or 23%, from 99.8 Koz of gold in 2018 to 76.4 Koz of gold in 2019. The decrease was primarily due to lower ore mined in that period.

Total refined gold sold at Taborny increased by 0.3 Koz, or 0.4%, from 77 Koz in 2019 to 77.3 Koz in 2020 due to an increase in gold production in 2020. Average realised gold price per ounce sold was U.S.$1,801 per ounce in 2020 compared to U.S.$1,409 per ounce in 2019.

Total refined gold sold at Taborny decreased by 22 Koz, or 22%, to 77 Koz in 2019 from 99 Koz in 2018 due to a decrease in gold production in 2019. Average realised gold price per ounce sold was U.S.$1,409 per ounce in 2019 compared to U.S.$1,258 per ounce in 2018.

In 2020, 2019, 2018, Taborny had sustaining capital expenditures in the amount of U.S.$27 million, U.S.$26 million, U.S.$14 million, respectively, and development capital expenditures in the amount of U.S.$6 million, U.S.$23 million, U.S.$3 million, respectively.

In 2020, Taborny had LTIFR of 0.12 compared to 0.42 in 2019. In 2018, Taborny together with Gross as part of the former Neryungri segment had LTIFR of 0.30.

Capital expenditure plans and outlook:

In 2020, the Group completed the capacity expansion initiative resulting in an increase in the processing capacity of Taborny from 5 million to 7.5 million tonnes of ore per year. See " — *Mining and processing"*. Taborny segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$33.8 million, U.S.$49.1 and U.S.$31.8 million, respectively (see also See also Part X: "*Operating and Financial Review — Operating Segments*"). The Group does not expect any material capital expenditures in Taborny in a short or mid term.

Irokinda

Location and history.

Irokinda is an underground gold mine in the Republic of Buryatia of the Russian Federation. The Irokinda gold mine is located approximately 75 kilometres from the town of Taksimo, where the Baikal-Amur railroad station and airport are located, and is accessible from an all-season road.

The Irokinda mine was acquired by the Group in 2008 as part of the acquisition of a controlling interest in High River Gold Mines Ltd (see "*History*"). The Group holds a 92.53% interest in PJSC Buryatzoloto and LLC Irokinda. Shares of PJSC Buryatzoloto are listed on MOEX. On 26 April 2021, The Group sold its 100% interest in Zun-Holba mine to a third party. Previously, the Irokinda and Zun-Holba mines together comprised Buryatzoloto reporting segment.

The Group's ongoing initiatives at Irokinda include an exploration campaign aimed at converting resources to reserves at Vysokaya Poperechnaya, infill drilling of lower levels of Serebryakovskaya vein to confirm reserves continuity and recommencement of work at Tuluinskaya vein to explore significant potential for resources extensions.

Geology and mineralisation.

At Irokinda, gold mineralisation occurs within quartz veins hosted in Archean gneiss. Quartz veins are controlled by three main tectonic zones gently dipping to the west at 25-45 degrees. Individual veins have strike lengths ranging from 60 metres to 400 metres and are generally traced up to 300 metres or more down dip. Thicknesses of the individual veins range from 0.1 to 5 metres. Gold mineralisation within the veins is discontinuous with local rich bonanza-type ore shoots measuring from 30 to 350 metres along the strike and up to 350 metres down dip. Approximately 90 per cent. of gold occurs as free gold hosted by quartz with approximately 10 per cent. of gold hosted by sulphides. Gold is relatively coarse grained with grain sizes from 1 to 2 millimetres and occasionally up to 2 centimetres.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licences under which Irokinda and Zun-Holba mines are operated by the Group:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Irokinda	LLC Irokinda	Underground pit	Gold	Combined licence(1)	December 2021(3)

Notes:
(1) Combined license grants the right of geological survey, exploration, assessment and production of minerals within the license area.
(2) Production and exploration license grants the right of geological exploration, assessment and production of minerals within the license area.
(3) The Group intends to apply for extension of the Irokinda licence in August 2021.

Resources and reserves.

As at 31 December 2020, the mineral resources at Irokinda mine amounted to measured and indicated mineral resources of approximately 0.24 Moz of gold and inferred Ore Reserves of approximately 0.56 Moz of gold, and mineral reserves amounted to 0.2 Moz. No ore reserves or resources were declared for Zun-Holba as of 31 December 2020 due to its short mine life of 2 years.

Mining and processing.

Irokinda contains a processing plant with crushing, grinding, gravity and flotation circuits. For processing, there are two crushing stages, two grinding stages using ball mills, followed by gravity separation, which produces concentrates for both the gravity and flotation circuits. The gravity circuit is used to recover free gold, after which smelting produces doré bars. Flotation is used to recover finer gold particles into a flotation concentrate. From the second quarter 2021, the Group has started to sell flotation concentrate produced at Irokinda, which was previously processed at Zun-Holba mine, to Zoloto Severnogo Urala, a subsidiary of Polymetal International plc. Processing plant overall recoveries are approximately 90-95 per cent., and both plants operate at close to their design capacity for a total capacity of 700 Ktpy. As at 31 December 2020, Irokinda had an estimated life of mine of 11 years.

Operational results.

The table below sets forth certain operational and financial information on Buryatzoloto segment, which was comprised of Irokinda and Zun-Holba, as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Buryatzoloto	**2020**	**2019**	**2018**
Run of mine, kt	634	931	1,078
Irokinda, kt	542	547	570
Zun-Holba, kt	92	384	508
Ore mined, kt	372	522	589
Irokinda, kt	304	311	321
Zun-Holba, kt	69	211	268
Waste mined, kt	262	409	489
Irokinda, kt	238	236	249
Zun-Holba, kt	23	173	240
Ore processed, kt	403	521	600
Irokinda, kt	319	314	332
Zun-Holba, kt	84	207	268
Grade in ore processed, g/t	4.02	3.73	3.45
Irokinda, g/t	4.34	4.17	4.01
Zun-Holba, g/t	2.81	3.08	2.76
Recovery, %	91.3	92.7	90.8
Irokinda, %	91.5	92.6	91.1
Zun-Holba, %	90.2	92.9	90.1
Gold production, Koz[(1)]	47.0	57.7	64.7
Irokinda, Koz	39.4	38.5	41.9
Zun-Holba, Koz	7.5	19.2	22.8
Gold sold, Koz[(1)]	57	47.6	64.8
Irokinda, Koz	39	38.5	41.9
Zun-Holba, Koz	8	9.2	22.8
Average realised gold price per ounce sold, U.S.$/oz	1,775	1,404	1,280
Irokinda, U.S.$/oz	1,771	1,359	1,279
Zun-Holba, U.S.$/oz	1,794	1,424	1,284
Revenue, U.S.$m	84.7	67.1	82.9
Capital expenditures, U.S.$m	13.6	22.8	27.6
Adjusted EBITDA, U.S.$m	35.3	27.9	6.7
Total Cash Cost, U.S.$/oz[(2)]	844	805	1,181
Irokinda, U.S.$/oz	843	856	1,011
Zun-Holba, U.S.$/oz	1,739	668	1,493
All-In Sustaining Cost, U.S.$/oz[(3)]	1,329	1,170	1,398
Irokinda, U.S.$/oz	1,184	1,262	1,276
Zun-Holba, U.S.$/oz	1,849	1,007	1,621

Notes:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Buryatzoloto decreased by 0.079 million tonnes, or 13.1%, from 0.6 million tonnes in 2018 to 0.521 million tonnes in 2019, and further decreased by 0.118 million tonnes, or 22.6%, to 0.403 million tonnes in 2020. The average head grade in ore processed was 4.02 g/t in 2020 compared to 3.73 g/t and 3.45 g/t in 2019 and 2018, respectively, and the recovery rate was 91.3% in 2020 compared to 92.7% and 90.8% in 2019 and 2018, respectively.

In 2020, gold production at Buryatzoloto decreased by 10.7 Koz, or 18.5%, to 47.0 Koz from 57.7 Koz of gold in 2019, which was primarily due to deceleration of mining activity at Zun-Holba.

In 2019, gold production at Buryatzoloto decreased by 7 Koz, or 10.8%, to 57.7 Koz from 64.7 Koz of gold in 2018, which was primarily due to lower volumes mined and processed which was partially compensated by higher grade and recovery.

In 2020, total refined gold sold at Buryatzoloto increased by 4.1 Koz, or 7.8%, to 57 Koz from 52.9 Koz in 2019.

In 2019, total refined gold sold at Buryatzoloto decreased by 11.9 Koz, or 18.4%, to 52.9 Koz from 64.8 Koz in 2018 due to a decrease in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,775 per ounce in 2020 compared to U.S.$ 1,404 and U.S.$ 1,280 per ounce in 2019 and 2018, respectively.

In 2020, 2019 and 2018, Buryatzoloto had sustaining capital expenditures in the amount of U.S.$13.4 million, U.S.$17.3 million and U.S.$13.8 million, respectively, and development capital expenditures in the amount of U.S.$0.2 million, U.S.$5.5 million and U.S.$13.8 million, respectively.

In 2020, 2019 and 2018, Irokinda had sustaining capital expenditures in the amount of U.S.$13.3 million, U.S.$16.7 million, U.S.$13.2 million, respectively, and development capital expenditures in the amount of U.S.$0.2 million, nil in 2019 and U.S.$2.2 million in 2018.

In 2020, 2019 and 2018, Zun-Holba had sustaining capital expenditures in the amount of nil, U.S.$13.8 million, U.S.$14.5 million, respectively, and development capital expenditures in the amount of nil, U.S.$13.2 and U.S.$11.6 million in 2018.

In 2020, Irokinda had LTIFR of 0.81 compared to 0.95 and 0.23 in 2019 and 2018, respectively. In 2020, Zun-Holba had LTIFR of 0.58 compared to 0.75 and 0.55 in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

The Group has completed exploration drilling at Irokinda mine as part of an exploration programme to extend the life of the mine. Buryatzoloto segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$27.6 million, U.S.$22.8 and U.S.$13.6 million, respectively (see Part X: "*Operating and Financial Review — Operating Segments*"). In 2020, the Group invested approximately U.S.$1.2 million in re-equipping Irokinda mine and expects to further invest approximately U.S.$3.3 million in the modernization and acquisition of new equipment in 2021.

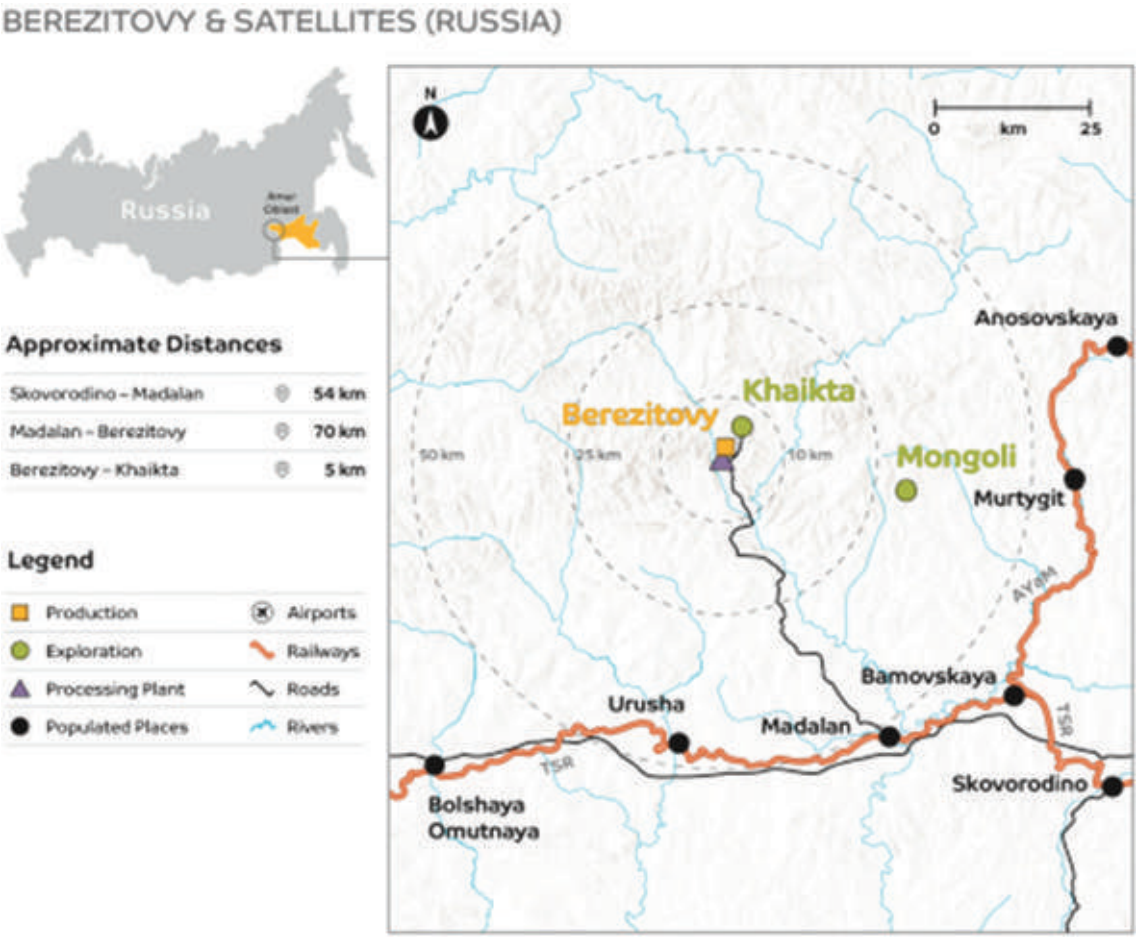
Berezitovy

Location and history.

The Berezitovy gold mine is located in the Amur region of the Russian Federation, approximately 50 kilometres north of Urusha, a town of 5,000 people, and is accessible from an all-season road, most of which is un-paved. The mine is located 50 kilometres from the Trans-Siberian railroad and 100 kilometres from the Skovorodino railroad station.

The mine was acquired by the Group as part of the acquisition of a controlling interest in High River Gold Mines Ltd in 2008 (see "*History*"). As of the date of this Registration Document, the Group owns 100% interest in the Berezitovy mine through "Berezitovy Rudnik" LLC.

Berezitovy is a combined open-pit and underground gold mine. The Group received the final governmental consent for the underground mining operations at Berezitovy in the third quarter of 2019, and launched trial underground mining operations in addition to continuing production from the open pit. As of the date of this Registration Document, the Group operates both the open-pit and the underground mine at Berezitovy.



Geology and mineralisation.

The Berezitovy deposit is gold-polymetallic, low-sulphide type mineralisation with sulphide mineral content in the range of 5 to 10 per cent. Less than 7 per cent. of total mineable reserves are oxidised. Gold mineralisation in and around the Berezitovy property is related to explosive breccia within granitic gneisses. At the Berezitovy deposit, this is present within a north-northwest trending and steeply southwest dipping zone of brecciated and hydrothermally altered granodiorite. This zone, and several other zones of similar orientation in the general area, may represent regional scale tension gashes developed between the east-northeast trending Severa and Yuzhna Sergachinsky faults. The uplifted block, which contains the gold mineralised zones, is in contact with younger sedimentary rocks on either side. Several granitic dikes are parallel to the regional trend and are mineralised close to the main zone.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence under which Berezitovy mine is operated by the Group:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Berezitovy	LLC Berezitovy Rudnik	Open pit	Gold	Combined licence(1)	December 2024

Note:
(1) Combined license grants the right of geological survey, exploration, assessment and production of minerals within the license area.

Resources and reserves.

As at 31 December 2020, Berezitovy's mineral resources amounted to measured and indicated mineral resources of approximately 0.17 Moz of gold and inferred mineral resources of approximately 0.03 Moz of gold, and Ore Reserves amounted to 0.11 Moz.

Mining and processing.

Berezitovy is a combined open-pit and underground gold mine. The Berezitovy processing plant contains crushing, SAG and ball milling leach and CIP circuits, a tailings water filter plant and dry tailings storage facility, a water reservoir and potable water wells located on the Khaikta River, a sanitary landfill, a sewage treatment plant, mine water settling ponds, as well as a modern camp which accommodates approximately 900 workers as at 31 December 2020. The mine recently expanded its processing operations to include the treatment of low-grade ore by heap-leaching. As at 31 December 2020, Berezitovy had an estimated LoM of 2 years.

The mine is connected to the regional power grid, which provides inexpensive hydroelectric power. Low cost and reliable power is provided to the site from the main substation at Skovorodino through a 101 kilometre, 110 kV power line. Backup power is provided at site by 2 diesel generators. The Khaitka River passes near the mine and provides an abundant water supply. The water supply comes from a reservoir located on the border of the site, and potable water is produced on site.

Operational results.

The table below sets forth certain operational and financial information on Berezitovy segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Berezitovy	**2020**	**2019**	**2018**
Run of mine, kt	16,294	16,636	15,721
Ore mined, kt	1,235	578	261
Waste mined, kt	15,059	16,058	15,460
Stripping ratio, t/t	16.96	61.37	81.57
Ore processed, kt	1,835	1,895	1,962
Grade in ore processed, g/t	1.27	1.12	0.90
Recovery, %	91.2	88.6	88.7
Gold production, Koz[1]	68.7	60.1	48.4
Gold sold, Koz[1]	68.1	60.2	48.4
Average realised gold price per ounce sold, U.S.$/oz	1,781	1,395	1,288
Revenue, U.S.$m	122.7	85.1	62.3
Capital expenditures, U.S.$m	26.3	39.1	48.5
Adjusted EBITDA, U.S.$m	72.2	40.8	29.4
Total Cash Cost, U.S.$/oz[2]	721	718	667
All-In Sustaining Cost, U.S.$/oz[3]	1,087	1,148	1,325

Note:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Berezitovy decreased by 0.07 million tonnes, or 3.0%, from 1.96 million tonnes in 2018 to 1.89 million tonnes in 2019, and further decreased by 0.06 million tonnes, or 3%, to 1.83 million tonnes in 2020. The average head grade in ore processed was 1.27 g/t in 2020 compared to 1.12 g/t and 0.90 g/t in 2019 and 2018, respectively, and the recovery rate was 91.2% in 2020 compared to 88.6% and 88.7% in 2019 and 2018, respectively.

In 2020, gold production at Berezitovy increased by 8 Koz, or 13%, to 68.7 Koz from 60.1 Koz of gold in 2019, which was primarily due to higher grade from the open pit and higher recovery.

In 2019, gold production at Berezitovy increased by 11.7 Koz, or 24%, to 60.1 Koz from 48.4 Koz of gold in 2018, which was primarily due to higher ore mined, higher grade in ore mined and processed and higher recovery. The higher grade was driven mainly by start of underground mining.

In 2020, total refined gold sold at Berezitovy increased by 7.1 Koz, or 11.6%, to 68.1 Koz from 60.2 Koz in 2019 due to an increase in gold production in 2020.

In 2019, total refined gold sold at Berezitovy increased by 12.6 Koz, or 26%, to 60.2 Koz from 48.4 Koz in 2018 due to an increase in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,781 per ounce in 2020 compared to U.S.$ 1,395 and U.S.$ 1,288 per ounce in 2019 and 2018, respectively.

In 2020, 2019 and 2018, Berezitovy had sustaining capital expenditures in the amount of U.S.$25 million, U.S.$26 million, U.S.$31 million, respectively, and development capital expenditures in the amount of U.S.$ 1.4 million, U.S.$13 million, U.S.$17 million, respectively.

In 2020, Berezitovy had LTIFR of 0.21 compared to 0.23 and 0.12 in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

In 2019, the Group completed the construction of the underground extension of the open-pit mine at Berezitovy and put it into operation in 2020. Berezitovy capital expenditures in 2020, 2019 and 2018 amounted to U.S.$ 26.3, U.S.$39.1 million and U.S.$48.5 million (see Part X: "*Operating and Financial Review — Operating Segments*"). The Group does not expect any material capital expenditures in Berezitovy in a short or mid term.

Suzdal

Location and history:

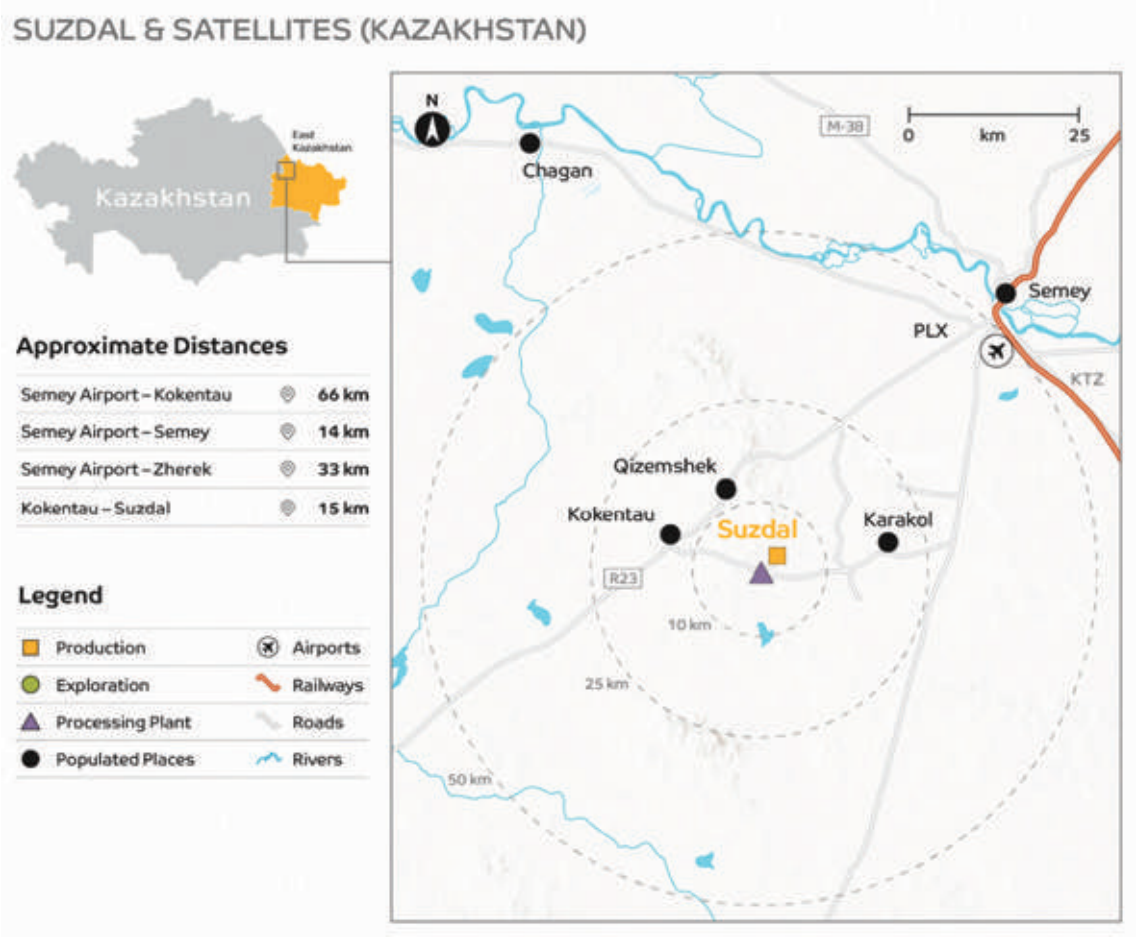
The Suzdal gold mine is an underground mine located in eastern Kazakhstan, approximately 55km southwest of Semipalatinsk (which has a railway station and an airport), and the mine is served by an all-season road.

The Suzdal mine was acquired as part of the acquisition of a 100 % stake in Celtic Resources Holdings plc (now Celtic Resources Holdings DAC) in 2008. As of the date of this Registration Document, the Suzdal mine is owned 100% by JSC FIC Alel, which is in turn held 100% by the Group.

Suzdal mine is the most technologically complex and advanced gold mine in the Group. Its BIOX processing circuit was the first of this type to be launched in Eurasia. In June 2016, Suzdal became the second mine worldwide to launch an innovative Outotec HiTeCC (Hot Leach) process to recover gold from both historical and CIL tailings.

Until September 2018, the Group's assets in Kazakhstan also included another auxiliary open-pit mine south of Suzdal, Balazhal, which was owned 100% through Semgeo LLP. The Group sold Semgeo LLP to a third party in September 2018.

In January 2021, the Group sold its entire interest in the share capital of Zherek LLP, which operates the Zherek mine in Kazakhstan, to a third party for a total consideration of approximately U.S.$0.09 million.



Geology and mineralisation.

The Suzdal gold deposit represents typical shear-hosted mesothermal gold mineralisation distributed within a late Palaeozoic turbidite sequence. The gold mineralisation at the Suzdal deposit is hosted by a steeply south-east dipping (approximately 75 degrees), Late Palaeozoic turbidite sequence. The mineralisation is associated with zones of silicification, quartz-carbonate veining and sulphide alteration distributed along north-east trending shear zones in the turbidites. A significant proportion of the gold is refractory and requires oxidation of the sulphide minerals prior to leaching of the gold.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence under which Suzdal mine is operated by the Group:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Suzdal	JSC FIC Alel	Underground pit	Gold	Production and exploration licence(1)	March 2022

Note:
(1) Combined license grants the right of geological survey, exploration, assessment and production of minerals within the license area.

Resources and reserves.

As at 31 December 2020, Suzdal's mineral resources amounted to measured and indicated mineral resources of approximately 1.23 Moz of gold and inferred mineral resources of approximately 0.29 Moz of gold, and Ore Reserves amounted to 0.98 Moz.

Mining and processing.

The mine facility contains a processing plant with crushing, grinding, flotation, BIOX, CIL and HiTeCC circuits. The operations at Suzdal are among the most technologically advanced within the Group, as the plant possesses the technology necessary to process double refractory sulphide ore, which the Group's other mines are not currently able to do. As at 31 December 2020, Suzdal had an estimated LoM of 13-years.

Suzdal is the first of two mines in Kazakhstan where BIOX is implemented, which offers the potential in the future to use it as a hub for processing refractory concentrates from other mining operations which could not otherwise be processed in Kazakhstan, in an amount up to 20-30 ktpy.

Suzdal sources power from two independent power lines, with potable water from an underground aquifer pumped from bores 1.3km to the north of the mine. In 2020, the Group successfully automated the crushing facility at its Suzdal mine as a part of the safety and production management improvement programme. The Group also seeks to upgrade Suzdal's desorption and electrowinning facilities in 2021, and, eventually, to reach a full automation of the processing cycle with the ability to manage it from one dispatch office. Suzdal's crushing facility processes approximately 550,000 tonnes of gold bearing ore per year. The Company's management believes that fully automating the facility will improve the management and control of ore crushing and milling process despite the increase in ore hardness.

The Suzdal mine is connected with the Kazakhstan national grid via a 110 kV transmission line to a main substation at Semipalatinsk and there is secondary 10 kV connection and back up diesel generators. The Company is planning a transition to hydroelectric power generation in the near term.

In 2021, the Group is planning to build a new desorption, electro-winning and smelting circuit which is intended to ensure cutting-edge technological solutions and modern equipment are used to deliver full automation and high efficiency of processes to increase the gold recovery rate starting from 2022 at the Suzdal mine. The Group expects to invest approximately U.S.$5.6 million in this project.

Operational results.

The table below sets forth certain operational and financial information on Suzdal segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Suzdal	**2020**	**2019**	**2018**
Run of mine, kt	885	925	911
Ore mined, kt	570	553	552
Waste mined, kt	315	371	358
Ore processed, kt	608	546	551
Grade in ore processed, g/t	6.02	6.00	6.53
Recovery, %	64.4	67.5	68.5
Gold production, Koz[(1)]	75.6	75.8	83.5
Gold sold, Koz[(1)]	75.5	75.8	83.5
Average realised gold price per ounce sold, U.S.$/oz	1,782	1,412	1,258
Revenue, U.S.$m	134.6	107.1	105.0
Capital expenditures, U.S.$m	20.2	17.6	12.8
Adjusted EBITDA, U.S.$m	82.3	59.0	54.7
Total Cash Cost, U.S.$/oz[(2)]	693	633	602
All-In Sustaining Cost, U.S.$/oz[(3)]	900	864	756

Note:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(4) Suzdal results in 2018 included the results of the Suzdal and Balazhal mines. During 2018, the Group sold Balazhal to a third party. Accordingly, Suzdal results in 2020 and 2019 did not include the results of Balazhal.

Total volume of ore processed at Suzdal increased by 0.05 million tonnes, or 1%, from 0.55 million tonnes in 2018 to 0.54 million tonnes in 2019, and further increased by 0.06 million tonnes, or 11%, to 0.60 million tonnes

in 2020. The average head grade in ore processed was 6.02 g/t in 2020 compared to 6.00 g/t and 6.53 g/t in 2019 and 2018, respectively, and the recovery rate was 64.4% in 2020 compared to 67.5% and 68.5% in 2019 and 2018, respectively.

In 2020, gold production at Suzdal remained relatively stable with a slight decrease by 0.2 Koz, or 0.3%, to 75.6 Koz from 75.8 Koz of gold in 2019.

In 2019, gold production at Suzdal decreased by 7.7 Koz, or 9%, to 75.8 Koz from 83.5 Koz of gold in 2018, which was primarily due to by lower head grade in ore mined and processed as well as lower recovery due to change the quality of ore mined.

In 2020, total refined gold sold at Suzdal decreased by 0.3 Koz, or 0.4%, to 75.5 Koz from 75.8 Koz in 2019 due to an decrease in gold production in 2020.

In 2019, total refined gold sold at Suzdal decreased by 7.7 Koz, or 9%, to 75.8 Koz from 83.5 Koz in 2018 due to a decrease in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,782 per ounce in 2020 compared to U.S.$ 1,412 and U.S.$ 1,258 per ounce in 2019 and 2018, respectively.

In 2020, 2019 and 2018, Suzdal had sustaining capital expenditures in the amount of U.S.$15.7 million, U.S.$17.6 million, U.S.$12.8 million, respectively, and development capital expenditures in the amount of U.S.$4.5 million, U.S.$0.1 million and U.S.$0.01 million, respectively.

In 2020, Suzdal had LTIFR of 0.12 compared to 0.43 and 0.22 in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

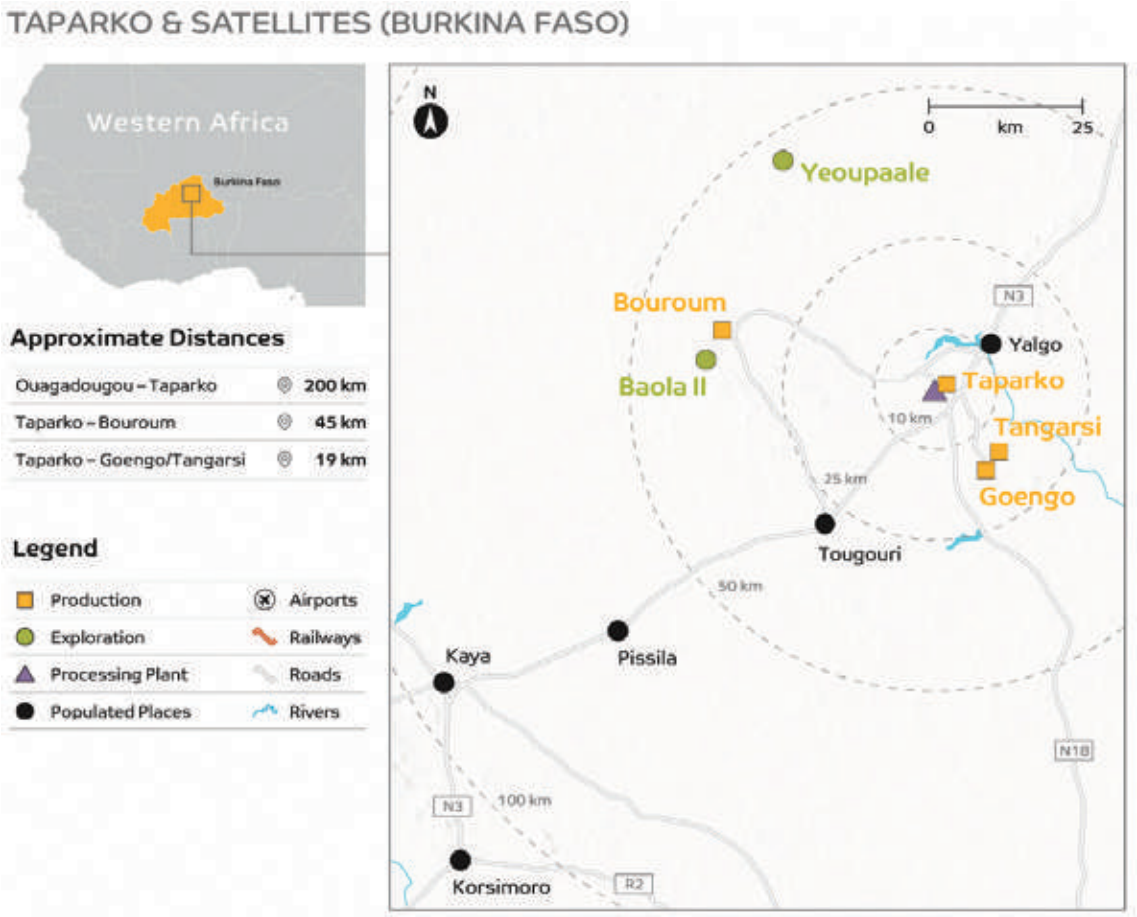
In 2019-2020, the Group completed the construction of a new tailings storage facility at Suzdal and, as part of the safety and production management improvement programme, successfully automated the crushing and sorting facility (see " — *Mining and processing*" above). Suzdal segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$ 20.2 million, U.S.$17.6 million and U.S.$12.8 million, respectively (See Part X: "*Operating and Financial Review — Operating Segments*"). The Group does not expect any material capital expenditures in Suzdal in a short or mid term.

Taparko

Location and history.

The Taparko mine is located in the Namantenga Province, Burkina Faso in West Africa, approximately 200km northeast of Ouagadougou, the capital city of Burkina Faso. The mine is situated in a sparsely populated area readily accessible by road from the capital. The mining operations consist of three separate open pits located at Taparko (35, 2N2K and GT), and one satellite open pit located at Bouroum. The Bouroum pit is located approximately 49 kilometres northwest of the main Taparko site, where all crushing and milling infrastructure is located, and is accessible from Taparko via a gravel road. Taparko's satellite deposits also include Yeou, Goengo, Nayiri, Tangarsi and Bissinga. The Company has commenced studies related to underground mining beneath the main 35 Pit at Taparko. Launch of Taparko underground mine in 2022 is projected to contribute 40 koz in 2023.

The interest in Taparko was acquired by the Group in 2008 as part of the acquisition of a controlling interest in High River Gold Mines Ltd. (see "*History*"). As of the date of this Registration Document, the mine is operated by Societe Des Mines de Taparko SA, a company 90% owned by High River Gold Mines Ltd. through its direct subsidiary High River Hold Mines (West Africa) Ltd., with the remaining 10% interest held by the Burkina Faso government.



Geology and mineralisation.

Gold at the Taparko property occurs predominantly in a northwest trending broad shear zone in Birimian greenstone. Gold mineralisation is concentrated in a system of quartz veins and veinlets, dipping between 40 and 50 degrees to the northeast, that occur throughout most of the known length of the Taparko shear zone. The width of the zones varies between 5 and 20 metres. While the Taparko deposit has been well explored, satellite deposits can still be found. The Taparko deposit is open at depth, and as such the addition of reserves is possible.

Mineral Rights and Operating Licenses.

The Taparko mine is operated pursuant to a mining investment agreement with the Government of Burkina Faso in respect of each of Taparko and Bouroum deposit (as described under Part VI: *"Regulatory Overview — Burkina Faso — Mining concessions*") and industrial exploitation permits, certain details of which are set forth in the table below:

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Taparko	La Societe des mines de Taparko (SOMITA-S.A)	Open pit	Gold	Industrial exploitation permit(1)	August 2024
Bouroum	La Societe SOMITA-SA	Open pit	Gold	Industrial exploitation permit(1)	June 2025

Note:
(1) Industrial exploitation permit grants the right of geological survey, exploration, assessment and production within the license area.

Resources and reserves.

As at 31 December 2020, the mineral resources at the Taparko mine amounted to measured and indicated mineral resources of approximately 0.55 Moz of gold and inferred mineral resources of approximately 0.18 Moz of gold, and Ore Reserves amounted to 0.21 Moz.

Mining and Processing

The processing plant operates two 3-stage crushing circuits, a primary and secondary ball milling circuit and a CIL circuit. A gravity recovery circuit was added in 2019 to improve free gold thereby improving overall gold recovery. Management expanded the fleet of trucks used for transporting ore from satellite pits to the processing plant. The site also has waste rock dumps, a tailings storage facility and a water management system, as well as a modern camp accommodating 650 workers. As at 31 December 2020, Taparko had an estimated LoM of 4-years.

Electricity is generated on site from heavy fuel oil with back-up and peak power loads met with the assistance of diesel generators. Vivo Energy currently supply all heavy fuel oil and diesel to the mine, the on-site main fuel storage station includes two tanks of 650,000 litres each. Process water is supplied from a water storage dam 4.3 kilometres from the processing plant, a pipeline from a pump station located at the Yalgo reservoir (approximately 9.6 kilometres away) supplies this storage dam. All water used in ore processing is sent with the plant tailings to the tailings storage facility from where approximately 50% is recovered to a return water pond and pumped back to the processing facility. The tailings storage facility, the return water dam and all trenches containing the various processing pipelines are lined with HDPE liners to reduce the risk of environmental contamination. Potable water for the camp and mine site is sourced from the Yalgo reservoir and treated on-site, and excess potable water is shared with the students and teachers at the local school.

Operational results.

The table below sets forth certain operational and financial information on Taparko segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Taparko	**2020**	**2019**	**2018**
Run of mine, kt	15,474	23,277	24,862
Ore mined, kt	1,745	1,545	1,347
Waste mined, kt	13,729	21,732	23,515
Stripping ratio, t/t	7.9	14.1	17.5
Ore processed, kt	1,797	1,920	1,974
Grade in ore processed, g/t	2.03	1.41	1.89
Recovery, %	81.8	79.5	83.7
Gold production, Koz(1)	94.8	68.2	102.2
Gold sold, Koz(1)	94.1	68.1	102.0
Average realised gold price per ounce sold, U.S.$/oz	1,761	1,420	1,274
Revenue, U.S.$m	167.1	96.7	129.8
Capital expenditures, U.S.$m	8.5	39.6	60.1
Adjusted EBITDA, U.S.$m	68.5	2.5	48.8
Total Cash Cost, U.S.$/oz(2)	1,034	1,390	791
All-In Sustaining Cost, U.S.$/oz(3)	1,115	1,844	1,307

Note:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Taparko decreased by 0.05 million tonnes, or 3%, from 1.97 million tonnes in 2018 to 1.92 million tonnes in 2019, and further decreased by 0.1 million tonnes, or 6%, to 1.8 million tonnes in 2020. The average head grade in ore processed was 2.03 g/t in 2020 compared to 1.41 g/t and 1.89 g/t in 2019 and 2018, respectively, and the recovery rate was 81.8% in 2020 compared to 79.5% and 83.7% in 2019 and 2018, respectively.

In 2020, gold production at Taparko increased by 26.6 Koz, or 39%, to 94.8 Koz from 68.2 Koz of gold in 2019, which was primarily due to an investment in 2019 in 35-5 pit cut-back development, and subsequent completion of waste stripping, resulting in access to higher grade ore, and additional oxide ore mined from Goengo pits for optimal blending in processing.

In 2019, gold production at Taparko decreased by 34 Koz, or 33.3%, to 68.2 Koz in 2019 from 102.2 Koz of gold in 2018, which was primarily due to significantly lower grade in ore mined and processed and lower recovery.

In 2020, total refined gold sold at Taparko increased by 26 Koz, or 38%, to 94.1 Koz from 68.1 Koz in 2019 due to an increase in gold production in 2020.

In 2019, total refined gold sold at Taparko decreased by 33.9 Koz, or 33%, to 68.1 Koz from 102 Koz in 2018 due to a decrease in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,761 per ounce in 2020 compared to U.S.$ 1,420 and U.S.$ 1,274 per ounce in 2019 and 2018, respectively.

In 2020, 2019 and 2018, Taparko had sustaining capital expenditures in the amount of U.S.$ 7.4 million, U.S.$30.8 million, U.S.$52.5 million, respectively, and development capital expenditures in the amount of U.S.$ 1.1 million, U.S.$ 8.8 million, U.S.$ 7.6 million in 2020, 2019, 2018, respectively.

In 2020, Taparko had LTIFR of 0.00 compared to 0.15 and 0.00 in 2019 and 2018, respectively.

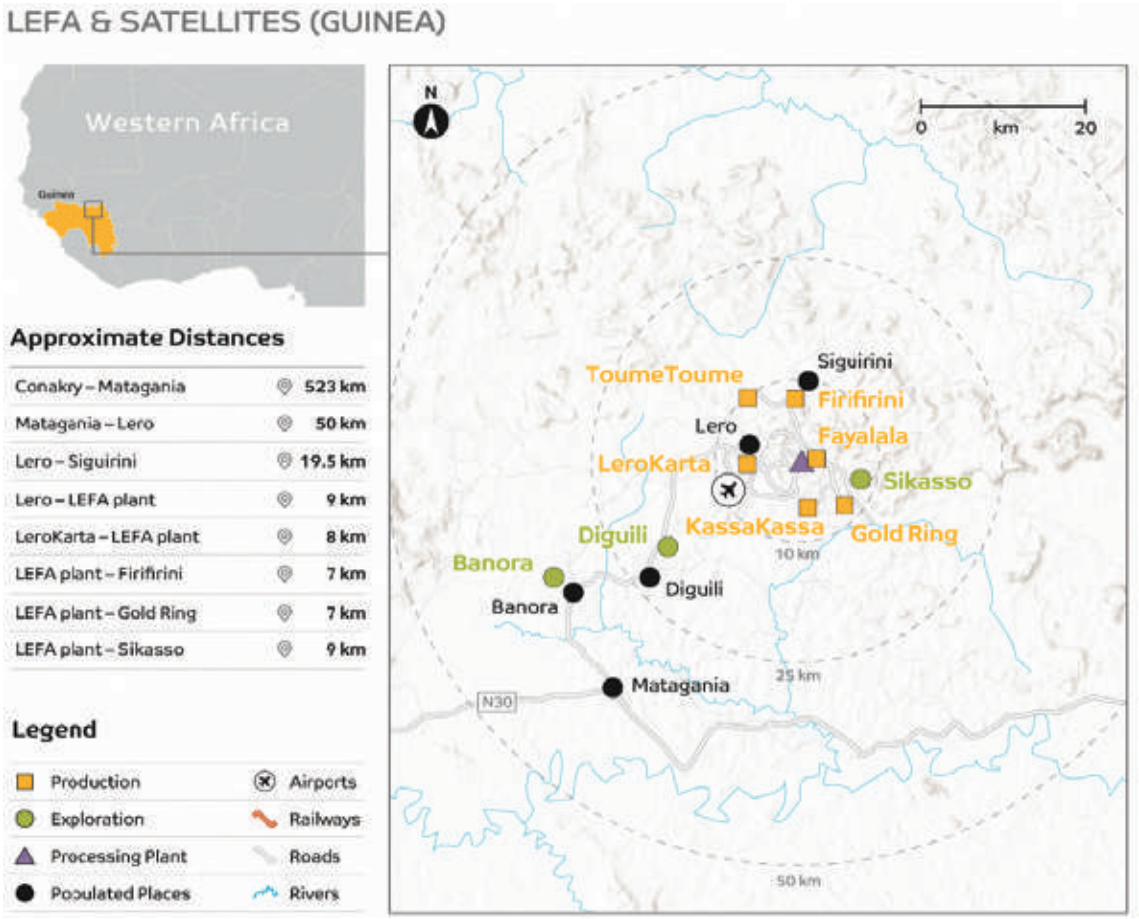
Capital expenditure plans and outlook:

Taparko segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$8.5million, and U.S.$39.6 million and U.S.$60.1 million, respectively (see Part X: “Operating and Financial Review — **Operating** Segments”). The Group does not expect any material capital expenditures in Taparko in a short or mid term.

Lefa

Location and history.

The Lefa mine is located approximately 700 kilometres northeast of Conakry, the capital of the Republic of Guinea, and is connected to an all-season road with close access to an air strip. Commercial production began at the Lefa mine in 2008. The Group acquired the Lefa mine through the acquisition of 100% of the share capital of Crew Gold Corporation in 2010-2011. As of the date of this Registration Document, the Lefa mine is owned by SMD, in which the Group holds a 85% interest indirectly through Crew Gold Corporation. The remaining 15% interest in SMD was transferred by the Group to the Guinean government in two equal tranches in October 2018 and October 2020, respectively, in accordance with Guinean law, which requires the Guinean government to hold 15% of the share capital of SMD. See Part X: *"Operating and Financial Review — Discussion of Operations — Operating Segments — Lefa*" for more information.



Geology and mineralisation.

Mineralisation at Lefa is hosted within the "Lefa Corridor", which lies within the Siguiri Basin. This is a zone which is some 10km wide, underlain by an upper clay rich formation and a lower coarser arkosic layer, with gold occurrences more common in the latter. Apart from younger dolerites and sandstones, there is virtually no fresh outcrop. Often, the stratigraphy is affected by folding which is observed within the pits. Host lithologies for the mineralisation are typically a mixture of sandstones to finer grained mudstones and claystones. Bedding is moderately to steeply dipping and deformation is dominated by discrete faults. Mineralisation typically occurs in more permeable, altered, coarser grained sediments, within and adjacent to structures and fracture zones. Mineralisation is localised by a combination of lithological and structural controls, and as such, the dip and strike of mineralised zones, and to a lesser extent the style of mineralisation, varies considerably between individual deposits.

Mineral Rights and Operating Licenses.

The Lefa mine and its surroundings operate pursuant to the SMD/DGM Convention de Base issued by the Government of the Republic of Guinea, which determines the taxation and customs regimes under which SMD, as the owner of the Lefa mine, operates, as well as other provisions regulating the Group's activities in Guinea

(as described under Part VI: *"Regulatory Overview — Republic of Guinea — Mining concessions*") and an operation permit certain details of which are set forth in the table below.

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Lefa	La Miniere Societe de Dinguiraye (SMD)	Open pit	Gold	Operation permit	August 2033

Note:
(1) Operation permit grants the right of geological survey, exploration, assessment and production within the license area.

Resources and reserves.

As at 31 December 2020, Lefa's mineral resources amounted to measured and indicated mineral resources of approximately 3.10 Moz of gold and inferred mineral resources of approximately 1.37 Moz of gold, and Ore Reserves amounted to 1.28 Moz.

Mining and processing.

Lefa consists of two main open pits, Lero-Karta and Fayalala, as well as several smaller satellite pits. Lefa has a processing plant with a design capacity of 7.2 Mtpa at a mill feed blend of 60% primary ore and 40% oxide ore and a target grind size of 75 percent passing 75 microns. The processing plant overall recovery is approximately 84.5% which is dependent on the feed ore mineralogy. As at 31 December 2020, the Lefa mine had an estimated LoM of 11 years.

The processing facility include two single stage Jaw crushing circuits, one being the Lero-Karta crusher with a six kilometer overland conveyer belt from the crusher to the processing plant, the second crusher is at the Fayalala ROM pad, which is next to the processing plant. Crushed ore from both crushers is fed to a single crushed ore stockpile which feeds the grinding circuit.

Following crushing, the ore is fed into the grinding circuit comprising two SAG mills and two ball mills where it is ground to 75 % passing 75 microns. The density is then increased to around 50 % solids in a thickener from where the slurry is pumped to the mechanically agitated leach tanks where oxygen and sodium cyanide is added to the slurry to dissolve the gold. The ore is leached for approximately 24 hours before passing to the adsorption circuit consisting of mechanically agitated tanks where activated carbon is added to adsorb the dissolved gold. The loaded carbon is recovered and washed with a hot solution of sodium hydroxide and sodium cyanide in the carbon desorption columns. Gold is recovered from this concentrated solution by electrowinning, dried and smelted to produce doré bullion. Tailings are pumped to the specially constructed tailing storage facility.

Electricity is generated on site. The power plant electrical generation system operates with heavy fuel oil. The site has a storage capacity of 3.5 million litres of heavy fuel oil which provides a buffer against possible disruption to supply during Guinea's July-to-October wet season. In 2019, the Group started the construction of a new powerhouse to replace the current ageing facility, which will become unreliable in the future, it is anticipated that the new generation engines will reduce fuel consumption by 15% and engine oil by 30%, resulting in cost reduction and an approximately 17,000 tonnes reduction in greenhouse gas emissions per year.

Lefa mining and processing production chain is highly automated and include systems such as Wenco Fleet management system, LAS Fuel Management system ensuring live fuel consumption control and TAC 1000 cyanide control system.

The Group intends to launch Lefa underground mine in 2023, with expected production of 120 Koz per annum in 2024. The Group is planning to complete pre-feasibility study for Lefa underground mine by the end of 2021.The Group expects to increase gold production at Lefa from the current 177.5 koz of gold in 2020 to 189.1 koz of gold mainly through increased volumes of ore processed in 2021 and higher processing grade due to mining of high grade ore from Lero Karta couple with increased production at high grade Diguili. At the same time, the Group expects to reduce AISC from the current U.S.$1,342 per ounce in 2020 to U.S.$1,191 per ounce in 2021 mainly through increased gold production in 2021, greater volumes of operating and capital stripping started from 2021, lower PCR costs due to advance payment for 2021 in December 2020, completion of TSF1 wall elevation and major plant PCR purchased in 2020.

Operational results.

The table below sets forth certain operational and financial information on Lefa segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Lefa	**2020**	**2019**	**2018**
Run of mine, kt	40,045	41,104	38,155
Ore mined, kt	6,983	6,755	6,689
Waste mined, kt	33,062	34,349	31,466
Stripping ratio, t/t	4.70	5.09	4.70
Ore processed, kt	5,791	6,026	6,181
Grade in ore processed, g/t	1.09	1.14	1.08
Recovery, %	86.4	85.8	87.4
Gold production, Koz(1)	177.5	189.8	187.8
Gold sold, Koz(1)	177	189.7	187.7
Average realised gold price per ounce sold, U.S.$/oz	1,764	1,389	1,273
Revenue, U.S.$m	312.5	263.5	239.0
Capital expenditures, U.S.$m	77.2	89.9	74.6
Adjusted EBITDA, U.S.$m	142.7	84.3	87.4
Total Cash Cost, U.S.$/oz(2)	955	944	807
All-In Sustaining Cost, U.S.$/oz(3)	1,332	1,354	1,205

Note:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Lefa decreased by 0.1 million tonnes, or 3%, from 6.2 million tonnes in 2018 to 6.0 million tonnes in 2019, and further decreased by 0.2 million tonnes, or 4%, to 5.8 million tonnes in 2020. The average head grade in ore processed was 1.09 g/t in 2020 compared to 1.14 g/t and 1.08 g/t in 2019 and 2018, respectively, and the recovery rate was 86.4% in 2020 compared to 85.8% and 87.4% in 2019 and 2018, respectively.

In 2020, gold production at Lefa decreased by 12.3 Koz, or 6%, to 177.5 Koz from 189.8 Koz of gold in 2019, which was primarily due to unexpected ore hardness and low availability of crusher feeding equipment resulting in less tons processed, and also a decrease in grade in ore mined.

In 2019, gold production at Lefa slightly increased by 2 Koz, or 1.1%, to 189.8 Koz from 187.8 Koz of gold in 2018.

In 2020, total refined gold sold at Lefa decreased by 12.7 Koz, or 7%, to 177 Koz from 189.7 Koz in 2019 due to decrease in refined gold production.

In 2019, total refined gold sold at Lefa increased by 2 Koz, or 1%, to 189.7 Koz from 187.7 Koz in 2018 due to an increase in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,764 per ounce in 2020 compared to U.S.$ 1,389 and U.S.$ 1,273 per ounce in 2019 and 2018, respectively.

In 2020, 2019 and 2018, Lefa had sustaining capital expenditures in the amount of U.S.$69 million, U.S.$83 million, U.S.$74.6 million, respectively, and development capital expenditures in the amount of U.S.$ 8 million, U.S.$ 6.6 million, U.S.$ nil million, respectively.

In 2020, Lefa had LTIFR of 0.00 compared to 0.00 and 0.08 in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

The Group is currently constructing a new heavy fuel oil power plant at Lefa, which is expected to result in a significant reduction of both fuel (by approximately 15%) and engine oil consumption (by approximately 30%) for electricity production as well as an approximately 17,000 tonnes reduction of greenhouse gas emissions per

year. The Group believes that the construction of the new power plant will also reduce capital expenditures on such items as replacement and maintenance kits and will substantially reduce power outages. The construction of the power plant is planned to be completed by the end of 2021 or in the beginning of 2022 and the expected construction capital expenditures are approximately U.S.$40.4 million. The Group is also currently constructing a new tailings storage facility, which is expected to be completed by the end of 2021 and the expected construction capital expenditures are approximately U.S.$ 7.5 million.

Lefa segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$ 77.2 million, U.S.$89.9 million and U.S.$74.6 million, respectively (see Part X: "*Operating and Financial Review—Operating Segments*").

Bissa and Bouly

Location and history:

Bissa mine is located approximately 100km north from Ouagadougou, the capital of Burkina Faso, and is accessible via Route Nationale 22, a sealed road. Ouagadougou airport has flight connections to major European cities. Bissa mine was acquired by the Group as part of the acquisition of a controlling interest in High River in 2008 (see "*History*"). In 2011, the Group's indirect subsidiary in Burkina Faso, Bissa Gold S.A., was granted a mining license for the Bissa project by the Burkina Faso government, and in 2013 the Bissa mine was commissioned.

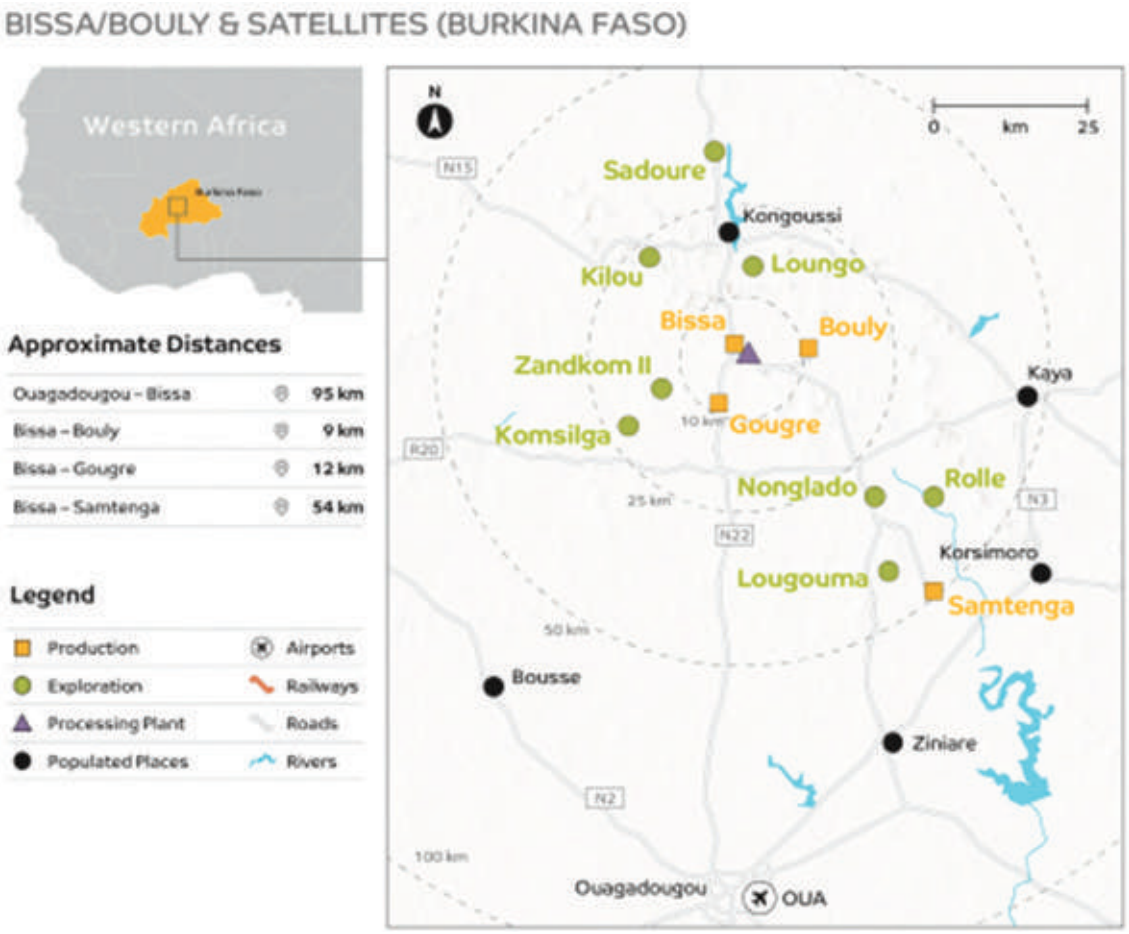
In January 2013, the Group launched the Bissa mine. Bissa satellite deposits include Gougre, Samtenga, Yimiougou, Ronguen, Zandkom and Zinigma. In 2020, the Group launched satellite deposits Zandkom and Samtenga. The Group seeks to increase gold production at Bissa from the current 143.3 koz of gold in 2020 to 180.7 koz primarily through higher volumes of ore processed in 2021 due to higher availability of the plant coupled with increasing availability of ore from Zandkom, SW and SW extension and higher processing grade in 2021 due to mining of high grade ore from SW, Zandkom, SW extension and Samtenga. At the same time, the Group seeks to decrease AISC from the current U.S.$1,398 per ounce in 2020 to U.S.$1.095 per ounce in 2021 through increased gold dore production in 2021 with greater volumes of ore mined primarily from high grade SW pit, SW extension and Zandkom, greater volumes of capital stripping with the start of Yimiougou and further development of Zandkom in 2021. The Group seeks to increase gold production at Bouly from the current 78.6 koz of gold in 2020 to 85.6 koz of gold in 2021 primarily through increased volumes of ore processed.

The Bouly mine is located within 5 kilometres of the Bissa mine on the border of the rural communes of Sabce and Mane, 100 kilometres north of Ouagadougou. The Bouly mine is the result of a greenfield development initiative and a successful exploration programme which identified a large, low-grade gold deposit.

The Samtenga satellite deposit is located 63 kilometers south-east of Bissa mine and 55 kilometers north east to Ouagadougou. The Samtenga ore is processed at Bissa plant. The Group owns 90% interest in the Samtenga mine through NG Samtenga SA and the remaining 10% is owned by the government of Burkina Faso.

In September 2016, the Group expanded Bissa mine with the launch of a heap-leach operation at nearby Bouly deposit in Burkina Faso. The Bouly mine is located within 5 kilometres of the Bissa mine on the border of the rural communes of Sabce and Mane, 100 kilometres north of Ouagadougou. The Bouly mine is the result of a greenfield development initiative at the Group and a successful exploration programme which identified a large, low-grade gold deposit.

The Group owns 90% interest in the Bissa and Bouly mines through Bissa Gold SA and 90% interest in the Samtenga mine through NG Samtenga SA and the remaining 10%, in each case, is owned by the government of Burkina Faso.



Geology and mineralisation.

The mineralisation is hosted within metamorphosed meta-volcanics, diorites and porphyritic diorites cut by faults and shear zones. The oldest rocks are the metamorphosed volcanics associated with the Birimian volcanic event. The meta-volcanics are intruded by, and mostly replaced by, a large body of diorite. The youngest rock of significance is a porphyritic diorite which appears to intrude all of the other rock types. Mineralisation at the Bissa and Bouly deposits is primarily orogenic and structurally controlled, with a secondary lithological control. The most significant mineralised zones are associated with anastomosing networks of quartz and quartz-carbonate veins (or stacked, parallel "arrays" of veins) developed within major brittle-ductile shear zones. Gold mineralisation is most commonly developed in either quartz-sulphide veining ± carbonates and tourmaline, or disseminated and fracture filling sulphides and magnetite.

Mineral Rights and Operating Licenses.

The Bissa and the Bouly mines operate pursuant to a mining agreement with the Government of Burkina Faso (as described under Part VI*: "Regulatory Overview — Burkina Faso — Mining concessions*") and industrial exploitation permits, certain details of which are set forth in the table below.

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Bissa-Zandkom	Bissa Gold SA	Open pit	Gold	Industrial exploitation permit(1)	June 2031

Note:

(1) Industrial exploitation permit grants the right of geological survey, exploration, assessment and production within the license area.

The Samtenga mine operates pursuant to a mining agreement with the Government of Burkina Faso (as described under Part VI: "*Regulatory Overview — Burkina Faso — Mining concessions*") and an industrial exploitation permit, certain details of which are set forth in the table below.

Deposit	Subsidiary holding licence	Type of mine	Metals	Type of licence	Licence expiration date
Samtenga	Nordgold Samtenga SA	Open pit	Gold	Industrial exploitation permit(1)	December 2022

Note:
(1) Industrial exploitation permit grants the right of geological survey, exploration, assessment and production within the license area.

Resources and reserves.

As at 31 December 2020, Bissa resources amounted to measured and indicated mineral resources of approximately 2.45 Moz of gold and inferred mineral resources of approximately 0.53 Moz of gold, and Ore Reserves amounted to 1.14 Moz.

As at 31 December 2020, Bouly resources amounted to measured and indicated mineral resources of approximately 3.05 Moz of gold and inferred mineral resources of approximately 1.93 Moz of gold, and Ore Reserves amounted to 0.96 Moz.

Mining and processing.

Bissa is a multiple open-pit operation feeding a conventional SAG/Ball milling process flowsheet with robust carbon-in-leach design well suited to the treatment of free milling gold. Bouly mine is a single open pit operation with its own all-season static heap leach facilities. Bouly is technologically integrated with Bissa for its final processing stages; including desorption, electro-winning and smelting and carbon regeneration, which all take place at Bissa's processing plant. Bouly is operated by Bissa's management team and shares much of Bissa's existing infrastructure, including camp and mess facilities, the analytical laboratory, the Tiben raw water reservoir, power generation, mobile maintenance and warehouse facilities. The proximity of Bouly to Bissa enables it to benefit from economies of scale, expert knowledge of the local geology, and a well-trained workforce. As at 31 December 2020, the Bissa and Bouly mines had estimated LoM of 9 years.

The Bissa processing consists of a primary Jaw crusher feeding a crushed ore stockpile from where the SAG/Ball grinding circuit are fed, a pebble crusher is in closed circuit with the SAG mill. The SAG/Ball mill are operated in closed circuit with hydro-cyclones to produce a leach feed product of 80% passing 75 micron. The cyclone overflow slurry gravitate to the mechanically agitated carbon in leach tanks where oxygen and sodium cyanide is added to the slurry to dissolve and absorb the gold onto activated carbon. The loaded carbon is recovered and washed with a hot solution of sodium hydroxide and sodium cyanide in the carbon desorption columns. Gold is recovered from this concentrated solution by electrowinning, dried and smelted to produce doré bullion. Tailings are pumped to the specially constructed tailing storage facility.

Bouly processing consist of two 2 stage crushing circuits consisting of a primary Jaw crusher and a secondary cone crusher. The 25mm crushed product is conveyed by overland conveyor to an agglomeration drum where the ore, cement and a cyanide solution is mixed to form a stable agglomerate with a high permeability for effective leach solution flow. The ore is stacked onto a static leach pad in 10m lifts, each pad can accommodate up to 550 000 tons and can be stacked with 6 lifts. The leach cycle is done in 2 phases (primary and secondary) to maximise the gold in solution that is pumped to the fixed bed carbon in solution columns. The loaded carbon is recovered and transported by truck to the Bissa processing facility 6km away where the carbon is washed with a hot solution of sodium hydroxide and sodium cyanide in the carbon desorption columns. Gold is recovered from this concentrated solution by electrowinning, dried and smelted to produce doré bullion. The carbon is regenerated in a diesel fired kiln before being returned by truck to Bouly.

*Electricity is owner generated on site next to the Bissa processing facility using MAK heavy fuel oil generating units. Vivo Energy supply and operate the sites' heavy fuel oil and diesel storage facilities. The Company is assessing the possibility of using solar power at Bissa.*Bissa-Bouly mines are using cutting-edge solutions at almost each step of the production value chain – including the Wenco Fleet management system, the LAS Fuel management system and LIMS (Laboratory Information Management system). The mine is in the process of implementing a digital platform for metallurgical balance accounting and dashboarding (INAPL), and mill parameters management software (Mill Slicer).

Operational results

The table below sets forth certain operational and financial information on Bissa and Bouly segment as at and for the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
Bissa-Bouly	**2020**	**2019**	**2018**
Run of mine, kt	49,850	56,914	54,943
Bissa, kt	33,437	43,120	41,680
Bouly, kt	16,413	13,794	13,262
Ore mined, kt	10,459	12,502	12,148
Bissa, kt	3,480	4,540	4,168
Bouly, kt	6,979	7,962	7,980
Waste mined, kt	39,391	44,413	42,794
Bissa, kt	29,957	38,581	37,512
Bouly, kt	9,434	5,832	5,282
Stripping ratio, t/t	3.80	3.60	3.52
Bissa, t/t	8.60	8.50	9.00
Bouly, t/t	1.40	0.73	0.66
Ore processed, kt	11,417	12,191	12,602
Bissa, kt	4,501	4,750	4,861
Bouly, kt	6,916	7,441	7,741
Grade in ore processed, g/t	0.8	0.8	0.8
Bissa, g/t	1.25	1.18	1.20
Bouly, g/t	0.5	0.58	0.58
Recovery, %	78.1	80.5	80.3
Bissa, %	79.9	87.3	80.85
Bouly, %	75.1	71.6	80.3
Gold production, Koz[1]	226.8	253.8	261.5
Bissa, Koz	148.2	152.0	154.9
Bouly, Koz	78.6	101.8	106.6
Gold sold, Koz[1]	226.3	254.3	260.1
Bissa, Koz	148.1	150.8	155.3
Bouly, Koz	78.2	103.5	104.8
Average realised gold price per ounce sold, U.S.$/oz	1,775	1,387	1,272
Bissa, U.S.$/oz	1,774	1,383	1,272
Bouly, U.S.$/oz	1,770	1,392	1,273
Revenue, U.S.$m	401.8	352.7	330.8
Capital expenditures, U.S.$m	95.2	86.9	85.6
Adjusted EBITDA, U.S.$m	157.9	138.4	136.8
Total Cash Cost, U.S.$/oz[2]	1075	840	743
Bissa, U.S.$/oz	1,132	883	826
Bouly, U.S.$/oz	965	776	623
All-In Sustaining Cost, U.S.$/oz[3]	1,272	1,069	992
Bissa, U.S.$/oz	1,383	1,209	1,175
Bouly, U.S.$/oz	1,062	860	725

Note:

(1) Includes gold equivalent ounces of silver.

(2) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

(3) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Total volume of ore processed at Bissa-Bouly decreased by 0.4 million tonnes, or 3%, from 12.6 million tonnes in 2018 to 12.2 million tonnes in 2019, and further decreased by 0.78 million tonnes, or 6%, to 11.42 million tonnes in 2020. The average head grade in ore processed was 0.8 g/t in 2020 compared to 0.8 g/t and 0.8 g/t in 2019 and 2018, respectively, and the recovery rate was 78.1% in 2020 compared to 80.5% and 80.3% in 2019 and 2018, respectively.

In 2020, gold production at Bissa-Bouly decreased by 27.0 Koz, or 11%, to 226.8 Koz from 253.8 Koz of gold in 2019, which was primarily due to (i) lower volumes of ore processed in the third quarter of 2020 caused by the planned maintenance of the Ball mill and the relining of the SAG mill, as well as lower grade ore mined and processed in the first quarter of 2020 at Bissa and (ii) heavy seasonal rain and less robust agglomeration when processing ultra-fine/dry ore in the third quarter of 2020, as well as lower heap leach stacking volumes related mainly to repairs of conveyor belts and the agglomerator equipment in the first quarter of 2020 at Bouly.

In 2019, gold production at Bissa-Bouly decreased by 7.7 Koz, or 3%, to 253.8 Koz from 261.5 Koz of gold in 2018, which was primarily due to the reduction in ore processed (12.2 vs 12.6 mt). In 2020, total refined gold sold at Bissa-Bouly decreased by 28 Koz, or 11%, to 226.3 Koz from 254.3 Koz in 2019 due to a decrease in gold production in 2020.

In 2019, total refined gold sold at Bissa-Bouly decreased by 5.8 Koz, or 2%, to 254.3. Koz from 260.1 Koz in 2018 due to a decrease in gold production in 2019.

Average realised gold price per ounce sold was U.S.$ 1,775 per ounce in 2020 compared to U.S.$ 1,387 and U.S.$ 1,272 per ounce in 2019 and 2018, respectively.

The payback period on Bissa and Bouly was 21 and 33 months from the date of their commissioning, respectively. The overall construction of Bissa and Bouly lasted for 15 and 13 months, respectively.

In 2020, 2019 and 2018, Bissa-Bouly segment had sustaining capital expenditures in the amount of U.S.$44.4 million, U.S.$60.9 million, U.S.$64.8 million, respectively, and development capital expenditures in the amount of U.S.$50.9 million, U.S.$26 million and U.S.$20.8 million, respectively.

In 2020, 2019 and 2018, Bissa had sustaining capital expenditures in the amount U.S.$37.2 million, U.S.$49.5 million and U.S.$54 million, respectively, and development capital expenditures in the amount of U.S.$45.8 million, U.S.$19 million and U.S.$7.4 million, respectively.

In 2020, 2019 and 2018, Bouly had sustaining capital expenditures in the amount U.S.$7.6 million, U.S.$8.6 million and U.S.$10.8 million, respectively, and development capital expenditures in the amount of U.S.$5.1 million, U.S.$7 million and U.S.$13.4 million, respectively.

In 2020, Bissa-Bouly had LTIFR of 0.00 compared to 0.16 and 0.00 in 2019 and 2018, respectively.

Capital expenditure plans and outlook:

Bissa and Bouly segment capital expenditures in 2020, 2019 and 2018 amounted to U.S.$ 95.2million, U.S.$86.9 million and U.S.$85.6 million, respectively (see Part X: "*Operating and Financial Review — Operating Segments*").

Development and Exploration Projects

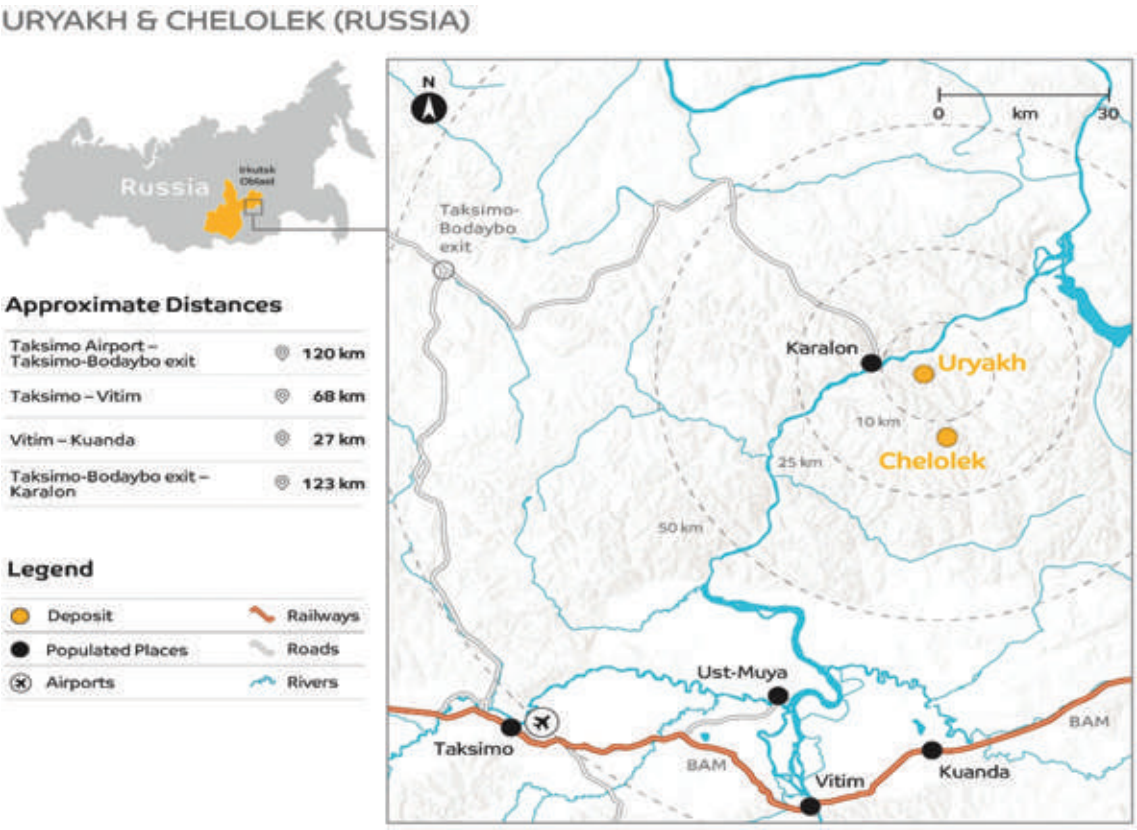
Uryakh

Location and history.

Uryakh is an advanced exploration project located in the Irkutsk region of Russia. The project is located 97 km north of the town of Kuanda on the Baikal–Amur Mainline.

As of the date of this Registration Document, the Uryakh exploration project is owned 100% by LLC "Uryakh", which is in turn held 100% by the Group.

A 2017 study of mining options considered a combined underground and open pit at Uryakh would be viable. Based on that assessment, a drilling programme was completed in 2017 that encountered additional gold intersections. In 2018, SRK completed a study along with geotechnical drilling and infill drilling of mineral resources. Following the SRK study the Company conducted exploration and infill drilling at the project in 2018-2019. Due to COVID-19 restrictions, no fieldwork was conducted in 2020.



Geology and mineralisation.

The Uryakh gold licence lies in the 'Lenskaya gold-bearing province' of the northern Baikal mineralised belt. Uryakh is a prospect with sizeable, high-grade resource potential, and it has various types of mineralisation, including quartz veins, stratified black-shale strata, gold-bearing beresites and associated gold-mineralised stockworks. Significant potential exists within the gold-bearing quartz veins which are prevalent throughout the licence. A recent drilling programme has been focused on several high-grade quartz veins and contiguous gold mineralised zones, which returned positive results.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence relating to the Uryakh exploration project.

Subsoil field	Subsidiary holding licence	Type of licence	Metals	Licence expiration date
Uryakh	LLC Uryakh	Combined licence(1)	Gold	November 2032

Note:
(1) Combined license grants the right of geological survey, exploration, assessment and production of minerals within the license area.

Resources.

As at 31 December 2020, Uryakh's resources amounted to measured and indicated mineral resources of approximately 1.93 Moz of gold and inferred mineral resources of approximately 0.29 Moz of gold.

Capital expenditure plans and outlook:

Under the terms of the Uryakh combined license, the Group shall continue to focus on exploration activities to expand the current Resource base along the strike of the main mineralization structure. An exploration budget of U.S.$6.10 million has been approved for testing new target to the South of main Uryakh deposit, including the new Chelolek license.

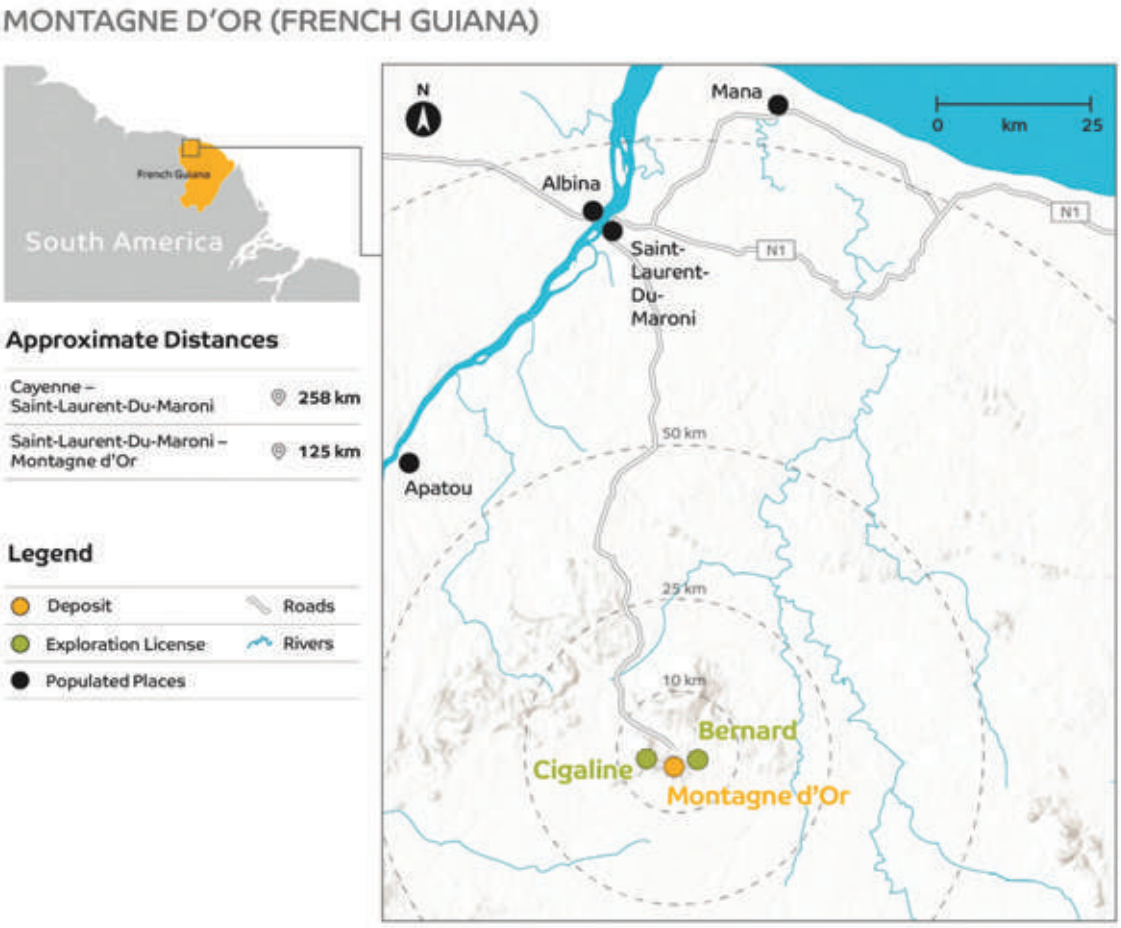
Montagne d'Or

Location and history.

The Montagne d'Or gold deposit is located in north-west French Guiana, an overseas region of France, 180 kilometers west of the capital, Cayenne, and 80 kilometres south of the department capital, Saint-Laurent-du-Maroni.

As at the date of this Registration Document the Group owns a 55.01% stake in Montagne d'Or with the remaining stake being owned by a Canadian company operating in French Guiana, Orea Mining Corporation.

In 2015, the Group launched a banking feasibility study of Montagne d'Or, which was published in 2017. In 2018, public debates were conducted in French Guiana with the aim to raise awareness of the Montagne d'Or project and to establish a platform for ongoing dialogue with local communities. In January 2019, the French National Commission of Public Debate designated two guarantors responsible for the participation of the public in the project development up until the opening of the public inquiry for the permit applications. The Group has confirmed its decision to move forward with the development of the Montagne d'Or mine project and as at the date of this Registration Document, complementary studies for committed project modifications have been finalised.



Geology and mineralisation.

The Montagne d'Or deposit is a Paleoproterozoic age, high sulphidization, volcanogenic (VMS) gold deposit that has undergone remobilization and shear zone style deformation. The deposit is located within the northern greenstone belt of the Guiana Shield in French Guiana. Mineralisation is hosted within the two billion year old, Paramaca Formation composed predominantly of meta-volcanic and meta-sedimentary units. These units have been deformed by ductile deformation resulting in tight to isoclinal folding and shearing as well as a pervasive foliation striking east-west and dipping steeply to the south. The current model of gold mineralisation is a VMS type. Significant portions are thought to have been emplaced as replacement style mineralisation. Subsequently, the mineralisation has been deformed and partly remobilized within structural controls. Gold mineralisation is

associated with primary sulphide minerals as replacements within pyrite and chalcopyrite. At a macroscopic scale, the following five types of mineralisation have been identified in mapping and drill core logging: (i) semi-massive sulphides (SMS) with >20% sulphides) with associated gold mineralisation; (ii) sulphides as disseminations and stringers with associated gold mineralisation; (iii) late-stage disseminated euhedral pyrite mineralisation; (iv) rhythmic mafic tuff with associated pyrrhotite mineralisation; and (v) gold mineralisation associated with quartz veins.

Mineral Rights and Operating Licenses.

The Montagne d'Or gold project was developed on the basis of two mining concessions which were valid until 31 December 2018. In December 2016, CMMO submitted applications to renew the Montagne d'Or concessions for a 25-year period. As no decision on the renewal had been made by the competent authority, in 2019, CMMO filed legal claims with the Administrative Court of Cayenne in French Guiana to enforce the renewal of the mining concessions. In December 2020, the court issued an order supporting these claims and requiring the competent authority to renew the mining concessions for a 25 year period within six months from the date of that order. In January 2021, the French Government filed an appeal in respect of such court order and, in February 2021, requested to suspend the court order. The Bordeaux Administrative Court of Appeal notified the Group that the appeal hearing would take place between July and October 2021. As of the date of this Prospectus, CMMO has not received any confirmation on the renewal of the mining concessions from the competent authority. See also Part I: "*Risk Factors—The Group may face opposition from the communities or governments in the jurisdictions in which it operates*."

In addition, CMMO holds two exploitation permits in respect of the eastern and western extensions of the Montagne d'Or deposit, certain details of which are set forth in the table below.

Subsoil field	Subsidiary holding licence	Type of licence	Metals	Licence expiration date
Bernard	Compagnie Minière Montagne d'Or	Exploitation permit(1)	Gold	13 July 2021
Cigaline	Compagnie Minière Montagne d'Or	Exploitation permit(1)	Gold	13 July 2021

Note:
(1) Exploitation permit grants the right of geological survey, exploration, assessment and production within the license area.

Resources and reserves.

Montagne d'Or is an open-pit, multi-million ounce gold deposit, with excellent metallurgy. As at 31 December 2020, Montagne d'Or's reserves and resources attributable to the Group's stake (55.01%) amounted to 2.7 Moz of and 2.6 Moz of gold.

Capital expenditure plans and outlook:

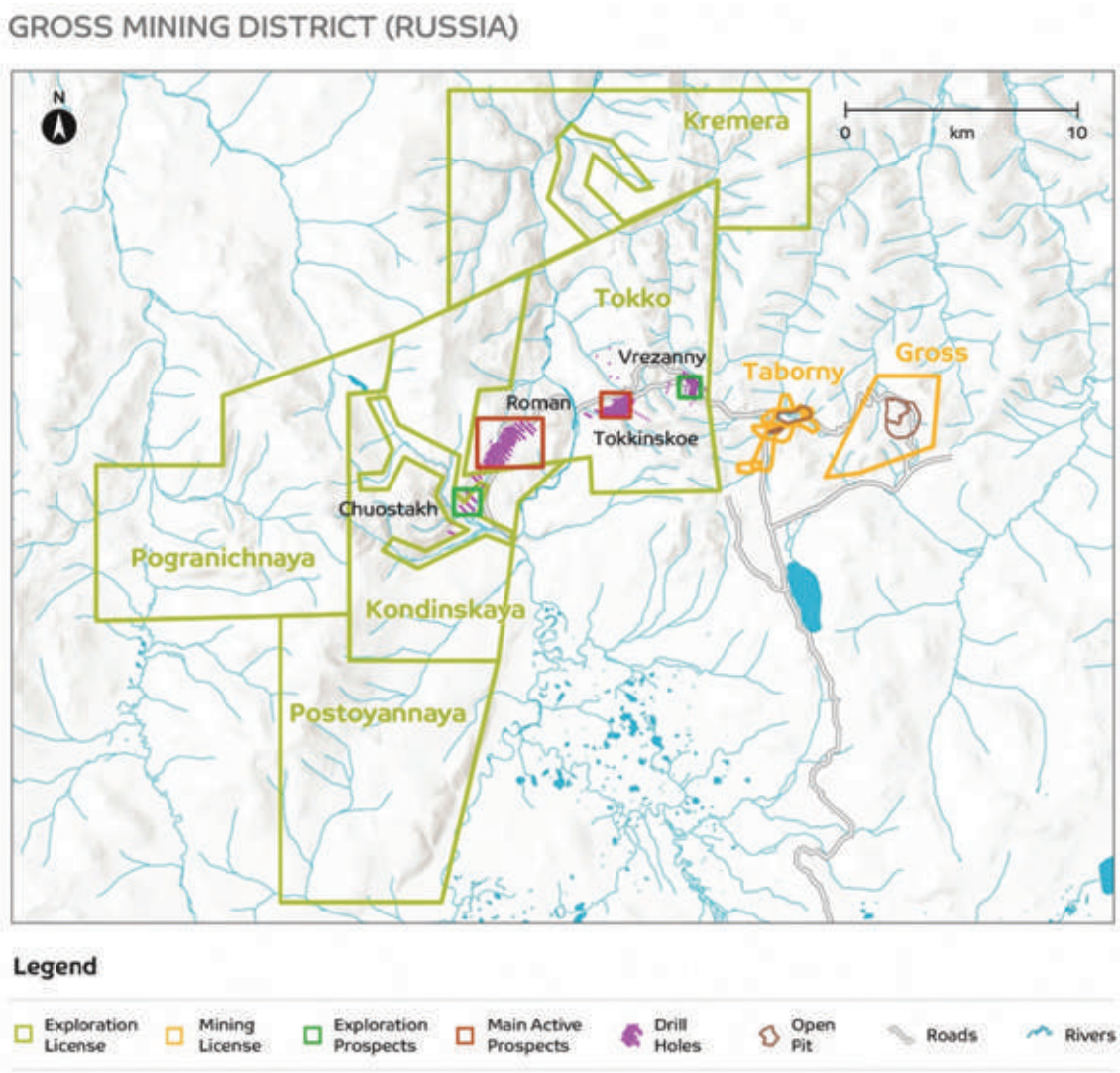
The Group continues to seek to obtain necessary construction and mining authorisations in order to continue further development of this project. See Part I: "*Risk Factors — Risks Relating to the Group's Business — The Group may face opposition from the communities or governments in the jurisdictions in which it operates*".

Tokko

Location and history.

The project is located near the Gross and Taborny mines in Yakutia, the Russian Federation. It includes two gold deposits, Tokkinskoe (former Anomaly 13) and Roman, located along a 10km structural corridor 13km from the existing mines at Gross/Taborny, and two additional exploration areas of Pogranichnaya and Postoyannaya directly to the west and south of the Roman deposit within the same corridor. As of the date of this Registration Document, LLC Rudnik Taborny and LLC Tokko, which are 100% owned by the Group, held the operating licenses with respect to the respective deposits. The Group identified the Tokkinskoe and Roman deposits located close to the existing mines in 2017 as a result of its near mine drilling programmes. Based on 2017-2018 drilling results, the Group increased its investment in the exploration of the deposit. During 2019, the Group conducted further infill drilling to confirm the resource. In 2020-2021, the Group completed a preliminary economic assessment of the Tokko project for a potential open pit gold mine and a 20,000 m drilling programme at each of Tokkinskoe and Roman deposits. Tokko fieldwork and studies have not been materially affected by the COVID-19 pandemic and continue on schedule.

More recently, LLC Rudnik Taborny received the operating license granting the right of geological survey, including research and assessment of minerals within Kremera license area in January 2021 and LLC Tokko received the operating right licenses granting the right of geological survey with respect to Pogranichnaya and Postoyannaya license areas in February 2021.



Geology and mineralisation.

The Tokkinskoe and Roman deposits are located in the Archean and Early Proterozoic metamorphosed rock at the intersection of two regional fault zones of disjunctive faults: the submeridional Tokkinsky and sublatitudinal Kondinsky faults. The Tokkinsky fault zone has a width of 10-15 km and narrows to the north; the morphology of its eastern boundary is a right upthrust strike-slip fault, with a dip of the fault plane surface to the west at 50-55o; the morphology of the western boundary is not fully understood at present. The Tokkinskaya fault zone lies between two large ultrametamorphic Archean complexes: the Olyokma Series in the east and the Borsalinskaya Series in the west. Within this zone, Precambrian units are heavily granitised and dynamometamorphosed, to the extent of formation of high-temperature quartz — K-feldspar metasomatites, mylonites and blastomylonites. The age of these formations is Early Proterozoic, which also indicates the age of the fault zone itself. The Precambrian structure of the fault zone is complicated by Riphean dolerite dykes, predominantly of the east-north-eastern, rarely submeridional strike.

Mineral Rights and Operating Licenses.

The table below sets forth certain details of the principal licence relating to the Tokko project.

Subsoil field	Subsidiary holding licence	Type of licence	Metals	Licence expiration date
Tokkinsky	LLC Rudnik Taborny	Survey licence(1)	Gold	August 2021(2)
Kremera	LLC Rudnik Taborny	Survey licence(1)	Gold and silver	January 2028
Pogranichnaya	LLC Tokko	Survey licence(1)	Gold	January 2028
Postoyannaya	LLC Tokko	Survey licence(1)	Gold	January 2028

Notes:

(1) Survey license grants the right of geological survey, including research and assessment of minerals within the license area.

(2) The Group intends to apply for extension of the Tokkinsky licence in August 2021.

Resources.

As at 31 December 2020, Tokko had measured, indicated and inferred resources of approximately 3.6 Moz of gold, comprising Tokkinsky (1.3 Moz) and Roman (2.3 Moz) deposits.

Capital expenditure plans and outlook:

The Group aims to complete the Tokko feasibility study in the beginning of 2022. The Group expects to start the construction of Tokko in 2022 and complete the project in 2023. The official launch of Tokko mine is planned in 2024. The total start-up mine construction capital expenditure on the development of the Tokko project is estimated to amount to approximately U.S.$340 million during 2022-2024. Tokko is expected to produce approximately 220 koz of weighted average annual production in the period between 2025 and 2030 with an average life of mine AISC of approximately U.S.$585 per ounce and approximately 3.1 million ounces of mineable resources.

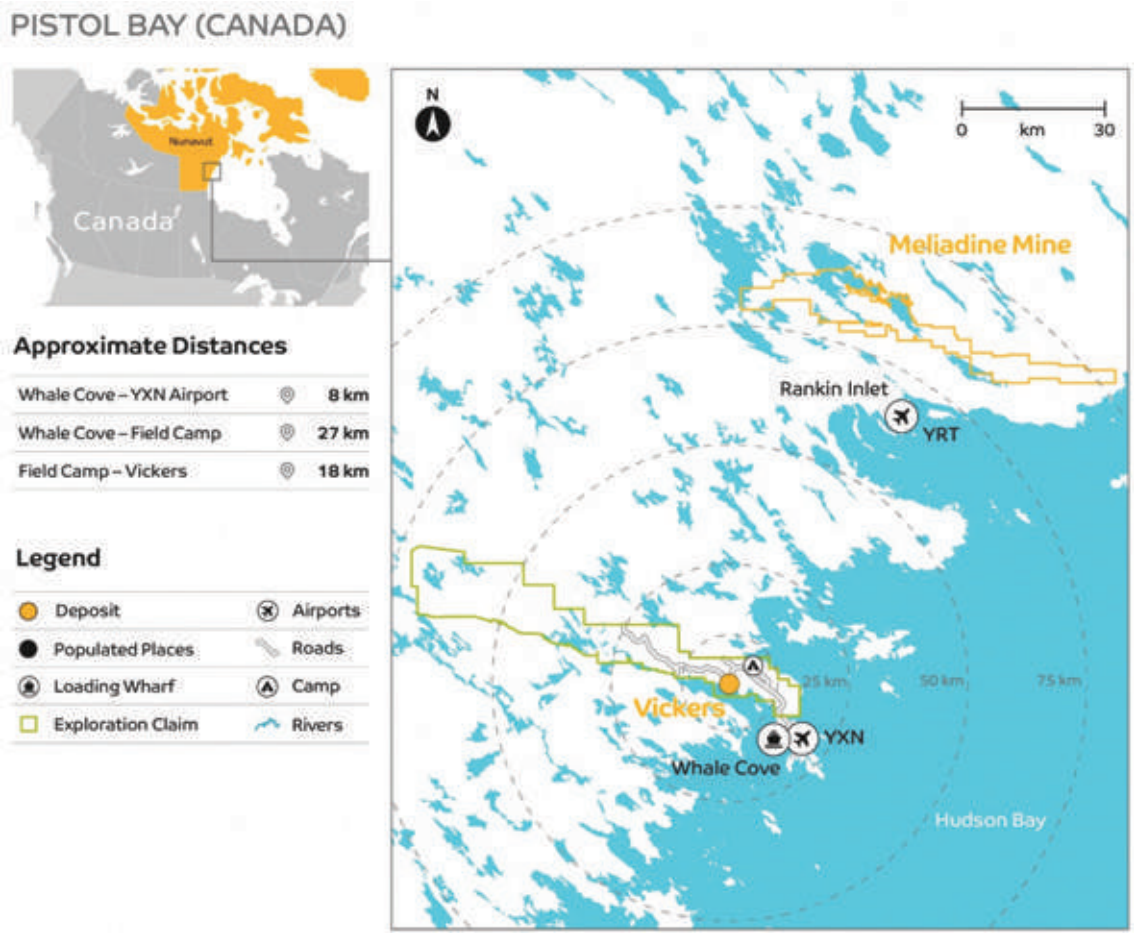
Pistol Bay

Location and history:

The project is a high-grade advanced exploration project located in Nunavut Territory in northern Canada, on the west coast of Hudson Bay. The property consists of 860 square kilometers of mineral rights within the underexplored Rankin-Ennadai greenstone belt. The property is accessible by air or by sea with a navigation period of about five months.

The Pistol Bay project was acquired as part of the acquisition of 100% of Northquest Ltd., a Toronto-based gold explorer which owns the Pistol Bay project. The acquisition of Northquest Ltd. started with a strategic investment in 2014 and was completed in October 2016. As of the date of this Registration Document, the Group holds a 100% stake in the share capital of Northquest Ltd.

In 2019, the Group conducted an exploration drilling campaign that demonstrated an extension of the previously known mineralisation. As a result, the inferred mineral resource estimate doubled to approximately 1.6 Moz of gold at a grade of 2.2 g/t. In 2020, due to COVID-19 restrictions the field campaign was postponed until summer 2021.



Geology and mineralisation.

Pistol Bay lies within the Archean Kaminak Group of the Rankin-Ennadai greenstone belt, in the southeastern portion of the Hearne Province of the Canadian Shield. The Kaminak Group is an isolated supracrustal sequence of the Rankin-Ennadai belt, comprising mafic, intermediate, and felsic volcanic and volcaniclastic, siliciclastic, and iron formation rocks with chemical sedimentary rocks. Synvolcanic to late tectonic mafic to intermediate plutons intrude the Archean supracrustal rocks.

Exposure is variable across the property, ranging generally from moderate to excellent in the eastern half of the property, to low in the central to western region. Gold mineralisation at the Pistol Bay project is hosted in a number of settings, including within veins, intrusions and iron formations. The Vickers deposit consists of three areas of gold mineralisation hosted in both the Gereghty intrusion and rhyolitic volcaniclastic host rocks. Mineralisation occurs mainly in veinlets and hydrothermal breccia, along zones of high rheological contrast within and surrounding the Gereghty intrusion, and along weakly to strongly brecciated, sheet-like zones at depth. Gold mineralisation of the Pistol Bay project is considered to be potentially representative of orogenic-style gold deposits, however, the mineralisation also exhibits some features of intrusion-related gold deposits.

Mineral Rights and Operating Licenses.

The Pistol Bay project is operated under 89 exploration claims renewable on an annual basis which cover an aggregate area of 781 square metres.

Resources.

As at 31 December 2020, the Pistol Bay project had inferred mineral resources of approximately 1.6 Moz of gold.

Capital expenditure plans and outlook:

The Group will continue to focus on exploration activities to expand the current resource base at Pistol Bay and an exploration budget of U.S.$3.18 million has been approved for testing new targets to the west of the cross cutting dyke, previously interpreted as the structure that terminates mineralization.

Exploration

The Group has strong expertise in the establishment of brownfield and greenfield projects and, therefore, relies on its own team of specialists rather than external consultants, during the exploration, construction and production phases. The Group's exploration team located in the Moscow head office consists of 10 employees who are specialists in the exploration and mining fields, each with 10 to 30 years of experience. The team supervises a significant number of local exploration specialists at mine and exploration sites, as well as independent contractors engaged for specific tasks on a regular basis. Each specialist has a solid knowledge of and qualification in the mining sector and geographically focuses on various projects in the Group.

Production

Process

Ore is mined either from underground mines or from open pits. The ore is then crushed and ground into a finer consistency (or stored until this can be done), to be processed to obtain gold through one of the methods noted below. Most methods used by the Group and the industry as a whole involve the use of cyanide to draw out the gold, and other chemical processes that separate the gold from other elements in the ore. Gold is then extracted from the solution onto metal cathode bars, melted down and poured into doré bars, which primarily contain gold but which can also contain some silver or copper.

Once the gold is poured into doré bars, the doré is collected and stored securely at the mines and then transported to the refineries, where the doré is refined into gold bullion bars. Once refined gold is ready for sale, the Group sells gold either to refineries or banks (see "*Market and Distribution*" below).

Technology

Each of the Group's mines is either an underground or open pit mine, and each mine employs one or more of several processing technologies. These processes, roughly presented from the simplest to most complex, are as follows:

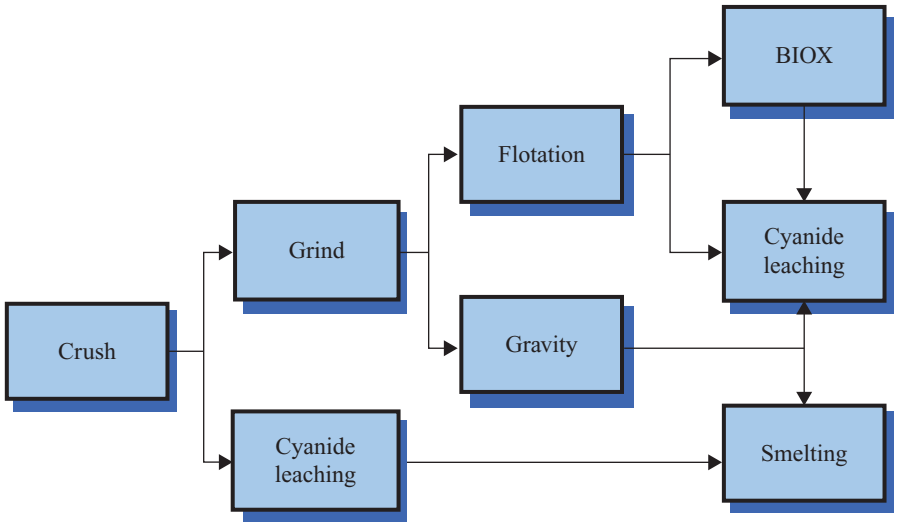
- *Heap leach*. Crushed material is laid on a slightly sloping, impervious pad where it is irrigated with a cyanide leach solution to dissolve gold. The leaching solution, once enriched with gold, is gathered in ponds from where the enriched solution is pumped to carbon filled adsorption columns where the gold is absorbed onto the carbon.The carbon is further processed to recover the gold and reactivate the carbo before returning the carbon to the process.
- *Carbon-in-pulp (CIP*). This process utilises a two-step process in which the gold is first leached in agitated vessels in the presence of oxygen and cyanide. The second step involves activated carbon and pulp being agitated together to enable the solubilized precious metals to adsorb onto the activated carbon. The loaded activated carbon is mechanically screened to separate it from the barren ore pulp and processed to recover the gold and to reactivate the carbon before returning it to the process.
- *Carbon-in-leach (CIL)*. A process for recovering gold in which a slurry of gold-bearing ore, carbon, and cyanide are mixed together simultaneously to allow leaching and adsorption to happen simultaniously, most commonly used to process ore susceptible to preg-robbing or high volume low grade deposits.-rather than after the cyanide solution has been impregnated with the gold particles, as in CIP processing. The cyanide dissolves the gold in the presence of oxygen from the surrounding ore, and the activated carbon subsequently adsorbs the dissolved gold. The loaded activated carbon is mechanically screened to separate it from the barren ore pulp and processed to recover the gold and to reactivate the carbon before returning it to the process.

  Flotation. This process upgrades the valuable mineral through the use of a milling process separating and concentrating ores by altering their surfaces to a hydrophobic or hydrophilic condition — that is, the surfaces are either repelled or attracted by water. By coating the minerals with small amounts of chemicals or oils, finely ground particles of the minerals remain unwetted and will thus adhere to air bubbles. The mineral particles are coated by agitating a pulp of ore, water, and suitable chemicals; the

latter bind to the surface of the mineral particles and make them hydrophobic. The unwetted particles adhere to air bubbles and are carried to the upper surface of the pulp, where they enter the froth; the froth containing these particles can then be removed. Unwanted minerals that naturally resist wetting may be treated so that their surfaces will be wetted and they will sink to create a foamy layer several inches thick in a liquid medium. This results in gold particles being induced to become attached to bubbles in the froth and float while other particles sink. The flotation concentrate is further treated at a cyanidation plant.

- *Bacterial oxidation (BIOX).* The BIOX process is conducted on flotation concentrate using a complex microbial population to break down the sulphide mineral matrix in the flotation concentrate being treated, thus freeing the occluded gold for subsequent cyanidation. The bacteria attach themselves to the metal sulphide surfaces in the concentrate, resulting in the accelerated oxidation of the sulphides. During the bacterial oxidation process, elements like iron, sulphur and arsenic are dissolved. The washed BIOX product is treated in a conventional cyanidation plant from which the gold is finally recovered.

These processes are summarized in the diagram below.



The table below summarizes the primary operating characteristics of each mine.

	Mine type	Technologies
Gross	Open pit	Dynamic Heap leach
Taborny	Open pit	Static Heap leach
Irokinda	Underground	Gravity, flotation
Berezitovy	Open pit, Underground	Leach, CIP
Suzdal	Underground	Flotation, BIOX, CIL, HiTeCC
Taparko	Open pit	CIL
Lefa	Open pit	CIP
Bissa	Open pit	CIL
Bouly		Agglomeration, Static Heap
	Open pit	Leach

The Group's open pit mining costs, underground mining costs and processing costs for heap leach and CIL (each calculated as costs for a given period accumulated on appropriate cost centre for processing and divided by the tons processed for the period) amount to U.S.$1.6 per tonne, U.S.$15.7 per tonne and U.S.$3.4 per tonne and U.S.$11.2 per tonne.

Supplies

The principal supplies purchased by the Group in its operations are fuel/electric energy, mining fleet spares and cyanide.

Electricity

The extraction and processing of gold requires significant amounts of electricity. The Group's mines located in Russia, other than Gross and Taborny, which have on-site power generation, are connected to the national

electric grid and purchase power on the wholesale electricity market. The key electricity suppliers for the Russian mines, other than Gross and Taborny, include Amurenergo, Far East Network Distribution Company and Engineering Surveyes. Electricity tariffs are based on the state tariffs established in the Amur region. Electricity supply agreements with those suppliers are subject to annual automatic prolongation assuming absence of parties' objections. In Kazakhstan, the electricity is provided from the national electric grid, Promsnab-Astana. The agreement with Promsnab-Astana provides for a fixed cost of energy which may be changed due to electricity market conditions. Bissa-Bouly, Gross, Taborny, Lefa and Taparko mines currently purchase diesel and heavy fuel oil on a commodity exchange (Gross and Taborny) or from Total (Lefa) and Vivo Energy (Bissa-Bouly and Taparko) to supply their own electrical needs. For a description of risks related to the price of energy and its effects on the Group's operations, see Part I: "*Risk Factors — Risks Relating to the Group's Business — The cost and supply of fuel and electricity, particularly self-generated electricity, can be unstable*."

Transportation

The Group's produced doré gold is accumulated as unfinished product at secured sites maintained at the various mines. The doré gold is transported in armoured vehicles from the storage facilities, either directly to the refinery or to local airports, from where it is flown to refinery plants. The transportation is handled by armed guards, either employed by the Group, with support from local police departments, or hired armed guards from companies which provide professional services in handling deliveries of valuable cargoes.

Consumables

The Group has a two-level procurement process. The centralised procurement department based in Moscow is responsible for bulk purchases of mining and other equipment/services. Local procurement departments (based at mines) are responsible for non-strategic low-value purchases. Any purchases in excess of U.S.$50,000 must be approved by the centralised procurement department and are subject to central procurement policies. Such centralised supplies include spare parts, fuel and lubricants, explosives, drilling tools, cyanide, grinding media, lime, cement, carbon and other materials and equipment. The Group purchases primary production materials such as cyanide, explosives, cement and grinding media from several suppliers and is not dependent on any single supplier. For example, the Group currently purchases grinding media and cyanide for Bissa, Bouly and Taparko mines from Samsung C&T Deutschland GmbH, sodium cyanide to Gross and Taborny mines from CJSC Korund-Cian, cyanides and sodium cyanide to Berezitovy mine from Unico Logistics Rus Co. LLC, explosives for Gross from ZAO "Orica CIS", explosives and for Bissa and Bouly and Taparko mines from AEL Mining Services (Burkina Faso) SARL. Mining fleet spares are purchased from official dealers. Furthermore, to deliver equipment and consumables to its mines, the Group engages third party transportation companies such as Bollore Africa Logistics Burkina Faso SA and Damco Burkina Faso SA, Antrak Logistics Pty Ltd, Damco International B.V and Bollore Transport & Logistics Guinee.

Refining

Gold doré from the Group's mines in Russia is refined at independent refining plants. The Group outsources the refining of gold that it produces to the state-owned refinery, JSC Prioksky Plant of Non-Ferrous Metals in the Ryazan region. The refinery is included by the London Bullion Market Association (LBMA) in its list of refining companies that meet "Good Delivery" standards.

Gold doré from the Group's mines in Kazakhstan is refined at a state-owned refinery Tau-Ken Altyn in Astana, which is included by LBMA in its list of refining companies that meet "Good Delivery" standards. Gold is delivered to Tau-Ken Altyn on DAP basis (Incoterms 2010).

Gold doré from Nordgold's mines in Burkina Faso and Guinea is refined at MKS (Switzerland) S.A. refineries in India or Switzerland. Agreements with all refineries are subject to the tender process and are renewed on an annual basis.

Market and Distribution

Market for Gold

Benchmark prices for gold are generally based on the London gold market quotations. Due to the size of the international bullion market and stockpiles of gold reserves, individual gold producers or other market participants generally do not significantly influence pricing or total quantities offered and sold. Since historically there has been many available gold customers, the Group is not dependent upon the sale of gold to any single customer.

Production, Transportation and Sales by the Group

The Group sells its gold in the form of refined bullions. Key customers of the Group vary depending on the region:

- Russian mines sell gold to Russian banks, including VTB, Otkritie, Gazprombank, Sberbank and Sovcombank;
- Suzdal mine (Kazakhstan) sells gold directly to a state-owned refinery Tau-Ken Altyn in Astana as described above;
- Lefa mine (Guinea) engages a sales agent, Crew Gold Corporation Limited, being a member of the Group, to organise a refining process and to sell gold to MKS (Switzerland) S.A., a Swiss trader of precious metals, which also operates refineries in Switzerland and India, and
- Bissa, Bouly, Taparko and Samtenga mines (Burkina Faso) sell gold directly to MKS (Switzerland) S.A.

The Group expects to continue to sell its gold in this manner but is not obliged to do so.

Gold doré is transported from the mines to the relevant refineries by a mixture of armoured car, helicopters and planes. The refiner or carrier agent, as applicable, assumes the risk of loss on the gold following the release of the gold from the Group's premises and is required to provide insurance for all risks while the gold is in transit from the Group's premises to the refinery. The Group maintains legal title to the gold, which does not pass from the Group until the gold is sold.

Russian companies of the Group use a tender system in Bloomberg to pick the best price offered by bank-customers on the existing market conditions. In Kazakhstan the price of gold is determined based on the average monthly quotations of LBMA. In Burkina Faso and Guinea, the price of gold is determined based on the current LBMA quotations or based on the current spot market.

The Group typically sells gold at the spot price. In 2020, 2019 and 2018, the Group's average realised price was U.S.$ 1,779, U.S.$1,399 and U.S.$1,268 per ounce while average annual LBMA price for that period was U.S.$ 1,770, U.S.$1,393 and U.S.$1,268 per ounce, respectively. Sales are made at least every quarter but usually every month. None of the Group's future production is currently hedged.

Research and development

Apart from as described above in "*Exploration and Development*", the Group does not have any material research and development activities.

Information Technology, Management Systems and Intellectual Property

The Group has implemented a system of reporting procedures which collect financial and operational information from each mine on a daily, weekly and monthly basis. Each mine is electronically connected to the central office in Moscow via a system of dashboards (operational, financial, HSE, procurement) and reports that are reviewed regularly to ensure conformity with the Group's budget and ensure spending discipline across the mines.

In 2012, the Group launched the BSN (Business System Nordgold) function, which initially consisted of several projects aimed at continuous improvement of the Group's operational efficiency across all mines and development projects. In 2020, the BSN function was expanded into a Transformation and BSN Development office with an extensive agenda including: continuous efficiency improvement; Technical Excellence (TEX) projects implementation aiming at standardization of key production processes (Geological Modelling, Mine Planning and Execution, Geotechnical and Water Management, Mobile and Plant Maintenance, Processing, Powerhouse management) and alignment with industry best practices; Innovation & Digital transformation projects; Data Governance and IT.

As such, the BSN and Transformation office are integrated into all operational and management processes within the Group including, but not limited to, production technology, internal efficiency, managing human resources and sustainable development. The team provides full project management support to the mines' line managers, assisting with all stages of mine development, including staff training and project planning through to execution

and completion, at which point projects are handed over to mines' management teams. The Group believes that the establishment of the BSN and Transformation office has enabled it to increase production efficiency across all its mines as well as to eliminate bottlenecks in a wide range of production processes. According to the Company's information, the Group has equipment availabilities for loading, trucks, drills and mill of 84%, 85%, 83% and mill availability of 91%.

In 2016, the Group successfully rolled out a SAP-based enterprise resource planning ("**ERP**") system, which has been deployed across the Group's ventures in Russia, Kazakhstan and West Africa, The Group believes that the introduction of the ERP system has helped to harmonize management and procurement processes across the Group's locations, improved the quality of equipment and procurement performance, reduced inventories and enhanced business continuity through effective management of emergency reserves and buffer inventories. In 2017, the Group implemented Oniqua artificial intelligence technology for stock levels optimization and automated re-ordering.

In 2018, the Group initiated the "Asset Management Standards & SAP Enhancement Project" with a view to developing and implementing a unified mobile and fixed plant assets and maintenance management systems. Detailed maintenance and life cycle strategies were developed for critical mining assets ensuring data driven decisions on economic life of the Group's equipment. All policies, procedures, processes, frameworks and standards related to maintenance activities and SAP architecture are in line with the ISO55000 Asset Management Standard. The initiative was fully implemented in March 2020, and the Group is currently participating in ISO55000 Pre-Assessment with the goal of achieving certification by the end of 2021.

In 2019, the Group successfully deployed an IBM Planning Analytics tool aimed at automating the business planning process (strategic, middle-term and short-term), management accounting (budget vs actual analysis of key production and financial data; factor analysis and drill-downs) and forecasting. As a result of the implementation, the quality of the budgeting process has significantly improved while the budgeting cycle duration and workload have substantially diminished. On the basis of the IBM Planning Analytics tool, in 2020 the Group also launched a Capital Investment Management module facilitating Investment projects approval and analysis, expenditure control and forecasts,

In 2020, the Group also invested into standardisation of major production software based on the Deswik platform which includes: integration with Geological Modelling software, modules for Mine Planning, Pit Design, Operational Loading & Hauling simulation, Drilling and Blasting planning, Survey analysis, Geotechnical stability analysis and Exploration Drilling programmes optimization. The Deswik software has been rolled out at all mines except for Bissa, Bouly and Taparko, which the Group expects to cover in 2021.

The Group has smart systems at main points of the production chain which enable automated management and control over certain business processes. Upon implementation of the Wenco system by the Group in 2019-2020 the productivity of mining equipment has increased (by up to 10 per cent on individual mines). The Group's automated systems on consumption control and stock optimisation also allowed the Group to reduce cyanide consumption at Berezitovy, Bissa and Taborny.

The Group does not currently own any registered intellectual property rights material to its business.

Competition

The precious metal mineral exploration and mining business is competitive. The Group competes with numerous other companies and individuals in the search for and the acquisition of attractive precious metal mineral properties. The Group's competitors in gold production include large and medium size gold producers.

The ability of the Group to acquire precious metal mineral properties in the future will depend not only on its ability to develop its present properties, but also on its ability to select and acquire suitable producing properties or prospects for precious metal development or mineral exploration. In addition, the Group also competes with its peers over sourcing the raw materials and supplies used in connection with its mining operations, as well as for skilled and experienced employees. See also Part I: "*Risk Factors — Risks Relating to the Group's Business — The Group operates in a competitive industry and may be not able to compete successfully in the future*."

Employees

The Group believes that people are its greatest asset and that operating its business in a friendly and supportive environment to earn employees' trust is fundamental to its successful operations and to delivering long-term value to investors.

The table below sets out the average number of employees by business units[1] (full- and part-time), as at the dates indicated:

	As at 31 December		
	2020	2019	2018
Buryatzoloto	1,077	1,380	1,999
Bissa	1,371	1,248	1,234
Lefa	1,306	1,305	1,178
Gross	1,128	1,010	629
Suzdal	1,008	976	962
Berezitovy	867	890	895
Taborny (former Neryungri)	764	704	684
Taparko	549	667	650
Group Management	117	103	97
Others	3	2	3
Total	**8,190**	**8,285**	**8,331**

Note:

(1) Employees at mines in Russia and Kazakhstan work in long-term shifts, not year-round, and at any given point approximately half of the workers will be working while the others will not be.

Female employees at management level in the Group comprised 17.1% of management in 2020. The Group intends to increase the share of female management-level employees to 25% of its management-level employees by 2023. The Group has a 90% parity in male and female same role salaries. Also, the Group is partnered with the Association of Female Miners of Burkina Faso and the Embassy of France.

The Group has entered into collective bargaining agreements with employees at the Bissa, Somita and Lefa mines, where employees are represented by labour unions. These agreements were entered into on 17 June 2020, 2 July 2020 and 11 September 2017, respectively. The agreement with employees of Suzdal has no expiry date and may be changed or terminated only upon the written mutual consent of the Group and the employees. As of 31 December 2020, 96% of the Group's employees were covered by collective or sectoral level agreements.

To mitigate the risk of any future labor-related disputes, the Group maintains a culture of ongoing open dialogue with employees, labour unions and local communities and regularly communicates current policies or any changes and initiatives. The Group observes its obligations by complying with applicable legislation, thus mitigating the risk of any labor-related disputes. The Group is also seeking to maintain a 90% complaints close-out rate and, in 2020, 100% complaints were closed out.

Environmental protection

The Group is committed to responsible environmental stewardship and strives to minimise impact on the environment in all of its regions of operation. Continual improvement in this field is a vital part of the Group's business. According to Sustainalytics, the Group was ranked in the first quartile of Sustainalytics Precious Metals Ranking for the precious metals sector in 2020. Also, the Group was ranked twelfth out of forty Russian mining and metal companies in the WWF's Environmental Transparency ranking.

The Group has its own environmental management system (the "**EMS**") in place. Though the EMS has not yet been certified against the international standard of Environmental Management System ISO 14 001, the Group aspires to operate in line with the approach and principles set forth therein. In 2020, the Group updated its environmental policy, which sets out a general approach to environmental management and codifies the Group's commitments to responsible environmental stewardship, underpinning the management of environmental performance in day-to-day operations. In 2016, the Group adopted a Safety Management System structured in full compliance with the OHSAS 18001 standard, which sets out the minimum requirements for occupational health and safety management best practice. This Safety Management System is currently under review with the intent to also align with the ISO 45 001 standard. The Group also implemented Global Reporting Initiative ("**GRI**") reporting standards in each business unit. GRI is an international, independent standards organisation that helps businesses, governments and other organisations better understand and communicate the impacts they have on issues such as climate change, human rights and corruption. The Group seeks to start disclosing both Scope 1 and Scope 2 emissions by 2022. In 2021, the Group has started official certification under the ISO 14001 and 45001 standards, which reflects the Group's commitment to the continuous development of its environmental and safety procedures.

As at the date of this Registration Document, the Group has a number of infrastructure projects under development. For example, the Group is undertaking the extension of a tailing storage facility at the Lefa mine. The Group has committed to design this extension in accordance with international industry best practices, and will engage an international third-party consultant to review and confirm, among other things, design safety factor. Lefa mine has also developed a resettlement action plan ("**RAP**") in order to resettle the residents of the Carrefour village. The resettlement is in an active phase, the compensations and replacement matrixes are communicated to the affected communities and have been approved by them. The physical relocation is expected to be completed in the third quarter of 2021. As recommended by the IFC, a third-party consultant will be engaged by the Group to undertake a resettlement completion audit. The reference framework for the audit will be the IFC PS 5. Should any material gaps be identified as a result of the audit, the Group will seek to address them with appropriate resources and budget.

The Group takes a collaborative and consultative approach to settlement relocation aiming to provide better facilities, augmented services and access to essentials, such as water. The Group is focused on community needs and creating new venues to help the community, such as community centres, sports halls and community warehouses. All resettlements are conducted in compliance with the IFC Framework. The Group successfully carried out the resettlement of Zandkom Village comprising 880 new houses built for 656 households, accompanied with ongoing consultation with local communities, and the resettlement of Bouly Village comprising approximately 1,000 new houses built 16 new water intake wells, 8 religious buildings, 4 schools and teacher houses, 4 community centers and 13 additional facilities such as a vaccination clinic, park, sports fields and grain mills.

The Group is supporting indigenous groups. For example, the Group has helped the Soyot people of Buryatia preserve their language and local traditions through a grant to build a school and museum. The Group has also supported the traditional music of the Buryat region, funding the purchase of traditional musical instruments for schools. In 2020, the Group made U.S.$10 million community investments (including U.S.$8 million of social development taxes incurred) and seeks to increase its direct community investments (i.e. excluding social development taxes) by 50% by 2023. Since water is vital for the Group's operations and is used intensively in ore processing, dust suppression, and drilling, water use is closely monitored at all operations and conservation opportunities are actively pursued, including the circulation of process water at industrial operations. In 2020, 85% of the water used in the Group's operations was recycled compared to 84% in 2019. The Group achieved the share of reusable and reused water for business units in the CIS countries of 92%, and for business units in African countries of 78% as at 31 December 2019. The Group reviews the water availability for new projects in terms of access and environmental protection, as well as its usage across projects. Moreover, the Group is constantly focusing on both energy efficiency measures and cost-effective power generation. The Group also seeks to reduce waste at its operating mines. For example, the Group managed to reduce plastic waste at Bissa by 12 tonnes in 2019 by switching to reusable drink containers, and replaced mercury lamps across all mines thereby reducing hazard class I waste.

The Group has also implemented systems to measure and control emissions in accordance with national regulatory requirements. Ore-processing installations are supplied with air cleaning equipment, including aspiration systems and battery cyclones. Furthermore, the Group uses watering of mine roads and water sprays at crushers for dust suppression. In 2020, the Group's emissions intensity reached 0.0226 tCO2/tOre compared to 0.0229 tCO2/tOre in 2019, according to the Group's estimates. The Group seeks to further reduce its greenhouse gas emissions by 3% by 2023 (from 2020 base) and a net zero carbon emission in 2050. The Group also intends to announce a 2030 emissions target during 2021.

The Group's operations demand the use of flammable and explosive substances, oxidizing and corrosive substances, and poisons. The Group strives to align its cyanide management with the requirements of the International Cyanide Management Code (ICMC). A cyanide solution is used in circulation schemes, as it is the most efficient method. The main risk of dealing with cyanide occurs during its transportation. To mitigate this risk, the Group transports only dry cyanides, not cyanide solution. Cyanide is transported inside the original manufacturers' packaging to ensure a higher level of safety. At the Group's mines only highly trained personnel are permitted to handle cyanides.

Due to the nature of production processes at gold-mining production sites, the handling of waste is one of the principal risks and one of the main areas of focus for environmental protection. Waste is accumulated, stored and disposed at specially constructed sites, including all waste rock, some of it is used for various applications with the rest disposed of at waste dams and dumps. Gold-containing rocks (ore and off-grade ore) are treated for gold extraction or stored for future use. Treated ore is destined for disposal in tailing storage facilities. Furthermore,

the Group pays special attention to tailings management and conducts regular monitoring, including third party oversight. The Group seeks to manage its tailings facilities in compliance with the Global Industry Standard on Tailings Management.

Moreover, the Group seeks to minimise the environmental impact of its activities on local biodiversity. Biological resources are closely monitored at all operations, and the Group does not operate in protected areas of natural reserves. Furthermore, the Group seeks to create a biodiversity map for Gross and Taborny, which the Group believes, will allow it to identify the flora and fauna in the licence areas, and will contribute to the preservation of these species and the biodiversity of these areas. In addition, since 2017, the Group has been a sponsor of the Snow Leopard Foundation, a non-profit and non-governmental organization dedicated to conserving viable populations of snow leopards. According to the agreement with the Snow Leopard Foundation, the Group funds the research and conservation of snow leopards in the Eastern Sayan Mountains located in Siberia, Russia.

Also, the Group has carried out reforestation on more than 80 hectares around Lefa mine. Moreover, the Group is planning a large scale reforestation at Gross and Taborny mines with over 100 hectares to be covered in 2021-2023. The Company intends to publish its inaugural Task Force on Climate-Related Financial Disclosures ("**TCFD**") for 2020 using the new carbon intensity assessment. The assessment, expected to be completed in early 2021, will also form a part Nordgold's 2020 Sustainable Development Report.

For more information on environmental protection, see Part I: "*Risk Factors — Risks Relating to the Group's Business — The Group's operations are subject to extensive environmental controls and regulations, and a breach of these regulations could result in fines or in certain cases the suspension of operations, which could have a material adverse effect on its reputation, operating results and financial condition*."

Health and Safety

The Group's Board believes that the health and safety of the Group's employees, contractors and visitors, as well as respect for the environment and active engagement with local communities, are fundamental to the success of the Group's business. As a result, the Group is continually examining ways to improve its results and performance in this regard.

The Group's health and safety policy has recently been reviewed and is based on the following principles:

- worker safety is a key value;
- incidents and injuries can be avoided via properly developed and applied risk management processes;
- preventing incidents and injuries positively impacts operations;
- health and safety targets should be made clear to all employees, while operational targets should not create conflict with the company's safety commitments; and
- it is the responsibility of every worker to observe safety rules; and management is directly responsible for preventing incidents and injuries; the Group emphasizes that management leadership in safety is of critical importance.

In 2019, the Group launched a web application for HSE incidents registration and immediate response to its workers.

To mitigate the potential adverse impact of COVID-19 on its business, the Group has implemented a number of measures, including, among others, the global COVID-19 testing programmes of the Group's employees, hygiene and distancing tactics, mandatory quarantine requirements for employees arriving on the sites, rotation schedules to reduce employees' changeover frequency and remote work regime for certain employees. Within a short period of time the Group built production buildings, living blocks and canteens for its employees to assist with the management of COVID-19. Furthermore, the Group developed a care-and-maintenance programme for employees on its mine sites and in surrounding communities, and extended the transportation capacities to provide the social distancing. In 2020, the Group's expenses on COVID-19 preventive measures amounted to U.S.$11.5 million in expenses and U.S.$3.8 in capital expenditures.

Commitment to International Best Practices

The Group presently believes it complies with national standards and environmental regulatory requirements. The Group aims to adhere to international best practices across its asset base. The Group is already engaged in

various projects to raise its operating standards and is working to achieve compliance with the highest internationally recognised codes and guidelines, such as the International Finance Corporation Environmental, Health and Safety Guidelines and IFC Performance Standards as well as the applicable national standards, laws and practices.

In 2012, the Group developed and implemented amendments to the "More Than Gold Safety Rules", "Leadership in HSE of Business Units", "Procedures for Internal Incident Investigations" and several programmes on seasonal risks of injury to workers and transport safety.

In 2014, the Group implemented training frameworks and initiatives to promote improved safety performance among workers. Managers at the Group's operating facilities strengthen safety culture through regular safety visits, to observe employees at work and discuss operational and safety issues with them. The Group has put in place behavioral-based safety programmes to improve hazard identification and risk awareness, and to encourage employees to take personal responsibility for managing these risks.

In 2015, the Group began developing a system of leading indicators aimed at the proactive detection of both inconsistencies and potential incidents which did not result in an accident. Safety risk assessments, root cause analysis processes, new safety audit standards and several methodologies were implemented at all mines in 2015.

In 2016-2017, the Group implemented 16 new internal health and safety standards in accordance with OHSAS 18001 across all of the mines. The Group has also implemented a provision system on accidents monitoring and new internal labour safety testing programmes. The most important of them are the standards governing the conduct of HSE meetings and trainings, "HSE Reporting Procedure", "LOTO systems", "Management of contractors", "Safe operation of technical devices", "Road safety", "Safety in confined spaces", "Behavioral safety audits" and others.

The Group seeks to operate in line with the United Nation's Universal Declaration on Human Rights, the United Nations Guiding Principles on Business and Human Rights and the International Labour Organization (ILO) Core Standards. In 2020, the Group carried out a supply chain human rights risk assessment of 33% of its main suppliers. The remaining major long-term suppliers are expected to be assessed in 2021 — 2022. The assessment is primarily focused on the Group's suppliers in West Africa. The assessment was based on the UN Global Compact methodology and the compliance rate for the assessed suppliers was 98%.

The Group also uses comprehensive risk management processes to assess and manage environmental and social risks to enable the Group to identify and minimise the environmental and social impact of its operations. Based on these risk assessments, measures to avoid risk, mitigate risk or compensate for damage are developed. For example, thousands of seedlings of local trees (predominantly mango and baobab trees) are planted in the tree nurseries at the Bissa-Bouly mine to ensure that after the mine closure they will be planted in the location on the former pits.

While implementation differs by geography, the Group's management believes that these processes are stabilised and form a good basis to continually improve safety, social and environmental performance.

The Group's current focus is on creating an efficient safety and environmental risk management system, from hazard identification up to management review, as well as improving behaviour based safety programmes, and strengthening the process of learning lessons from earlier incidents. Apart from the system changes described above, one of the key specific focus areas is road safety.

As part of its commitment to continuous improvement and drive to meet international environmental, health and safety best practices, the Group has engaged a reputable consultant to implement certain environmental initiatives, including, inter alia, Scope 1 and Scope 2 emissions disclosure, biodiversity project in the Yakutia district and ISO certification. The Group may also undertake a gap assessment of the Group's corporate and site level environment and safety management practices against the international standards such as the International Finance Corporation Performance Standards on Environmental and Social Sustainability.

Overall, the Group seeks to meet the requirements of international best practice standards for health, safety and the environment. This will be achieved through the maintenance and improvement of existing health, safety and environmental systems and programmes and the alignment of these systems and programmes with international standards.

Risk Management

The Group views the health and safety of its workforce as its first priority and a critical component to its operations. The Group believes that injuries can be prevented and that employees and especially the management of the Group are responsible for preventing such occurrences in order to make the workplace injury free. The Group is also committed to preventing people from being exposed to occupational hazards in the workplace.

The Group observes local legislation requirements in all operating regions, as well as best practice in the broader field of health and safety. The health and safety management system forms part of the overall Group's BSN. A number of internal policies, such as the Health and Safety policy, the More Than Gold Safety Rules, OHSAS 18001:2007 and ISO 45001:2018 standards, methodologies, and safety procedures provide the basis of the health and safety management system. To ensure compliance with the health and safety requirements safety performance is included in management KPIs, and the safety performance targets determine 15% of the annual bonus (10% linked to lost time injury and 5% linked to zero fatality and implementation of safety programs) amounts paid to the Group's executive directors and senior managers. In 2020, the Group had an employees engagement rate (which represents an indication of workforce motivation) of 81 per cent.

The Group's LTIFR in 2020 was 0.14, a 58% decrease over the LTIFR of 0.33 in 2019. In 2018, the Group had the LTIFR of 0.19. In 2020, the number of fatal injuries of its employees decreased to zero from three in 2019 and two in 2018, respectively. In 2020, the number of contractor fatalities reduced to one from two in 2019 and two in 2018. The Group believes that its LTIFR is close to the industry average.

The Group seeks to prevent fatal incidents. While progress has been made in this regard, the safety of the Group's employees and contractors will remain a core focus until a zero incident rate is achieved. Every incident is subject to an in-depth incident investigation and analysis process in order to understand the causes of what happened and identify and act upon the preventative actions in order to avoid new incidents.

The Group has established a health and safety risk management system for its mining operations, to understand the risks, learn from incidents that have occurred, implement risk mitigation processes and technologies and encourage appropriate behavior patterns. Each mine has environmental and health and safety specialists to focus on compliance with applicable health and safety regulations and the Group's own health and safety principles and policies. A small professional HSE team also operates at the Group level to track safety performance, oversee all the Group's health and safety principles and policies and undertake regular health and safety audits. See Part I: "*Risk Factors — Risks Relating to the Group's Business — Health and safety incidents may adversely affect the Group's business*".

Various health and safety training initiatives have been implemented to promote improved safety performance among workers. Through these initiatives, the Group continues its efforts to lower incidents rates on an annual basis.

Corporate Social Responsibility

The Group believes that operating its business in a socially responsible way and earning the trust of the local governments and communities are fundamental to its successful operations and to delivering long-term value to investors. The Group appreciates that only through the development of more prosperous and empowered communities can it gain and maintain the social and legal licence to operate in a location, and that contribution to the well-being and prosperity of the host communities will support the Group's activities, in particular given the Group's focus on developing countries.

The Group is committed to improving the community development outcomes of its activities and has made investments in social initiatives across the regions where it operates, including schools in the Taparko, Suzdal and Buryatzoloto mine areas, road repairs and infrastructure construction in the Suzdal mine area, clean water supply to villages in the Lefa mine area and local community and workforce support programmes at Berezitovy, Gross and Taborny mines. The Group's investment has helped to build 65 new schools, renovate 26 schools, and provide new equipment to 34 schools, with around 15,000 children given the chance to go to school in those regions. The Group has developed a comprehensive entity-wide framework for managing social performance to establish its credentials as a responsible corporate citizen and be a welcome partner for the host governments and communities of the regions where it operates.

Ethical Business Conduct

Code of Business Conduct and Ethics

The Company has adopted a written code of business conduct and ethics (the "**Code of Conduct**") to aid the Group's directors, officers and employees in making ethical and legal decisions when conducting its business,

performing day-to-day duties and fulfilling responsibilities. The Code of Conduct has been designed to endorse and promote the Group's commitment to honest and ethical conduct, promote compliance with applicable laws and governmental rules and regulations, to ensure the protection of the Group's business interests and to deter wrongdoing. The Code of Conduct applies to the Group's employees, consultants, officers and directors and such persons must sign an acknowledgement indicating that they have received, read and understand the Code of Conduct and agree to be bound by it. Any irregularities regarding ethical business conduct are to be referred to a member of the Audit Committee, external legal counsel or management.

Whistleblowing Procedures

The Board adopted whistleblowing procedures in 2012, through which complaints regarding questionable accounting, auditing, ethical, and other matters could be reported.

NAVEX Global, the U.S. Ethics and Compliance Expert, is engaged as an independent and confidential whistleblowing service at all the Group sites. Other whistleblowing channels include the HR Hotline, and the Shared Service Centre.

Share Dealing Code

The Group has adopted an internal code on securities dealing in relation to the Group's Shares and other financial instruments, the value of which is determined by the value of the Shares, by the directors, persons discharging managerial responsibilities and persons related to them and employees which is based on the requirements of the UK Market Abuse Regulation and the EU Market Abuse Regulation (the "**Share Dealing Code**"). The Share Dealing Code applies to the directors, persons discharging managerial responsibilities and other relevant employees of the Group. The Share Dealing Code includes rules relating to: notification by or on behalf of persons associated with the Group who are required to make notifications of transactions in the Shares and related securities; the obligations of employees, managers and directors with respect to the ownership of, and transactions in, the Shares and related securities; and if relevant, the period during which such persons may not effect transactions in the Shares and related securities. The Group has adopted a policy on procedures for dealing with inside information outlining the procedures applicable to persons working for the Group who could have access to inside information on a regular or incidental basis and has informed the persons concerned of the rules on insider trading and market manipulation, including the sanctions which can be imposed in the event of a violation of those rules.

Anti-bribery and corruption policy

In 2013, the Group developed and adopted its own anti-corruption policy, which was further amended in 2019, and implemented it throughout the Group. The anti-bribery and corruption policy adopted by the Group is part of a comprehensive programme that includes not only regulating the actions of the Group's employees and officials in terms of anti-corruption and bribery, but also training in this area, including an anti-corruption clause in all contracts and the drafting and implementation of electronic registers for gifts, sponsorships, and charity. 'Adequate procedures checklist' by Transparency International UK is used to ensure compliance with 227 anti-bribery and corruption indicators. The adoption of the anti-corruption policy demonstrates the Group's commitment both to high standards of corporate governance and to the principles of open and fair business practices. The Group seeks to continuously improve and enhance corporate ethics across all aspects of its operations. The Group also complies with UK law on combatting corruption (in particular, the Bribery Act 2010 and the Foreign Corrupt Practices Act of 1977), as well as legislative acts aimed at combatting corruption and bribery in those countries where the Group is economically active.

Litigation

See Part XII: "*Additional Information — Litigation*".

Insurance

The Group maintains at least the minimum level of insurance required under the laws of each jurisdiction in which it operates. In particular, the Group maintains insurance for, amongst others, directors and officers liability, public liability for hazardous industrial facilities and hydraulic structures and employer liability; however, the Group does not have full insurance coverage for its mining, processing and transportation facilities, for business interruption, or for third party liabilities in respect of property or environmental damage arising from incidents on the Group's property or relating to the Group's operations.

For more information on insurance risks relating to the Group, see Part I: "*Risk Factors — Risks relating to the Group's Business — The Group does not maintain full insurance coverage for all risks*".

PART VI

REGULATORY OVERVIEW

Republic of Guinea

The Guinean Mining Code

The SMD/DGM Convention de Base was granted pursuant to the Ordinance no. 077/RPG/86 as of 21 March 1986 in accordance with the Old Mining Code, which was in effect from 1995 to 2011. Enacted in 2011, The Old Mining Code makes provisions for prospecting licenses, operation permits and mining concessions, while introducing a number of amendments and additions.

In 2018, by entering into the Third Amendment to the SMD/DGM Convention de Base, the parties have agreed that certain provisions of the New Mining Code would apply to the SMD/DGM Convention de Base on the basis of the transitory provisions of the New Mining Code. To the extent the SMD/DGM Convention de Base has a stabilization clause, the Old Mining Code is still applicable to it except for the provisions of the New Mining Code that have been implemented pursuant to the Third Amendment of the SMD/DGM Convention de Base.

Among other changes, the New Mining Code entitles the Government of Guinea to a free 15% interest in the share capital of a company to which it has granted an operation title, which interest may not be diluted by rights issues. The Government of Guinea is further entitled to acquire an additional 20% in the share capital of the mining company on terms to be negotiated with each company.

The New Mining Code also introduces a section on transparency and anti-corruption that is intended to comply with recent international commitments undertaken by the government of Guinea.

- *Transparency*: Mining title holders must be duly identified and must provide details of shareholding and management. Any instruments recording the grant, extension, renewal or farm-out, withdrawal or waiver of mining titles must be published.
- *Anti-corruption*: The New Mining Code explicitly prohibits the bribery of government or elected officials and establishes as a condition of receiving a mining license that mining title holders sign a code of good conduct. Violation of bribery provisions may result in penalties up to and including the revocation of the violator's mining title. Holders of mining titles must submit an anti-corruption monitoring plan to the Ministry of Mines each calendar year.

Mining Tax Regime/Duty and Customs Exemptions

The New Mining Code has almost completely revised the fiscal and customs regime applicable to mining activities in Guinea. The fixed fees to which mining titles and permits for trade are subject are no longer determined by the Guinean Minister of Finance and Minister of Mines, but are set out in an appendix to the New Mining Code. In addition, the annual surface taxes are similarly set out in the New Mining Code and vary according to the title at the time it was granted or renewed. Taxes on mining substances are set out in the New Mining Code and vary according to the substance exploited. The tax rate applicable to SMD is 5% per ounce of gold based on the daily London fixing. The law passed on April 8, 2013 does not propose to modify this rate.

The New Mining Code provides mineral extraction companies with differing duty and customs exemptions based on the type of license held and phase of exploration, development or exploitation of the licensed area.

The law passed on April 8, 2013 proposes certain modifications to these exemptions based on the phase of development of the licensed area.

Exploration and Development Phases

Holders of prospecting licenses are exempt from VAT for imports of certain professional materials and equipment, VAT for services provided by direct sub-contractors, minimum flat tax, tax on industrial and commercial profits and corporation tax, patent contributions (contributions sur les patentes), vocational training contributions, registration fees and stamp duty, uniform land tax, tax on securities income and apprenticeship taxes.

Holders of prospecting licenses and their direct sub-contractors are also eligible for temporary admission rules allowing the import of certain equipment and materials during the exploration period. However, they are subject to a 10% withholding tax throughout the exploration period on payment of fees and services provided by foreign companies and insurance contracts concluded with non-Guinean companies.

The New Mining Code differs from the Old Mining Code in that holders of exploitation permits benefit from the same exemptions during construction as during the exploration phase, and are exempt from VAT on imported equipment.

Exploitation Phase

As with the Old Mining Code, holders of mining titles in the exploitation phase are exempt from the minimum flat tax, vocational training contribution, uniform land tax and apprenticeship tax during the first three years following the date of first production. Under the New Mining Code, holders of exploitation permits or mining concessions are subject to VAT; patent contributions; tax on industrial and commercial profits corporate tax (without a tax holiday) and tax on securities income at a rate of 10%; registration duties for deeds relating to company creation; duties for share capital increases through new contributions, capital contributions, capitalization of profits or reserves and mergers; a 6% payroll tax; withholding non-salary income; withholding payroll taxes and a unified vehicle tax excluding site-based mobile plant and vehicles. Holders of mining titles during the exploitation phase are also liable for environmental taxes and royalties established according to the Guinean Environment Code.

During the exploitation phase, expenses incurred by holders of an exploitation permit or mining concession are eligible for certain deductible allowances in calculating the tax on industrial and commercial profits and corporate tax. These deductible allowances include overhead costs, finance costs, losses from previous years, depreciation, provisions for rehabilitating mining sites, depletion allowances, contributions to the Local Development Fund and foreign exchange losses.

The New Mining Code introduces a flat 6% customs duty on the import of equipment and materials (including raw materials and petroleum products) appearing on the list of a company's fixed assets, if intended for on-site processing of ore into semi-finished or finished products, and increases the customs duties on extraction equipment to 8%, including raw materials and consumables.

Prospecting Licenses

Under the New Mining Code, prospecting licenses are granted by the Minister of Mines on recommendation from the Government Centre of Mining Promotion and Development ("**CMPD**") upon receipt of a favorable opinion from the Technical Committee for Titles. Where multiple applications are made for the same site, the New Mining Code requires a bidding process in accordance with rules to be defined and approved by the National Mining Board. Tenders must be concluded within one year of the presentation of the ore body for tender by the Minister of Mines. Prospecting licenses for semi-industrial exploitation are reserved exclusively for Guinean nationals, companies formed with capital entirely held by Guineans and to nationals of countries with which Guinea has reciprocity arrangements.

Under the New Mining Code, the term and validity of industrial prospecting licenses and semi-industrial prospecting licenses are limited to 15 and 5 years, respectively. A prospecting license may be extended for an additional year if after the second renewal the holder of the license has been unable to finalise a feasibility study for reasons verified by the Mining Authority. If at the end of the additional year the holder has been unable to finalise the feasibility study, the license will be cancelled. Prospecting licenses may be renewed several times, each time for a maximum term of 5 years. The New Mining Code provides that the government of Guinea retains the right to negotiate production sharing agreements for prospecting licenses, the terms and conditions of which will be defined and appended to the relevant license.

Exploitation Permits

Under the New Mining Code, industrial and semi-industrial exploitation permits are granted as a right to companies organized under Guinean law, by a decree issued by the Council of Ministers and further to a proposal from the Minister of Mines and favorable opinion from the National Mining Board. Prospecting license holders must demonstrate that they have complied with obligations under the New Mining Code and must submit an application at least three months in advance of the expiration of the relevant prospecting license.

If there is no valid prospecting license for an ore body, the exploitation permit will be granted pursuant to a bidding process in accordance with rules to be defined and approved by the National Mining Board. Calls for tenders must be issued by the Technical Committee for Titles in consultation with the National Mining Board.

Holders of exploitation permits must begin development of the ore body within one year of the date the permit is issued, and failure to do so may result in a fine of U.S.$100,000 per month, with the penalty increasing by 10% per month as compared to the previous months from the fourth month of delay until the sixth month. The government of Guinea reserves the right to withdraw or cancel the title within eighteenth months of the grant date.

Mining Concessions

Investments equal to or greater than U.S.$1 billion are eligible for a mining concession under the New Mining Code, and are granted as a right to companies organized under Guinean law, by a decree issued by the Council of Ministers and further to a proposal from the Minister of Mines and favorable opinion from the National Mining Board. Applicants must demonstrate that they have complied with obligations under the New Mining Code and must submit an application at least three months in advance of the expiration of the relevant prospecting license.

If there is no valid prospecting license for an ore body, the mining concession will be granted pursuant to a bidding process in accordance with rules to be defined and approved by the National Mining Board. Calls for tenders must be issued by the Technical Committee for Titles in Consultation with the National Mining Board.

Under the New Mining Code the duration and renewal of mining concessions remains the same, though the holder of a mining concession must submit a new feasibility study as a condition to renewing the concession.

The New Mining Code also provides for the renegotiation of existing mining concessions. In the event of incompatibility between the provisions of a mining concession and certain provisions of the New Mining Code, the government of Guinea and the title holders of the mining concessions will work together to harmonies the existing concessions with the New Mining Code without delay.

Transfer of Mining Rights

As was the case in the Old Mining Code, prior approval by the Minister of Mines is required for the direct assignment and transfer of exploitation permits and mining concessions. However, the New Mining Code introduces the following more stringent change of control provisions:

- Any direct or indirect change of control in any holder of an interest in a title must be submitted for approval or validation by the Minister of Mines.
- Any direct or indirect acquisition or partial or cumulative acquisition that is equal to or greater than 5% of the share capital of the title-holding company must be submitted for approval by the Minister of Mines.
- The definition of a change of control shall be the subject of a joint order to be issued by the Ministers of Mines and of Finance.

In addition, the New Mining Code introduced the National Mining Board, a new governing body which must approve or provide a favorable opinion for all decisions on assignment or transfer of any official acquisition of a mining title.

Any change to the share ownership of a company holding a mining title must be published on the website of the Minister of Mines and the Official Gazette, and all assignment, transfer and merger instruments must be registered in accordance with the Guinean Tax Code.

The law passed on April 8, 2013 expands on the New Mining Code's tax treatment of gains from the disposal or transfer of an interest in a title by creating three categories of disposals each of which have a distinct tax treatment.

Revocation

The New Mining Code has introduced new grounds for the revocation of mining titles, in addition to amending existing grounds. The grounds on which a license, permit or concession may be revoked are as follows:

- exploration work is suspended for over six months or exploitation work is suspended more than 12 months or such work is severely restricted without legitimate reasons and in a manner that is detrimental to public interest;
- the feasibility study submitted demonstrates that an economically and commercially exploitable ore body located within the prospecting license perimeter has not been put into exploitation within a maximum of five years for concessions and four years for exploitation permits;

- a suspension of exploitation works for 12 months (as opposed to 18 months under the Old Mining Code);
- loss of the financial guarantees or technical capacity that ensured, at the time the title was issued, the holder's satisfactory performance of mining operations;
- the assignment or transfer of mining rights without the prior authorisation required;
- the assignment or transfer of mining rights derived from an prospecting license either in whole or in part;
- recurrent instances of tax fraud due to untrue financial statements and balance sheets; and
- non-observance of the provisions of the New Mining Code regarding conflicts of interest and the Code of Good Conduct.

The formal notice period has been shortened to one month for prospecting licenses and from three months to 45 days for exploitation permits and mining concession.

Environmental Regulation

The New Mining Code contains more detailed environment provisions than the Old Mining Code, including the following:

- In order to obtain a prospecting license, applicants must provide an environmental impact notice.
- In order to obtain an exploitation permit or mining concession, a company must provide an environmental and social impact assessment with an Environment and Social Management Plan (*Plan de Gestion Envorinnemental et Social*), a Risk Assessment (*Etude de Dangers*), a Health and Safety Plan (*Plan de Hygiène Santé et Sécurité)* and a Resettlement of Displaced Populations Plan *(Plan de Réinstallation des Populations Déplacées).*
- Holders of exploitation permits or mining concessions must open a fiduciary account for environmental rehabilitation in accordance with their Environmental and Social Management Plan and as a guarantee that the operating site will be properly closed and rehabilitated. The terms and conditions of the accounts operation shall be set by a joint decree of the Minister of Mines, the Environment Minister and the Finance Minister. The funds assigned for this purpose shall be deducted from taxes on industrial and commercial profits.

The Old Mining Code

The Old Mining Code set forth three major types of mining titles:

- *Prospecting licenses* granted exclusive rights to explore for all the substances specified in the permit.
- *Exploitation permits* granted exclusive rights for, and free disposal of, all the mineral substances specified in the permit for areas that comprised ore deposits and the surface installations, generally as defined by the relevant feasibility study.
- *Mining concessions* were grants reserved for large ore deposits that entailed significant investments and infrastructure requirements as defined by the relevant feasibility study.

Under the Old Mining Code, the Guinean Ministry of Mines was responsible for issuing prospecting licenses and exploitation permits, but only the President of Guinea could issue mining concessions.

Holders of mining titles were required to:

- carry out operations in such a manner as to ensure sustainable development of national mineral resources. For such purposes enterprises were required to follow standard technical procedures accepted by the mining industry;
- carry out operations in such a way as to ensure environmental protection in accordance with the Guinean environmental code, including taking all steps necessary to prevent pollution of the environment, to treat wastes and discharges and to preserve forests and water resources;
- indemnify the government of Guinea or any other person for damages and injury caused by them under prevailing statutory and regulatory provisions;
- give preference to Guinean enterprises for all construction, supply or service contracts, provided that such enterprises offered comparable prices, quantities, qualities and delivery schedules;

- give preference to Guinean workers, giving them access to every job they were capable of performing. Mine and quarry title holders were obliged to set up a training programme and make sure that as much of its personnel as possible was Guinean; and
- carry on business in such a way as to encourage the transfer of technology and skills to Guinean enterprises and human resources.

Mining Tax Regime/Duty and Customs Exemptions

Mining titles or permits for trade in mine or quarry substances and their renewal, extension, continuation, assignment, transfer and sublease were subject to payment of a fixed fee at rates determined by joint order of the Guinean Minister of Finance and the Guinean Minister of Mines.

Mining titles were subject to annual payment of a surface tax, the rates of which were fixed by joint order of the Minister of Finance and the Minister of Mines.

The government of Guinea provided mineral extraction companies with certain duty and customs exemptions, including:

- during the exploration, construction, expansion and first two years, or production phases, a temporary exemption for duty and customs taxes was provided for designated lists of equipment;
- during the exploration, construction, expansion and first two years, or production phases, equipment, materials, heavy vehicles and tools were subjected to a duty and customs registration fee of 0.5% of the cost, insurance and freight value;
- during exploitation, processing plants (processing ore in semi-finished or finished products) were subject to a full exemption from duty and customs taxes (from the third to fifth year of production, the duties and customs taxes were 7.6%, and after the fifth year, the duties and customs taxes rose to 10%); and
- for extractive operations, a 5.6% duty and customs tax was levied on the free-on-board value of materials, equipment, heavy vehicles, consumables (including fuel), diesel oil and lubricants not used in the processing of the ore in finished or semi-finished products (from the third to fifth year of production, the duties and customs taxes were 7.6%, and after the fifth year, the duties and customs taxes rose to 10%).

Prospecting Licenses

The government of Guinea granted SMD, an indirect wholly owned subsidiary of the Group, one prospecting license conferring exclusive rights to prospect for specified minerals in set areas totaling 93 square kilometers in Guinea for the time specified. This prospecting license is contiguous with the area covered by the SMD/DGM Convention de Base described below under "*Mining Concessions — SMD/DGM Convention de Base*".

Prospecting licenses were issued by order of the Guinean Minister of Mines on recommendation of the CMPD, to applicants who applied in accordance with the requirements of the Old Mining Code. The application consisted of a letter addressed to the Minister of Mines following identification of the prospecting area by a geologist.

If two applications were made for the same site, priority was given to the applicant offering the better conditions and guarantees to the government of Guinea. When conditions and guarantees were similar, priority for the grant of the prospecting license was given to the first applicant.

Prospecting licenses conferred on their holders the exclusive right to prospect for mining substances for which the permit had been issued. During the life of the permit, only its holder had the right to an exploitation permit or concession for the deposits found within the prospecting site.

The administrative order granting a prospecting license set a minimum work programme that the license holder was required to carry out during the term of the license, and the minimum financial effort the holder was expected to devote to prospecting during each year of the license and renewals thereof. Holders of prospecting licenses were required to start prospecting work within six months of the permit being issued and continue this work diligently and according to recognised standards.

Holders of prospecting licenses had the right to dispose freely of all products extracted in the course of their prospecting and assays, provided they did not proceed to operations and provided that they declared these products to the Guinean Direction Nationale des Mines.

The area for which an individual prospecting license was issued could not exceed 500 square kilometers, unless a derogation was granted. Prospecting licenses were issued for a maximum term of three years. A prospecting license could be renewed twice, for maximum periods of two years for each renewal.

A prospecting license was renewed by operation of law if the holder had met all of its obligations and its application for renewal set out a minimum programme of work building on the results of the preceding period and representing a financial effort at least equal, for the corresponding time period, to that set in the administrative order granting the previous prospecting license. With each renewal, the area of the prospecting license was reduced by half.

An applicant who had made a discovery of a deposit that was economically exploitable could be granted either an exploitation permit or a mining concession to exploit the deposit.

Exploitation Permits

An exploitation permit conferred on its holder the exclusive right to search, prospect, develop and freely dispose of the minerals within the relevant site.

Exploitation permits were issued by order of the Guinean Minister of Mines on recommendation of the CMPD and in conjunction with a mining agreement and a document of reference annexed to the administrative order. Exploitation permits were issued to holders of prospecting licenses who had:

- met all their obligations under the Old Mining Code throughout the term of their prospecting licenses;
- made an application in accordance with the provisions of the Old Mining Code; and
- provided proof in a feasibility study of the existence of an economically exploitable deposit within the perimeter of the prospecting license.

Issuance of an exploitation permit replaced the rights of the prospecting license within the perimeter of the exploitation permit, but the prospecting license continued to be valid for the remainder of its term in the areas outside of such perimeter.

When no valid prospecting license was in existence, exploitation permits were issued at the discretion of the Guinean Minister of Mines, based on the technical and financial capacity of the applicant, the interest of the proposed operating program, the value of the applicant's technical choices and the amount of its commitment. When more than one application had been made providing equal guarantees, commitments, technical value and equivalent capacity, priority was given to the first applicant.

If a substance was discovered other than the one for which the prospecting license was issued, the holder had pre-emptive rights for an exploitation permit for its development. These rights were required to be exercised within 18 months after the date that the government of Guinea was advised of such discovery.

The area for which exploitation permits were issued was defined in the administrative order granting the permit. It was limited to the deposits as designated in the feasibility studies. The perimeter of the exploitation permit was required generally to be entirely situated within the perimeter of the site granted in the preceding prospecting license.

The term of an exploitation permit was renewable for several periods of five years or more, upon application of the holder and under the same conditions as its original grant, when the holder had met all obligations incumbent upon him upon the issuance or renewal of the title and all those arising from the Old Mining Code and the document of reference or the mining agreement.

Mining Concessions

Overview

A mining concession was issued by Guinean Presidential decree on recommendation of the Guinean Minister of Mines, subject to the conditions of a mining convention, or a so-called Convention de Base, annexed to the administrative order, and conferred on its holder the exclusive right to carry out all kinds of prospecting and development of deposits of mineral substances for which the concession is granted, within the limits of its perimeter, and without limits as to depth.

Mining concessions were issued by priority to holders of prospecting licenses who had:

- met all obligations under the Old Mining Code during the term of such permits;
- made an application that includes a feasibility study in accordance with the Old Mining Code; and
- supplied proof of the existence of commercially exploitable deposits within the area defined in their prospecting license.

When no valid prospecting license existed, mining concessions were issued taking into account the technical and financial capacity of the applicant, the size of the proposed operations and the value of technical choices operated.

Mining concessions could only be issued where one or more deposits were discovered upon evidence duly constituted by a feasibility study, and for which operations required sizable works and investments.

When more than one application for a mining concession was received providing equal guarantees, commitments, technical value and equivalent capacity, priority was given to the first applicant.

The area for which a mining concession was issued was defined in the administrative order granting the concession. It was required to correspond as closely as possible to the boundaries of the deposits, as defined in the feasibility study, unless derogation was permitted. Granting of a mining concession cancelled any prospecting license or exploitation permit previously issued to the holder for the area defined in the concession. Unless otherwise prescribed by the administrative order, the obligations incumbent upon the holder of a prospecting license or exploitation permit were reduced or increased to take into account the reduction or increase of the area that was covered under such permits.

Mining concessions were issued for a maximum term of 25 years. The term of a concession could be renewed, upon application of the holder and under the same conditions as its original issuance, one or more times for a maximum period of 10 years for each renewal, provided the holder met all the obligations incumbent upon the holder under the administrative order, renewals, documents of reference and the Old Mining Code.

Convention de Base

All mining concessions are based on an agreement called a Convention de Base (foundation agreement) with the government of Guinea. This document is based on the terms of a pre-feasibility study and a feasibility study.

The Convention de Base defines the rights and obligations of the respective parties and set out the legal, financial, tax, economic and labour conditions which governed the mine operation for the duration of the agreement. A Convention de Base is expected to constitute a guarantee to the holder of the operating permit or concession that the agreed conditions will remain unvaried. The Convention de Base signed by the Guinean Minister of Mines and prospective title holders bound the parties after being ratified by the Guinean Parliament and then promulgated by the President of Guinea. According to the Old Mining Code, once in effect the Convention de Base could only be amended by written agreement of the parties. Amendments were effected only when the above-described procedural steps had been followed, including ratification by the Guinean Parliament and promulgation by the President of Guinea.

SMD/DGM Convention de Base

In 1984, the government of Guinea created a protocol for exploring and exploiting gold, diamonds and other minerals on the Dinguiraye Concession and in the surrounding regions. A subsidiary of Guinor Gold Corporation, which is now a subsidiary of Crew Gold, became involved in the concession in 1986 when the interests of certain parties were transferred to it.

In 1990, a Convention de Base (the "**SMD/DGM Convention de Base**") was issued to SMD. The parties to the SMD/DGM Convention de Base are Delta Gold Mining Ltd ("**DGM**"), an indirect wholly owned subsidiary of the Crew Gold, and the government of Guinea. Under the SMD/DGM Convention de Base, the government of Guinea agreed to grant long-term mining licenses to SMD, and DGM agreed to oversee and manage the exploration and mining operations of SMD, with an obligation to actively explore and develop any resources discovered. The SMD/DGM Convention de Base sets out the objectives of SMD as the exploration for and mining of gold, diamonds and other associated minerals and the development of mines and processing plants in the concession area.

Further to the entry into force of the New Mining Code, the Company's ownership through Crew Gold of SMD was impacted and the DGM/SMD mining convention was renegotiated and amended through a third amendment dated 22 January 2018 (the "**Third Amendment**").

Key terms of the Third Amendment include in particular:

- *Award of 15% free carried interest of SMD's shares to the government of Guinea.* The 15% stake in SMD entitles the government to certain corporate rights, including the right of appointment of 2 directors of SMD, appointment of a second auditor, inability to amend SMD's articles of association without the consent of the government of Guinea.
- *Settlement of VAT claims.* SMD have settled with the government of Guinea the VAT claims regarding 365,871,556,471 GNF overpaid VAT from the period from 1 January 2010 to 31 October 2017. Under the Third Amendment *government* of Guinea undertook the obligation to refund the overpaid VAT within 6 years of the Third Amendment signature.
- *Amendment to the tax and customs regime.* Provisions of the Third Amendment stipulate the amount of land tax to the local authorities that should be paid by SMD in the periods following the adoption of the Third Amendment. The amount of 37,500,000 GNF has been paid as land tax to the local authorities for the periods of 2011-2015. Third Amendment stipulates the raise of the land tax from USD 50 per square kilometres in 2016-2018 to USD 150 per square kilometres payable in 2019 and going onwards.

  SMD shall pay tax to the Local Development Fund at the lump-sum rate, VAT exclusive, depending on SMD's trade turnover to replace patent fee taxes and land taxes for built-up land, local taxes and other local duties. Third Amendment set up the lump-sum tax payable to the local development fund equal to 0.4% of turnover by 20 March 2019 raising to 1% of turnover by 21 March 2019 provided that the ordinance on the concession reissue is signed.

  Custom duties of SMD where affected by the reduction of the tax rate to 5.6% for goods and equipment on the mining list, during the pit operation, provided that SMD is entitled to a single import duty after the signature of the Third Amendment.
- *Renewal of the mining concession for 15 years.* Third Amendment renewed the concession term for the old license of *SMD*. The renewal of the concessions by the government of Guinea should be effective of 20 March 2019 and shall remain from 15 years.
- *Extension by 72 sq. km of the mining areas.* SMD resold 467 square kilometres of the initially granted 1,500 square kilometres, and, therefore, the government of Guinea agreed to allocate additional areas of 72 square kilometres that are in the Siguiri Prefecture to SMD to ensure continuity of the mining work and support the project. The ordinance on the concession re-issue shall apply to the total area of 1,105 square kilometres which geographical coordinates will be also specified in the ordinance.
- *Implementation of the New Mining Code provisions relating to local content, local communities and the environment.* Under the Third Amendment SMD shall undertake to reasonably use mining fields in compliance with the environmental and health requirements and provisions of the Mining Code 2011 and environmental code. SMD is obliged to take its best efforts to minimise negative impact of mining operations on health and environment and support the proper living standards and preserve the public health in general, as well as to cooperate with administrative authorities of the mining industry and environmental supervision authorities to ensure effective waste management.

  Third Amendment entitles SMD to enter into the territory development agreements with the municipalities of Guinea. Such agreements shall contain provisions related to education of local population and population of neighbouring municipalities, environmental and health measures, development of social projects.

Under the SMD/DGM Convention de Base, the government of Guinea granted SMD an exclusive, irrevocable mining concession for gold, diamonds, and associated minerals totalling 1,559.3 square kilometers in the Dinguiraye area of Guinea. Pursuant to the Third Amendment, the concession was renewed for 15 years as from 20 March 2019 and its perimeter was extended by 72 square kilometres.

The SMD/DGM Convention de Base also requires a 5% royalty and 0.4% levy for infrastructure projects to be paid by SMD on the sales of minerals and establishes the tax rate on net profits at 30%. The convention also exempts SMD from specified import and export duties. Under the Third Amendment, import duties during the operating phase have been reviewed and are due by SMD save for goods and equipment identified on the mining list for the operating phase which benefit from a preferential rate of 5.6% granted to SMD in the context of this amendment.

Under the Third Amendment, the government of Guinea also acknowledged a VAT credit of GNF 365,871,556,471.00 (about U.S.$40 million) incurred between 1st January 2010 and 31 October 2017 and undertook to reimburse it SMD within 6 years.

Transfer of Mining Rights

In accordance with Article 62 of the Old Mining Code, any contract or agreement by which a mining title holder promised to make over, cede or transfer or by which he did actually make over, cede or transfer, all or some of the rights and obligations arising out of a mining title, was required to receive prior approval from the Minister of Mines.

In the case of the acquisition of a controlling interest in Crew Gold by the Group, in November 2010 the now former Minister of Mines of Guinea alleged that such acquisition without prior formal approval of the Minister of Mines violated Article 62 of the Old Mining Code. The new Minister of Mines has reiterated this claim. The Group responded to the former Minister of Mines that, since the acquisition of a controlling interest in Crew Gold did not result in a direct transfer of mining rights, which remain held by DGM, an indirect subsidiary of Crew Gold, there was no violation of Article 62 of the Old Mining Code. The Minister of Mines of Guinea withdrew its allegations in September 2020.

Revocation

Mining titles granted under the Old Mining Code could be revoked by the issuing authority (i.e., the Guinean Ministry of Mines in relation to prospecting licenses and exploitation permits and the President of Guinea in relation to mining concessions) on any of following grounds:

- when the prospecting, operation or development period was suspended for more than six months in the case of exploration, and more than 18 months in the case of operations, or severely restricted without legitimate grounds and in such a way as to be detrimental to the public interest;
- when the feasibility study showed the existence of an economically and commercially operable deposit within the perimeter set out in a prospecting license but no development followed within 36 months from the date of the grant;
- for violation of one of the provisions of the Old Mining Code;
- mining costs and expenses of the title holder were less over a total of two consecutive years than the whole of the minimum programme for works or the minimum amount of expenses forecast for such period by the mining title or documents of reference of the concession, except in cases of justifiable force majeure, providing they did not exceed 18 months;
- failure by the holder to keep regular registers in respect of extraction, sales and shipping and in accordance with standards established by the prevailing regulations, or refusal to produce such registers to the qualified agents of the Guinean Direction Nationale des Mines;
- development activities undertaken when a prospecting license was held;
- failure to pay taxes or duties;
- prospecting or development activities were carried out outside the perimeter of the mining title or for substances not designated therein;
- loss of financial guarantees or technical capacity; and
- assignment, transfer or sub-leasing of mining rights without prior authorisation.

Environmental Regulation

Environmental regulation in Guinea is governed primarily by Decree No045/PRG/87 of 10 March 1989 (the "**Guinean Environment Code**"). The Guinean Environment Code, administered by the Guinean Conseil National de l'Environment ("**National Environment Council**"), sets out specific protective measures in relation to (i) soil and sub-soil; (ii) continental water (that is inland water); (iii) marine water; (iv) air; (v) human settlements; (vi) fauna and flora; (vii) waste; (viii) toxic or dangerous chemicals; and (ix) noises and smells. In general, it is the responsibility of all mining facilities to minimise the damage they do to the environment. The Guinean Environment Code imposes specific sanctions for breach of its provisions.

In relation to mining activities, the Guinean Environment Code and the Old Mining Code provided that a holder of mining rights was required to submit a rehabilitation plan for agricultural and forestry purposes for approval

by the Guinean Minster of Mines and the Guinean National Environment Council. If the mining rights holder failed to comply with such plans they were liable for fines and criminal prosecution. A rehabilitation plan was normally submitted at the time that mining rights were awarded.

SMD is obligated under the SMD/DGM Convention de Base to protect the environment and reforest any areas disturbed at the end of the project.

The government of Guinea, through the Minister of Environment, has been reviewing the requirements for reclamation upon ultimate closure for all mines in Guinea. A closure fund in Guinea will be required to cover the related existing balance sheet liability for the mines. While the SMD/DGM Convention de Base calls for the closure process to be funded by the Crew Gold at the end of the mines life, the government of Guinea has requested a cash deposit to cover the expected liability and in Lefa's case the agreed deposit amount was U.S.$5.0 million, which was paid in 2009.

The Third Amendment to the SMD/DGM Convention de Base contains provisions in this respect and SMD has been required to open a cash deposit account on which it has already paid the above-mentioned U.S.$5.0 million.

Shareholders Agreement

On 6 December 2018, DGM entered into a shareholders' agreement with the government of Guinea in respect of SMD (the "**Shareholders Agreement**"). The Shareholders Agreement is concluded for the term of the SMD/ DGM Convention de Base and governs administration and corporate matters of SMD.

In accordance with the Shareholders Agreement and under the Third Amendment, the share capital of SMD is distributed as follows:

- DGM: 85%; and
- Guinea: 15%.

The Shareholders Agreement specifies that the participation of Guinea in the share capital of SMD does not imply contributions, neither is it dilutable. Guinea has a permanent right to own 15% in the share capital of SMD starting from October 1, 2020.

The Board of Directors determines the conduct of business of SMD and supervise its activities. Guinea has the right to nominate two directors in the Board of Directors of SMD while DGM can nominate five directors.

Burkina Faso

The Burkina Faso Mining Code

In Burkina Faso, the mining sector is open to free enterprise. However, all mining activity on any part of the national territory of Burkina Faso is subject to the prior issue of mining titles or authorisations by the competent authorities, since the surface and sub-surface of the land are, by operation of law, State property.

The different types of mining titles are as follows:

- exploration permits;
- permits for exploitation on an industrial scale for large or small mines; and
- permits for non-industrial, semi-mechanized exploitation.

Mining titles are accompanied by a mining agreement between the State and the permit holder, which supplements the Burkina Faso Mining Code of 2015 (the "**Burkina Faso Mining Code**") in order to determine the rights and obligations attached to the mining titles.

Exploration Permits

Exploration permits are granted by the Minister of Mines to all persons (natural or legal) who have submitted an application which complies with the mining regulations. The application must be accompanied by a work programme which the applicant proposes to carry out during the first year of the validity of the permit, as well as the corresponding budget.

The exploration permit confers upon the permit holder, within the scope of its surface and sub-surface perimeter, the exclusive right to explore for minerals requested, as well as to dispose of the products extracted for the

purpose of the exploration in accordance with the conditions provided for in the Burkina Faso Mining Code. The holder of an exploration permit may request and obtain an extension of the exploration permit to include other mineral substances within the scope of its perimeter.

The exploration permit is valid for three years from the date of grant. It is renewable by law twice for consecutive three year periods subject to compliance with the laws and obligations provided for in the mining regulations.

The holder of an exploration permit must carry out the exploration programme which such holder has submitted at the beginning of each year to the Mining Administration and must spend on these works the minimum amount per square kilometer provided for in the mining regulations. Any derogation from the exploration programme must be submitted to and must be the subject of a declaration by the Mining Administration.

The holder of an exploration permit has the right to the free use of products extracted as a result of the exploration and of any tests which may form part of the exploration on the condition that the exploration works do not assume the character of exploitation works and that the permit holder makes a declaration to the Mining Administration.

Exploitation Permits

There are two types of exploitation permit: exploitation permits on an industrial scale and permits for nonindustrial, semi-mechanized exploitation. Both types of permits confer on the permit holder, within the surface and subsurface scope of its perimeter, the exclusive right of exploitation of the mineral substances which are found there.

Permits for exploitation on an industrial scale of a large or small mine are granted by law to a holder of an exploration permit who has complied with the obligations placed on such holder pursuant to the Burkina Faso Mining Code and who has presented an application which complies with the regulations at least three months before the expiration of the period of validity of the exploration permit by virtue of which the application is made. The decision is taken by order by the Council of Ministers on the proposal of the Minister of Mines, after review by the Minster of the Environment and the National Mining Commission.

The application for an exploitation permit on an industrial scale for a large or small mine must be accompanied by a file comprising a feasibility study, a development plan and a plan for the exploitation of the deposits.

The exploitation permit on an industrial scale for a large mine is valid for 20 years from the date of grant. It is renewable by law for consecutive 5 year periods until the exhaustion of the deposits. For small mines, permits are valid for 10 years only.

Permits for non-industrial, semi-mechanized exploitation are granted by the Mining Administration following consultation with the competent administrative authorities and the relevant local communities.

Such a permit is valid for 5 years. It is renewable by periods of 3 years (by order of the authority which issued the permit and on the same terms) if the permit holder has complied with the obligations placed on him and has presented an application which is compliant with the mining regulations. The maximum surface area for which a permit for non-industrial, semi-mechanized exploitation may be granted is 100 hectares.

The Rights and Obligations Attached to Mining Titles

The State guarantees to holders of mining titles:

- the right to freely dispose of their real or personal property, tangible or intangible, and to organize their business which is, in particular, safeguarded against any measure of nationalization, expropriation or requisition;
- the protection of private property in all legal and commercial aspects, its features and splitting up, its transferral and the contracts to which it is subject;
- the free transfer of moneys necessary for mining activities, of profits to be distributed to partners not from the Economic Community of West African States ("**UEMOA**"), of profits and funds resulting from the sale of shares, and savings realised by employees;
- the free circulation and free marketing of finished and semi-finished products, as well as all substances and products originating from exploitation activities.

Mining permit holders are obliged:

- not to carry out any prospecting, exploration or exploitation work on the surface at less than 100 meters from prohibited or protected zones;
- to indemnify owners of land and goods located there and other occupants of land which is necessary for prospecting, exploration or the exploitation of mineral substances and for related industries;
- to co-operate with other operators in the creation or use of infrastructure which present a common interest;
- to use, as far as possible, local services and raw materials as well as products made in Burkina Faso;
- to give priority to the employment of local personnel with a view to permitting their accession to all jobs depending on their professional qualifications;
- to develop and apply internal rules relating to public health and safety at work;
- to immediately declare to the Minister of Mines, any discovery of archaeological value; all treasures and all other items judged to be of value and to conduct works in a manner so as not to damage such items;
- to submit to the State at the expiration of any exploration permit or at the expiration of its possible period of renewal, a definitive report, as well as all reports, all maps, all drilling cores, all aerial surveys and any raw data which the title holder has acquired in the course of the period of exploration;
- to give to the State, 10% of the shares in the exploitation company, and to maintain this level of ownership in the event of an increase in share capital.

The Withdrawal of Mining Titles

Holders of mining titles can have their rights withdrawn, without indemnification or compensation, in the following situations:

- the holder of an exploration permit engages in exploitation activities within the area defined by the permit;
- for holders of industrial exploitation permits, exploration activity is postponed or suspended, without authorisation, for more than two years and, with authorisation, for more than six years;
- for holders of permits for non-industrial, semi-mechanized exploitation, preparation for exploitation or exploitation is delayed or suspended, without authorisation, for 6 months, and, with authorisation, for a year;
- the unauthorised sale or transfer of mining titles;
- the non-payment of taxes;
- the non-compliance with the annual minimum unitary expenditure requirements under the mining regulations;
- the default of the permit holder;
- failure to comply with the obligations relating to the analysis or notice of environmental impact and to a public investigation;
- a serious breach of the rules relating to public health and safety at work. In the event of a withdrawal of a mining title, the permit holder has a right to appeal.

The Tax Treatment of Mining Activities

Mining exploration and exploitation activities are subject to the payment of various taxes and royalties. However, they benefit from several tax benefits.

Mining Taxes and Royalties

All holders of a mining title are liable for the payment of fixed duties and proportional duties.

Fixed duties are fixed on a lump sum basis and paid only once by all applicants at the time of grant, renewal, or upon the transfer of mining titles.

Proportional duties are made up of area taxes and proportional royalties. The area taxes are fixed on the basis of the surface area occupied, of the nature of the substances sought, for exploration permits, and of the type of exploitation, for exploitation permits. The proportional royalties are due annually. The proportional royalties are calculated as a percentage of the value of the sales of the extracted products. Their rate is fixed according to the type of product.

Tax Benefits

Tax benefits consist of exemptions and the stability of the tax regime.

Exemptions

The mining regulations give to the holders of title deeds to land many exemptions which vary according to the level of activity.

During the exploration phase, the holders of exploration permits, within the framework of their operations, are exempted from the payment of all taxes and duties of any kind. They also benefit from a reduction in import duties.

During the period of preparatory works, holders of exploitation permits are exempted from VAT for a period of two years (which is renewable once) for materials, machinery and equipment, as well as spare parts which are listed in an annex to the exploitation permit.

Exploitation permit holders are also exempted, for the entire preparatory phase, from all customs duties, with the exception of community duties (*droits communautaire*) and statistical royalties (*redevance statistique*), in connection with the importation of equipment, raw materials, fuel and lubricants for use in the production of energy and the operation of vehicles and equipment relating to the preparatory works, as well as spare parts.

During the exploitation phase, permit holders benefit from a reduction in the tax rate on income and on income derived from securities.

They benefit from a temporary maximum exemption of seven years on the minimum lump sum tax on industrial and commercial professions, patents taxes, employers tax and training tax and the tax on mortmain property.

They are also exempted from the payment of registration duties on all actions relating to the increase of share capital.

They are obliged to pay an import tax at the cumulative rate of 7.5% provided for goods in Category I of the tariff nomenclature of UEMOA.

Notwithstanding this special customs regime, the holder of an exploitation permit or the beneficiary of an exploration authorisation can request the benefit of Temporary Admission, which is a customs duty relief mechanism that allows its beneficiaries to introduce public works equipment into the customer territory of the UEMOA on a partially duty-free basis, with the commitment to re-export the equipment or to store it in warehouses after it is used.

The holder of an exploitation permit is authorised to create, free of the tax on industrial and commercial profits, a reserve for the restoration of the mining site.

The Stability of the Tax and Customs Regime

During the period of validity of the mining permit, the rates and base levels of taxes and duties remain unchanged from the rates and levels effective as at the date of the permit, and no new duty or taxation of any nature whatsoever will be applied to the permit holder during this period, with an exception for mining duties, taxes and royalties.

Respect for Environmental Law

Activities regulated by the Burkina Faso Mining Code must be carried out in such manner as to ensure the preservation and management of the environment and the rehabilitation of sites which have been exploited.

Any holder of a mining permit must, before undertaking any work on site which may affect the environment and, following consultation with the population concerned, prepare and submit for the approval of the Minister of Mines and the Minister of the Environment, a study on the impact on the environment or a notice of environmental impact.

The study on the impact on the environment must be accompanied by a programme of preservation and management of the environment, including a rehabilitation plan for the sites to be exploited.

Any modification must be the subject of prior authorisation from the Mining Administration.

Mining Concessions

Overview

Industrial operating licenses for large mines were issued, pursuant to the Burkina Faso Mining Code of 2003 (the "**Mining Code of 2003**"), by decrees passed in the Burkina Faso Council of Ministers on proposal of the Minister in charge of Mines and following the opinion of the Minister of environment and the National Commission on Mines. Under the Burkina Faso Mining Code, industrial operating licenses are granted pursuant to the decree of the Council of Ministers issued in accordance with the report of the Minister in charge of Mines and following the opinion of the technical commission. Licences to operate a large or small mine are accompanied by a mining agreement concluded between the Government and the permit holder.

The operating license conferred on its holder the exclusive right to research and mine deposits of mineral substances for which the license is granted, within the limits of its perimeter, on the surface and in-depth, under the conditions provided by the mining code.

Industrial exploitation permits were granted *de jure* to holders of prospecting licenses who had:

- met all obligations under the Burkina Faso Mining Code and regulations during the term of such permits; and
- made an application that includes a feasibility study and an ore deposit mining and development plan in accordance with the Burkina Faso Mining Code.

Industrial exploitation licenses for large mine could only be issued where one or more deposits were discovered upon evidence duly constituted by a feasibility study, and for which operations required sizable works and investments.

The area for which mining licenses were issued is defined in the decrees granting the licenses. Granting of an operating license cancelled any prospecting license previously issued to the holder for the area defined in the license.

Industrial operating licenses were granted for a maximum term of 20 years. However, they are valid for the life of the mine as established by the feasibility study if this is less than 20 years. Industrial operating licenses are renewable *de jure* upon application of the holder for a consecutive period of 5 years until exhaustion of the deposit.

Mining Licenses/Agreements

Exploitation licenses for a large or small mine are followed by the conclusion of a mining agreement with the government of Burkina Faso. The mining agreement is based on standard models adopted by decree. Under the Mining Code of 2003, agreements were concluded for a maximum period of 25 years and may be renewed for a ten-year period. Under the Burkina Faso Mining Code, mining agreements are concluded for the time period of the respective operating permit and may be renewed for consecutive periods of 5 years. They may terminate prior to their term in the event of total renunciation by the Investor or in the event of withdrawal of the title in accordance with the Burkina Faso Mining Code.

The Minister in charge of Mines had authority to sign the agreement, following the opinion of the technical commission and with the permission of the Council of Ministers. It may be amended under the same conditions.

The Mining Agreement defined the rights and obligations of the respective parties and set out the legal, financial, tax, economic and labour conditions which governed the mine operation for the duration of the agreement. A Mining agreement was expected to constitute a guarantee to the holder of the operating permit that the agreed conditions, especially as to tax system and change regulation, will remain unvaried.

Mining Licenses and Agreements specify tax reduction granted during the exploitation phase as well as specific custom duties exemptions for mining materials and equipment. They also include provisions on mining taxes and royalties to be paid by the operating company, as determined by implementing regulations.

The Mining Agreement signed by the Minister in charge of Mines and the title holders bound the parties and came into force as of the date of its signature. The mining agreement and the license must to be published in the official gazette.

Mining investment agreement between the State of Burkina Faso and HRG/Taparko Exploitation License

In 1995, a mining investment agreement was signed between the Government of Burkina Faso and the company High River Gold Mines (West Africa) Ltd ("**HRG**") authorising HRG to proceed with a mining investment in 4 four phases, including exploration and mining operations, in the Taparko region. The Government agreed to grant licenses for exploration and operation under the terms of the convention.

The agreement was concluded for 25 years and came into force on the first day of the month following its ratification. It was ratified by Decree on July 1, 1995. The agreement may be renewed for a period of 10 years in accordance with its terms, under conditions to be agreed upon by the parties.

In August 2004, an industrial gold exploitation license was granted to the company SOMITA SA in Taparko for an area of 666.5 square kilometres and a term of 20 years, renewable by consecutive periods of 5 years until the deposit is exhausted within the limits of the area concerned.

The company has the obligation to exploit the deposit according to the applicable rules and to rehabilitate the sites before their abandonment in accordance with the mining regulations and the environmental impact study.

Bouroum mining License/Mining Agreement between SOMITA SA and Government of Burkina Faso

In June 2005, a second industrial gold operating license was granted to the company SOMITA SA in Bouroum for an area of 11.7 square kilometres and a term of 20 years, renewable by consecutive periods of 5 years until the deposit is exhausted within the limits of the area concerned.

A mining agreement relating to the Bouroum license was passed between the Government of Burkina Faso and the operating company SOMITA SA in May 2007. The Mining Agreement came into force as of the date of signature and is valid for a term equal to the term of the operating permit. It is renewable for one or more 10-year periods.

Bissa-Zandkom mining License/Mining Agreement between Bissa Gold SA and the Government of Burkina Faso

In June 2011, an industrial gold operating license for large mine was granted to the company Bissa Gold SA in Bissa-Zandkom for an area of 129.15 square kilometres and a term of 20 years, renewable by consecutive periods of 5 years until the deposit is exhausted within the limits of the area concerned.

The area covered was extended to 171.25 square kilometers by a decree issued on 16 September, 2014.

A mining agreement relating to the Bissa-Zandkom license was passed between the Government of Burkina Faso and the operating company Bissa Gold SA in May 2012. The Mining Agreement came into force as of the date of signature and is valid for a term equal to the term of the operating permit. It is renewable for one or more 10-year periods.

The three mining licenses described above were issued under the Mining Code of 2003. In 2015, a new Mining Code was adopted creating new obligations that may affect holders of licenses granted pursuant to the former Mining Code:

- Creation of a "preferential" dividend status whereby the State has priority in the distribution of dividends and is paid before any other allocation of distributable profits.
- Creation of new funds, including a local development fund and a rehabilitation and mine closure fund. Exploitation license holders will pay 1% of their monthly gross turnover (or the value of the extracted products) to the local development fund. The rehabilitation and closure fund will be financed through a mandatory annual contribution from mining companies that will be determined based on an environmental impact assessment. The mining code specifies that 1% duty payable to the local development fund also applies to holders of an exploitation license granted pursuant to the former mining code.

- Provision for additional grounds for revoking mining titles, which include on-site employment of children.

Samtenga mining License/Mining Agreement between Nordgold Samtenga SA and Government of Burkina Faso

A mining agreement relating to the Samtenga license was passed between the State of Burkina Faso and Nordgold Samtenga SA on January 26, 2021 (the "**Mining Agreement**"). The Mining Agreement came into force as of the date of signature and is valid for a term of three years. The Mining Agreement is renewable by consecutive periods of 5 years at the request of the investor. This agreement provides for the allocation to the State of Burkina Faso of 10% of preferred shares in the company's share capital. Also, the investor undertakes to comply with the laws and regulations of the State of Burkina Faso.

Kazakhstan

Regulation of Mineral Rights

The majority of Kazakhstan's current subsoil use contracts were concluded in accordance with the Decree of the President of the Republic of Kazakhstan No. 2828 of January 27, 1996 On Subsoil and Subsoil Use (the "**1996 Subsoil Law**").

The Kazakh Subsoil Code replaced the Law "On Subsoil and Subsoil Use" dated 24 June 2010 (the "**2010 Subsoil Law**"). The Kazakh Subsoil Code's main aims include the attraction of investment into the mining sector and expansion of exploration activities. The 2010 Subsoil Law included changes to the structure and responsibilities of Kazakh State bodies that had been established as a result of Presidential Decree No. 936 issued on March 12, 2010 (the "**936 Decree**"). Prior to March 12, 2010, the Ministry of Energy and Mineral Resources of the Republic of Kazakhstan (the "**MEMR**") had acted as the main governmental authority for the supervision of the mining and oil industries, or the competent body (the "**Competent Body**"). Pursuant to the 936 Decree, the MEMR was reorganized and its functions in the metal mining industry were assigned and transferred to the Ministry of Industry and New Technologies (the "**MINT**") and Ministry of Oil and Gas. According to Presidential Decree No.875 issued on August 06, 2014, the functions and authorities of the Ministry of Oil and Gas and the MINT, in the field of formation and implementation of the state policy in the field of electric power, nuclear energy, were transferred to the Ministry of Energy (the "**MoE**"). Currently the MoE is the Competent Body for subsoil use rights in the sphere of hydrocarbons, the Ministry of Industry and Infrastructural Development (the "**MIID**") is an authorised body, in respect of solid minerals, and there are other regulatory authorities and local executive authorities, which regulate some aspects in this field.

The 1996 Subsoil Law

Under the 1996 Subsoil Law, subsoil and any useful minerals contained therein are owned by the Kazakh State. The state, in turn, grants individuals and entities subsoil use rights for the exploration and extraction of mineral deposits.

Prior to August 1999, subsoil use rights in Kazakhstan were granted on a license-and-contract basis. Under this system, the Kazakh Government granted subsoil use licenses to licensees who were then required to enter into a contract for subsoil use with a designated Kazakh ministry or other government agency. Subsoil use contracts would typically set out in detail the licensees rights and obligations and were based on a template of the 1997 Model Contract. The license-and-contract system has subsequently been superseded by the developments described below.

The 1997 Model Contract

The 1996 Subsoil Law also made it necessary to use so called 'Model contracts' as templates when drafting and negotiating a subsoil use contract. In relation to this the Government of the Republic of Kazakhstan approved the Model Contract for Performance of Subsoil Use Operations introduced by Governmental Decree No. 108 dated January 27, 1997 (the "**1997 Model Contract**"). The 1997 Model Contract described the general rights and obligations of the parties and might be applied to exploration, production, combined exploration and production contracts and contracts of another type.

The 1999 Amendments to the 1996 Subsoil Law

In August 1999, the 1996 Subsoil Law was amended by Law No. 467-I Concerning the Introduction of Amendments and Additions to Several Legislative Acts on Subsoil and Petroleum Operations in the Republic of

Kazakhstan (the "**1999 Amendments**"). The 1999 Amendments simplified the process of granting subsoil use rights, allowing the so-called Competent Body (currently, the MIID for the metal minerals industry) to grant subsoil use rights by entering into contracts without first having issued a license. In practice, subsoil use rights are typically granted following a tender process. In addition to simplifying the process for granting subsoil use rights, the 1999 Amendments expressly provided that all valid subsoil use licenses issued under the former system remained valid and the suspension, revocation, termination or invalidation of licenses issued prior to August 1999 remain governed by the 1996 Subsoil Law in effect prior to the 1999 Amendments.

The 2001 Model Contract

In 2001, the new Model Contract for Performance of Subsoil Use Operations (the "**2001 Model Contract**") was approved by Governmental Decree No. 1015 dated July 31, 2001. The 2001 Model Contract, in addition to other things, established new obligations for subsoil users, such as the mandatory use of Kazakhstani equipment, goods, works and services, and the obligation to make payments for the education of Kazakhstani employees. Please see "*Terms and Conditions of Subsoil Use Contracts*" for further details.

The 2004 Amendments to the 1996 Subsoil Law

The 1996 Subsoil Law was further amended by Law No. 2-III on the Introduction of Amendments and Additions to Certain Legal Acts on Subsoil Use and Subsoil Operations dated December 1, 2004 (the "**2004 Amendments**"). The 2004 Amendments provide the Republic of Kazakhstan with a priority right in connection with any transfer of subsoil use rights and/or any transfer of equity interest in any subsoil user and give the state a right of first refusal in respect of any such transfers on terms no less favourable than those offered by other prospective purchasers. The 2004 Amendments provided that this priority right applies to future contracts as well as retroactively to all existing contracts. While the 2004 Amendments did not contain detailed procedures that the Republic of Kazakhstan must follow in order to exercise its priority right, the Inter-Agency Commission on state priority right matters (the "**IAC**") was established by government decree to consider the priority right of the state in situations where subsoil use rights and/or equity interests in any subsoil user are offered for sale or transfer and to make recommendations to the Kazakh Government, which, in turn, was to make the ultimate decision as to whether or not to exercise the state's priority right.

Other provisions in the 2004 Amendments include a requirement that subsoil users purchase goods and services from Kazakh producers (provided such goods and services comply with the applicable national and/or international standards). The 2004 Amendments also require subsoil users to conduct tenders for the purchase of goods and services in the territory of the Republic of Kazakhstan (and upon the consent of the Competent Body, abroad) and prohibit subsoil users from holding a tender for purchasing goods and services only among foreign entities in circumstances where comparable Kazakh goods and services are available.

The 2004 Amendments specifically provided that the functions of the licensing body with respect to the licenses for subsoil use that were issued prior to August 1999 and remained in force were to be performed by the Competent Body.

The 2007 Amendments to the 1996 Subsoil Law

The Subsoil Law was further amended by Laws No. 213-III of January 9, 2007, No. 178-III of January 12, 2007 and No. 2-IV of October 24, 2007 (collectively, the "**2007 Amendments**"). The 2007 Amendments included a right of the Competent Body to terminate unilaterally the subsoil use contracts in cases where the relevant subsoil users had substantially breached their obligations under such contracts or did not perform the instructions of the Competent Body to remedy breaches of the subsoil use contract obligations.

The 2007 Amendments also gave the Competent Body the ability to unilaterally 'refuse further performance' of a subsoil use contract (on the Government's initiative) if the subsoil user's activity on fields of strategic significance for the Republic of Kazakhstan results in a substantial change in Kazakhstan's economic interests which constitutes a threat to national security. While the 2007 Amendments did not set forth a definition of fields having strategic meaning, the Kazakh Government was given the power to approve a list of fields having strategic meaning. The list was approved on August 13, 2009 pursuant to Governmental Decree No. 1213.

The 2009 Amendments to the 1996 Subsoil Law

The 1996 Subsoil Law was further amended by Laws No. 135-IV of February 13, 2009, No. 188 of July 17, 2009 and No. 233-IV of December 29, 2009 (collectively, the "2009 Amendments"). The 2009 Amendments included

an exception setting forth those companies that are not required to observe the requirement to purchase goods and services in accordance with the Kazakh subsoil procurement regulations. Under the 2009 Amendments, this exception applied to subsoil users carrying out operations on common minerals, as well as subsoil users where 50% or more directly or indirectly belong to the national operating holding and national subsoil company.

Other provisions of the 2009 Amendments stipulated that the priority right of the Republic of Kazakhstan was to be exercised by the state represented by the Kazakh Government or upon the governmental decree by a national operating holding company or a national subsoil company.

The 2009 Amendments regulated local content issues, including provisions providing that where expenses from the purchase of goods and services were incurred in defiance of the subsoil users' procurement requirements stipulated by the law, these expenses were not to be included in the amount to be acknowledged by the Competent Body as execution of subsoil user's contractual obligations.

The 2010 Subsoil Law

The 2010 Subsoil Law replaced the 1996 Subsoil Law. The 2010 Subsoil Law set forth more detailed procedures to be followed in awarding contracts for subsoil use. The law provided for the conclusion of any contract for combined exploration and production on the basis of a decision adopted by the Kazakh Government and then only in relation to the subsoil areas and fields that are of strategic meaning or a complicated geological structure. However, the 2010 Subsoil Law did not describe the process for the conclusion of a contract for combined exploration and production, in particular, for the timing for the conclusion of the contract.

In addition, the 2010 Subsoil Law had introduced a number of new provisions regarding the process of the alienation or transfer of the subsoil use right or associated objects. The 2010 Subsoil Law included additions to the list of assets for transfers that require a permit of the Competent Body following a waiver of the state's priority right.

The 2010 Subsoil Law did not include a definition of principal activity or criteria for determining whether the principal activity of a legal entity is connected to subsoil use in Kazakhstan.

In addition to the deemed transfers of subsoil use rights that existed under the 1996 Subsoil Law, the 2010 Subsoil Law introduced two new categories for deemed transfers of subsoil use rights.

- enforcement of security over the right of subsoil use and the Objects, including under a pledge; or
- obtaining the right to the share of the legal entity possessing a subsoil use right or the Subsoil User's Parent Company, through an increase of the charter capital via the additional contributions of one or more participants, as well as by acceptance of a new participant into the legal entity.

The 2010 Subsoil Law generally protected the rights of subsoil users from legislative change, if such a change had a negative impact on the results of the subsoil user's activity under its subsoil use contract. According to the 2010 Subsoil Law, this protection did not cover changes in the legislation of the Republic of Kazakhstan in the areas at:

- defence and national security;
- ecological safety;
- healthcare; and
- taxation and customs.

The Kazakh Subsoil Code

The Kazakh Subsoil Code sets the licensing regime for exploration and mining of solid minerals. The Kazakh Subsoil Code has for the first time introduced a rule under which licences for exploration of solid minerals can be granted to the first applicant (provided no one else has applied for the same deposit), while retaining the pre-existing procedure under which subsoil use rights are granted on the basis of a tender to conclude a contract. The Kazakh Subsoil Code has also significantly simplified the application process for the obtainment of subsoil use rights. Under the Kazakh Subsoil Code, subsoil use agreements and licences may be granted to local or foreign legal entities or individuals. Transfers of subsoil use rights are only permitted after consent of the Competent Body has been obtained. The transfer of a subsoil use right (a share in the subsoil use right) is prohibited (i) under the licence for the exploration of solid minerals in the first year of its operation; (ii) under the licence for geological study of subsurface resources; and (iii) under the licence for gold digging.

The Kazakh Subsoil Code provides for new obligations and a set of mandatory provisions to be established in the subsoil use agreement. In respect of the subsoil use agreements concluded before the Kazakh Subsoil Code entered into force, the latter outlines the general rules:

- Subsoil use permits, licences and subsoil use agreements concluded before the Kazakh Subsoil Code entered into force, as well as the legal acts of executive state bodies of Kazakhstan connected to them, shall remain in effect;
- Subsoil use agreements concluded before the Kazakh Subsoil Code entered into force, can be amended by agreement between the parties (i.e. the subsoil user and the Competent Body), or in cases prescribed in the contracts or in the laws;
- Amendments and supplements to the laws of Kazakhstan, which worsen the results of the entrepreneurial activity of a subsoil user under its subsoil use agreements, do not apply to the contracts concluded before the introduction of such amendments.

The Kazakh Subsoil Code provided following special aspects for exploration and mining licenses. The owner of one or more exploration licenses of solid minerals, the subsoil areas of which have common borders (adjacent areas), has the exclusive right to:

- to obtain a license (licenses) for the extraction of solid minerals in the subsoil area located within the exploration area (adjacent exploration areas), in case of discovery of a solid mineral deposit, resources and reserves of which are confirmed by a report on the assessment of resources and reserves of solid minerals;
- to obtain a license (licenses) for the extraction of common minerals in the subsoil area located within the exploration area (adjacent exploration areas) in case of finding a deposit of common minerals, the resources and reserves of which are confirmed by a report on the assessment of resources and reserves of common minerals;
- to obtain a license to use the subsurface in cases of lack of mineral deposits or the insignificance of its resources, confirmed by a report on the results of exploration.

The exclusive right may be exercised at any time during the term of the exploration license (s).

With respect to mining license, starting from the second year, the subsoil user is obliged annually:

- to finance the training of Kazakhstani personnel in the amount of one percent of the production costs incurred by the subsoil user in the previous year, in the manner determined by the Competent Body together with the authorised body in the field of education;
- to finance research, scientific and technical and (or) developmental works in the amount of one percent of the mining costs incurred by the subsoil user in the previous year, in the manner determined by the Competent Body in conjunction with the authorised body in the field of science.

Terms and Conditions of Subsoil Use Contracts

The Group's Kazakh subsoil use contracts are based on the 1997 Model Contract and the 2001 Model Contract. The 2001 Model Contract, which replaced the 1997 Model Contract, grants a subsoil user the right to make use of any products resulting from mining activities (including mineral resources specified in the contract) at its own discretion, construct structures for production and social purposes within the contract area, hire subcontractors and assign all or part of its rights to third parties or terminate its activities, if such assignment or termination is permitted under the terms of the contract and Kazakh law. Subsoil users are obliged to operate using the most efficient methods and technologies based on international standards, use the contract area only for the purposes specified in the subsoil use contract, perform subsoil use operations in strict compliance with all Kazakh legislation and the terms of the works program. Subsoil users must also primarily engage Kazakhstan labour resources, re-cultivate land plots and finance the organisation, and develop and maintain the social infrastructure in the region where mining operations are performed. A certain percentage or amount of production expenses, usually specified in subsoil use agreements, is also required to be used for professional training of Kazakhstan specialists.

The subsoil user is also obliged to comply with Kazakhstan's environmental and health and safety standards and requirements. The 2001 Model Contract requires a subsoil user to give priority to environmental considerations, including monitoring the impact of its operations on the environment, limiting desertification and soil erosion and preventing the pollution or depletion of groundwater supplies. Upon the termination of mining operations, the subsoil user is required to conduct an environmental clean-up of the contract area.

To the extent that there are any disputes that cannot be resolved through negotiations between the subsoil user and the Kazakh Government, the 2001 Model Contract provides that such disputes are to be submitted either to the Kazakh courts or to arbitration.

Under the 1996 Subsoil Law, the initial term of exploration under a subsoil use contract was six years and could be extended twice for two years each time. The term of mining (production) under a subsoil use contract was up to 25 years and in respect of fields with unique or large reserves the term of mining (production) was up to 45 years. The term of mining (production) could be extended, and the term of extension was not limited by the 1996 Subsoil Law. Pursuant to the Subsoil 2010 Law, the term of exploration is six years (with no extension for contracts on solid minerals, except for the prolongation for the term of commercial appraisal). The term of mining (production) is determined by the production project and it is not limited under the 2010 Subsoil Law. According to the Kazakh Subsoil Code, the term of exploration of solid minerals is six years (with a single extension for a period of up to five years at the request of the subsoil user) and the term of mining (production) of solid minerals is up to 25 years (with extension for a period not exceeding the initial term of the license, number of extensions was not limited).

State Pre-emption and Regulation of Subsoil Use Rights

The Kazakh Subsoil Code contains Article 43, which provides Kazakhstan with a priority right before any persons and organisations, including individuals and organisations that have pre-emptive rights based on the laws of the Republic of Kazakhstan or the contract, for the acquisition of the alienated subsoil use right (a share in the subsoil use right). The State's Pre-emptive Right only applies to those contracts (whether existing or future) related to the strategic deposits. According to the Kazakh Subsoil Code, strategic subsoil deposits include deposits that contain more than 50 million tonnes of oil reserves or more than 50 billion cubic meters of natural gas reserves, deposits located in the Kazakh sector of the Caspian and uranium deposits. The list of strategic subsoil deposits is approved by the Government of the Republic of Kazakhstan.

The Consent for Transfers of Subsoil Use Rights and the Objects

Similarly as provided in the 2010 Subsoil Law, under the Kazakh Subsoil Code the Competent Body's consent continues to be required in case of transfer of subsoil use rights and the Objects, including in case of the initial public offering of shares (including other equity securities and securities convertible into equity interests) and pledge of subsoil use rights and the Objects. At the same time, the Kazakh Subsoil Code extended the list of exemptions and otherwise liberates some of the applicable thresholds. For example, the consent shall not be required, *inter alia*, in cases of transfer, in full or in part, of the subsoil use rights and/or the Objects:

(a) to a legal entity which already owns at least a 99% participatory interest (shareholding) of a subsoil user or its Controlling Legal Entity, provided that it is not registered in a jurisdiction with a preferential tax treatment;

(b) in case of increase of share capital (including by way of additional issue), provided that the ownership proportions remain the same;

(c) buy-out by an issuer of its shares or other securities; or

(d) if, as a result of such a transfer an entity becomes an owner of less than 1% of the participatory interests (shareholdings) in the subsoil user or the Controlling Legal Entity (whereas under the Subsoil Law the similar threshold is only 0.1%).

In these instances, the State's waiver of the State's Pre-emptive Right (if applicable) shall not be required either. Any transactions or other related actions effected without the required consent of the Competent Body are null and void *ab initio*.

For the purposes of the Kazakh Subsoil Code, none of the below is recognized as Objects:

(a) shares or other securities traded on the organized securities market of the Republic of Kazakhstan and (or) a foreign stock exchange;

(b) shares, participation interests, shares or other forms of equity participation in legal entities and organizations that directly or indirectly own the securities provided for in paragraph (a) above.

Therefore, no permission and /or the State's waiver of the State's Pre-emptive Right (if applicable) is required in respect of securities upon their admission for trading on a stock exchange.

Regulatory Bodies

General

The Kazakh State plays a major role in the management of the subsoil use. The Government is responsible for organising and managing state owned reserves, outlining subsoil allotments, defining the list of commonly occurring minerals, defining the procedures for the conclusion of subsoil use agreements, approving model contracts and appointing the Competent Body, and imposing bans and restrictions on the use of subsoil for the purpose of national security, safety of life and health of the population and environmental protection. The Government, through the Competent Body, has the power to execute and implement subsoil use agreements. The MoE is the Competent Body for subsoil use rights in the sphere of hydrocarbons, while the MIID is the Competent Body in the field of solid minerals and it implements the state policy on the regulation of operations for exploration and mining of solid minerals. Local executive authorities have responsibility for, among other things, allotment of land plots to subsoil users, the organisation and conduct of state geological study of subsurface resources for groundwater for domestic and potable water supply. However, local authorities do not have a leading role in subsoil use management. The Ministry of Environment, Geology and Natural Resources is the authorised agency for protection, control and supervision over the rational use of natural resources.

The Competent Body

According to the Kazakh Subsoil Code, the Competent Body is responsible for, *inter alia*:

- granting and terminating the subsoil use right for exploration and production of hydrocarbons, uranium mining, and exploration and production of solid minerals;
- monitoring compliance with the terms of subsoil use contracts in the field of hydrocarbons and uranium mining, as well as the terms of licenses for exploration and production of solid minerals;
- issuing permits for the transfer of subsoil use rights (under article 44 of the Kazakh Subsoil Code) and registration of transactions involving pledges of subsoil use rights; and
- suspending and terminating subsoil use contracts and licenses in accordance with the procedures set forth in the Kazakh Subsoil Code.

Other Regulatory Bodies

Other Kazakh government ministries and bodies that regulate aspects of gold mining operations in Kazakhstan include:

- the Ministry for Emergency Situations of the Republic of Kazakhstan (the "**CES**"), inter alia, coordinates mining operations programmes in terms of health and safety matters;
- various governmental authorities responsible for the approval of construction projects and the use of water and land resources;
- the Committee for Public Health Protection (under the Ministry of Healthcare), which is responsible for monitoring compliance with health standards;
- the Ministry of Labour and Social Protection of the Population, which is responsible for investigating labour disputes and complaints from individual employees and which monitors compliance with the obligations of subsoil users to give preference in hiring, including employing a certain minimum percentage of Kazakhstan nationals;
- regional and municipal justice authorities, which are responsible for registering properties, pledges and mortgages; and
- national and regional tax authorities.

Recordkeeping

Under the Kazakh Subsoil Code and Rules for submitting subsoil users reports in the conduct of operations for the exploration and production of solid minerals and the extraction of common mineral resources a subsoil user should provide to Competent Body and local authorities reports on:

- the performance of licence obligations for the exploration of solid minerals and common mineral resources;
- the purchased goods, works and services and the share of local content in them for the exploration or extraction of solid minerals and common mineral resources; and
- uranium mining operations.

The Competent Body forms reports in the electronic system.

Environmental Regulation

The Group's Kazakh operations are subject to laws, regulations and other requirements relating to the protection of the environment in Kazakhstan, including the discharge of substances into the air and water, the management of the disposal of waste and the clean-up of mining sites. Environmental protection in Kazakhstan is regulated primarily by Environmental Code No. 212-III ZRK dated January 9, 2007 (the "**Kazakh Environmental Code**"). On 2 January, 2021, the new Environmental Code of the Republic of Kazakhstan No. 400-VI (the "**New Kazakh Environmental Code**") was adopted. The New Kazakh Environmental Code will enter into force starting from 1 July, 2021.

According to Article 69 of the Kazakh Environmental Code, individuals and legal entities may carry out emissions into the environment, including discharge of pollutants or sewage or disposal of wastes, only in accordance with the terms of their emissions permits. Emissions permits are granted by the Ministry of Environment, Geology and Natural Resources (previously this function was conducted by the Ministry of Environmental Protection), its regional departments or local executive authorities (Akimats). Objects on which are issued emissions permits into the environment are divided into four categories: I, II, III and IV. An emissions permit is valid until the technologies that influence the volume and other characteristics of the emissions are changed, but in any case the validity term of the permit may last for a maximum of ten years for objects of I, II, III categories and for IV category — an indefinite basis. To obtain an emissions permit, a company must submit to the authorised body a number of documents, including a plan setting forth environmental protection measures. The plan is subject to public consultations and must be approved by the body granting the permit. In addition, the company must develop a programme of waste management which should include measures for prevention or reduction of waste generation or limiting any potential adverse impact of waste on the environment, in case of introduction of the best available technologies and compliance with the technical specific emission standards established by the environmental legislation of the Republic of Kazakhstan. The company is required to adhere to the approved plan and the programme of waste management. Failure to do so, may lead to the suspension or the cancellation of the emissions permit.

The Group's Kazakh operating subsidiary JSC FIC Alel was granted its current emissions permits on September 24, 2012 (which is scheduled to expire on August 19, 2014) and on March 5, 2012 (which is scheduled to expire December 31, 2014). The emission permits issued in respect of the facilities of the category I or category II before 1 July, 2021 are valid until the expiration date of such permits or until the new emission permits are obtained pursuant to the New Kazakh Environmental Code.

Under Kazakh law, the Group is also required to obtain a number of other certificates, permits and licenses from various Kazakh government ministries, departments and agencies in relation to the use of water, potentially toxic chemicals, the importation of sodium cyanide and explosive materials for blasting.

On 1 January 2018, the new Tax Code of the Republic of Kazakhstan dated December 25, 2017 has come into force (the "**Kazakh Tax Code**"). It contains a number of novelties, such as presumption of innocence concept pursuant to which any ambiguities arising out of the application of law in the process of tax audit must be interpreted in favour of the taxpayer.

The Kazakh Tax Code establishes a "pay for emissions" regime that is administered by national and local authorities. While emissions permits set forth limits on emissions into the environment for specific sources of emissions, the Kazakh Tax Code sets forth the rates of payment for emissions, with local representative authorities (Maslikhats) having the right to increase these rates not more than twofold of the amounts set forth in the Kazakh Tax Code.

Special Water Use Permits

The Kazakh Water Code dated July 9, 2003 No. 481 (the "**Kazakh Water Code**") is aimed at implementing governmental policy in relation to the utilization and protection of water resources. The Kazakh Water Code sets out obligations in relation to water use and discharges into water on the basis of water use permits ("**SWUPs**").

The Group's SWUPs may be withdrawn if the terms of use specified in Kazakh water legislation and in the relevant SWUP are breached. These terms include monitoring of the quality of underground water, submission of statistical reports and monitoring reports, compliance with requirements relating to water protection during mining operations and regular checking of equipment. The term of a SWUP may be extended, subject to compliance with the requirements specified within the relevant SWUP.

In cases of the reconstruction of water utilization systems or a change of any of the Group's circumstances in relation to its water use, the Group is obliged to obtain a new SWUP.

Enforcement

Article 116 of the Kazakh Environmental Code specifies which state officials are responsible for monitoring environmental compliance and implementing proceedings for breaches of environmental laws and regulations. These officials include the Kazakh Chief State Inspector, the Kazakh Deputy of the Chief State Inspector, senior state inspectors and state inspectors of the Republic of Kazakhstan, who were appointed by the Kazakh Ministry of Environment, Geology and Natural Resources. In addition, regional prosecutors have the authority to supervise environmental compliance and initiate judicial proceedings.

Article 117 of the Kazakh Environmental Code authorises the relevant state officials, in their enforcement of environmental protection measures, to:

- inspect facilities and request documents and test results;
- initiate the suspension or termination of emission permits in cases of violations of environmental rules that inflict significant harm on the environment or human health;
- submit orders requiring the elimination of violations of the environmental legislation to individuals and legal entities;
- institute claims for the suspension, abridgment or prohibition of activities carried out in violation of environmental legislation;
- review cases regarding administrative violations in the field of environmental protection;
- assess the amounts of damage caused to the environment as a result of the violations of the environmental legislation, submit orders to individuals and legal entities to compensate for such damage or institute claims on compensation for the damage to the courts.

The decisions of the relevant environmental state official are required to be implemented by all persons but may be challenged in accordance with court procedures.

Environmental Liability

According to Article 918.2 of the Kazakh Civil Code (Special Part) dated July 1, 1999, if an industrial activity causes or may cause damage to the environment or otherwise, this activity may be prohibited by a court decision. However, a court decision does not release the violator from being required to compensate for the resulting damage. Compensation for damage caused as a result of emissions into the environment without an emission permit, or in excess of limits established by the emission permit, is calculated in accordance with the rules set forth in the Kazakh Environmental Code and the Rules of Economic Assessment of Damage Caused by Contamination of the Environment approved by Decree of the Government of the Republic of Kazakhstan dated 27 June, 2007 No. 535. The amounts of required compensation may be high. Article 178 of the Kazakh Civil Code (General Part) dated 27 December, 1994 provides for a three year time limit for bringing proceedings for compensation of damage caused as a result of a breach of environmental requirements.

In addition, any company or official that fails to comply with environmental regulations may be subject to administrative liability, and officials of violating entities may be held criminally liable, with prison terms of up to eight years. In addition, fines for administrative violations in the field of environmental protection may be significant. According to the Kazakh Code on Administrative Violations dated 30 January 2001, as amended, (the "**Kazakh Code on Administrative Violations**") activities carried out in violation of the environmental legislation may be suspended or prohibited by a court decision. Subsoil licenses and contracts granted or entered into by the Kazakh Government also typically impose environmental obligations. For failure to fulfil the environmental obligations of subsoil use contracts, the Kazakh regulation provides for administrative penalties.

Starting from 1 July, 2021 the amendments to the Kazakh Code on Administrative Violations introduced additional environmental violations and raise the rates of administrative fines for environmental violations. The New Kazakh Environmental Code also provides for obligatory remediation of damages caused by violation of legislation requirements and limits set out by emission permits.

The Russian Federation

Regulation of the Gold Mining Industry in the Russian Federation

In the Russian Federation the gold mining industry is regulated by general civil and administrative law provisions and special legislation relating to, inter alia, subsoil use, licensing of mining activity, quality standards, industrial safety, the environment and labour relations.

Nevertheless, the Federal Law "On Precious Metals and Precious Stones" No. 41-FZ dated 26 March 1998, as amended (the "**Law on Precious Metals**"), introduced special regulations of relations, arising, inter alia, in connection with geological exploration, and mining of precious metals deposits, production, utilization and turnover of precious metals in the Russian Federation.

The state regulation of exploration, mining, production, utilization and turnover of precious metals is achieved by the following means:

- licensing of subsoil use of precious metals deposits;
- pre-emptive right of Ministry of Finance (regional governing bodies) to buy precious metals for replenishment of State Fund of Precious Metals and Gems (regional funds of precious metals and gems);
- setting up the order of precious metals registration, certification, storage, transporting and turnover;
- legal standardization of actions of entities (and individual entrepreneurs) dealing with precious metals and their special registration;
- exercise of state control (supervision) over geological exploration of precious metals mines, mining of precious metals (except for assortment, primary classification and primary valuation of precious metals), conducted under the Russian Subsoil Law;
- exercise of state control (supervision) over manufacturing, utilization and turnover of precious metals, as well as mining (in part of assortment, primary classification and primary valuation of precious metals);
- setting up the customs control over import into and export from the Russian Federation / Eurasian Economic Union of precious metals; and
- setting up the order of certification of precious metals.

The Law on Precious Metals also provides for the administrative liability for the breach of rules set forth for extraction, production, utilization, turnover, storage of precious metals and criminal liability for illegal turnover of precious metals.

The Federal Law No. 184-FZ "On Technical Regulation" dated 27 December, 2002, as amended (the "**Technical Regulation Law**"), sets out rules relating to the development, enactment, application and enforcement of obligatory technical requirements for production and for associated processes of manufacturing, construction, storage, transportation, sale and utilization.

Under the Technical Regulation Law, technical rules and regulations relating to industrial safety and environmental protection can be enacted by federal laws, decrees of the president and resolutions of the Russian Government.

In those cases where the Technical Regulation Law provides for mandatory confirmation of product compliance with the established technical regulations (standards), certain Group companies are obliged to obtain certificates of compliance evidencing that their products meet the requirements of technical regulations, standards, codes of practice or terms and conditions of contracts.

Federal, Regional and Local Regulatory Authorities Governing the Gold Mining Industry

Under the Law on Precious Metals, the main regulatory authority in the gold mining industry is the Government of the Russian Federation, which is responsible for, inter alia, carrying out of uniform state policy in this sphere and defining the procedure for licensing of activities connected with geological exploration. At the federal level, regulatory authority over the gold mining industry as such is the Ministry of Natural Resources and Ecology. The Ministry of Natural Resources and Ecology is responsible for the development of governmental policy and regulation in the sphere of natural resources, including subsoil. The Ministry of Natural Resources and Ecology

passes regulations, inter alia, setting safety requirements to the process of exploration, development of natural resources, the order of re-issuance and transfer of subsoil licenses, the rules of access to the geological information, which belongs to the state, and establishes rules of accounting for natural resources on the state balances and of classification and evaluation of natural resources).

Apart from the Ministry of Natural Resources and Ecology the other federal level authorities in the gold mining industry are the Ministry of Finance and the Ministry of Industry and Trade. The Ministry of Finance determines governmental policy and forms regulation in the sphere of production, processing and turnover of precious metals. The Ministry of Industry and Trade regulates Russian exports and imports of gold and is responsible for the development of governmental policy in, and regulation of, the industry.

The federal ministries in the Russian Federation are not responsible for control over and management of state property and provision of services, which are directed by the federal services and the federal agencies, respectively. The federal services and agencies that are relevant to the Group's activities include:

- the Federal Service for Environmental, Technological and Nuclear Supervision ("Rostekhnadzor"), which sets procedures for, and oversees compliance with, industrial safety and environmental rules and issues licenses for certain industrial activities and activities relating to safety and environmental protection;
- the Federal Agency for Subsoil Use ("Rosnedra"), which organizes auctions and issues licenses for subsoil use and approves design documentation for subsoil production activities;
- the Federal Agency for Technical Regulation and Metrology ("Rosstandart"), which determines and oversees levels of compliance with obligatory state standards and technical regulations; and
- the Federal Service for the Supervision of the Use of Natural Resources ("Rosprirodnadzor"), which exercises supervision over the observance of environmental legislation (including legislation relating to handling of hazardous wastes), controls geological exploration, the rational use and protection of subsoil (including compliance with the relevant terms and conditions of subsoil licenses) and exercises the land control.

Aside from the above federal agencies and services, which are directly involved in regulating and supervising the gold mining sector in the Russian Federation, there are a number of other federal regulators that, together with their structural subdivisions, have authority over general issues relevant to the Russian gold mining industry, such as defense, internal affairs, security, border services, justice, tax enforcement, rail transport and other matters.

Generally, regional and municipal authorities with jurisdiction over the specific territory in which a mining enterprise is located have authority in certain matters, in particular with regard to land-use allocations.

Licensing of Operations

The Group is required to obtain numerous licences, authorisations and permits from Russian governmental authorities for its operations. The Federal Law No. 99-FZ "On Licensing of Certain Types of Activities" dated 4 May 2011, as amended, set forth the activities subject to licensing and establish procedures for issuing licenses for gold mining operations. In particular, some of the Group's Russian companies are required to obtain licenses, permits and approvals of executive authorities to carry out certain activities, including, inter alia:

- the use of subsoil, which is described in more detail below under "*Subsoil Licensing*";
- the exploitation of chemically hazardous, explosive and flammable industrial objects;
- the deactivation, transportation and disposing of hazardous waste of hazard classes I to IV;
- the circulation of explosives for industrial use;
- surveying works (until the relevant technical regulation comes into force); and
- transportation activities.

These licenses are usually issued for an indefinite term. Licences for carrying out of certain types of geological survey may be issued for a period of 10 years. Licenses for the use of natural resources may be issued for various periods.

The requirements imposed by regulatory authorities may be costly and time-consuming, which may result in delays in the commencement or continuation of exploration or production operations. Accordingly, the licences that the Group needs may not be issued in a timely fashion, or may impose requirements that restrict its ability to conduct its operations or to do so profitably.

As part of the Group's obligations under licensing regulations and the terms of its licenses and permits, the Group must comply with numerous industrial standards, employ qualified personnel, maintain certain equipment and a system of quality controls, monitor operations, maintain and make appropriate filings and, upon request, submit specified information to the licensing authorities that control and inspect their activities. Failure to comply with these requirements may result in suspension and subsequent revocation of licenses by court order. Special rules apply to suspension and revocation of subsoil licenses.

Subsoil Licensing

In the Russian Federation, mining minerals requires a subsoil license with respect to an identified mineral deposit, as well as the right (through ownership or lease) to use the land where the licensed mineral deposit is located. In addition, as discussed above, operating permits are required with respect to specific mining activities.

The licensing regime for use of subsoil for geological research, exploration and production of mineral resources is established primarily by the Russian Subsoil Law. The procedure for subsoil use licensing, as well as certain rules of exploration and production of mineral resources, was established by Resolution of the Supreme Soviet of the Russian Federation No. 3314-1 dated 15 July 1992, as amended (the "**Licensing Regulation**").

There are two major types of subsoil licenses: (1) an exploration license, which is a non-exclusive license granting the right of geological exploration and assessment within the license area, and (2) a production license, which grants the licensee an exclusive right to produce minerals from the license area. In practice, many of the subsoil licenses are issued as combined licenses, which grant the right to explore, assess and produce minerals from the licensed area.

There are four major types of payments with respect to the use of subsoil: (1) a lump-sum payment for granting the right to use the subsoil, (2) periodic payments for geological exploration under the Russian Subsoil Law, (3) fees for the right to participate in tenders and auctions, and (4) the minerals extraction tax under the Russian Tax Code. Failure to make these payments could result in refusal to grant the right to use the subsoil or in the suspension or termination of the subsoil licence.

Subsoil Mineral Deposits of Federal Importance

The Foreign Strategic Investments Law defines a number of activities that are considered to be strategically important for state defense and security, including geological exploration and/or production of natural resources within subsoil deposits of federal importance. The criteria for determining whether a subsoil mineral deposit is of federal importance (the "**Strategic Deposit**") are set in the Russian Subsoil Law. These include, inter alia, subsoil deposits that contain not less than 50 tonnes of vein gold reserves, according to the state balance of mineral deposits. The list of the Strategic Deposits has been published in Rossiyskaya gazeta, an official publication of the Russian Federation. Once a subsoil deposit has been included in such list, it will retain its status of the Strategic Deposit, notwithstanding any changes to the criteria for recognition subsoil mineral deposits as the Strategic Deposits.

Issuance of Subsoil Licenses

The Federal Agency for Subsoil Use issues subsoil licenses. Most of the currently existing production licenses owned by Russian mining companies derive from (1) pre-existing rights granted during the Soviet era and up to the enactment of the Russian Subsoil Law to state-owned enterprises that were subsequently reorganized in the course of post-Soviet privatizations; or (2) tender or auction procedures held in the post-Soviet period. The Russian Civil Code, the Russian Subsoil Law and the Licensing Regulation set out the major requirements relating to such tenders and auctions.

According to the Russian Subsoil Law, production licenses and combined exploration and production licenses are awarded by tender or auction conducted by the Federal Agency for Subsoil Use. While the auction or tender commission may include a representative of the relevant region, separate approval of regional authorities is no longer required for the granting of subsoil licenses. The winning bidder in the tender is selected on the basis of

the submission of the most technically competent, financially attractive and environmentally sound proposal meeting the published tender terms and conditions. At an auction, the success of the bid is determined by the attractiveness of the financial proposal.

Exploration licenses are generally awarded without a tender or auction by the special commission formed by the Subsoil Agency, which includes the representatives of the relevant regional executive authority. The Ministry of Natural Resources and Ecology maintains an official list of deposits in respect of which exploration licenses can be issued. The company may obtain a license for geological exploration (which will be conducted at the company's own expense) of the deposit included into the above-mentioned list by filing an application with the Subsoil Agency (or its regional department). Unless there is more than one application with respect to the same deposit (in which case the Subsoil Agency sets up an auction for combined exploration and production license for the deposit) the special commission makes the decision to grant the license upon examination of the application.

The Russian Subsoil Law allows for production licenses to be issued without a tender or auction procedure only in limited circumstances. For example, when a mineral deposit is discovered by the holder of an exploration license at its own expense during the exploration phase, the production license will be issued as a matter of practice to the holder of the exploration license. However, the right of the holder of the exploration license to receive the production license in the event of discovery is not legally guaranteed.

The Russian Government may restrict participation in any auction or tender for the right of subsoil use in a Strategic Deposit of Russian entities with the participation of foreign investors. Production licenses and combined licenses for a Strategic Deposit are issued pursuant to a decision of the Russian Government. Generally, this decision is based on the results of a tender or auction. However, the license may be granted without a tender (auction) to an entity (not being contracted by the government) that discovered a subsoil deposit that satisfies the criteria of the Strategic Deposit or that is located at the same site as the existing Strategic Deposit. Under a combined license, production at a Strategic Deposit may only commence after the geological exploration is fully completed, and commencement of production at the Strategic Deposit is authorized by a decision of the Russian Government. This rule is different from the general rule (applicable to other deposits) that production under a combined license may be conducted simultaneously with geological exploration.

Only production licenses and combined licenses may be issued for Strategic Deposits. Exploration licenses may be issued for subsoil deposits that do not qualify as Strategic Deposits. If, as a result of discovery of natural resources made in the course of geological exploration, a subsoil deposit satisfies the criteria for the Strategic Deposit, issuance of the production license to the subsoil user that has made the discovery may be denied by decision of the Russian Government if the subsoil user has foreign participants, and this creates a threat to the national defense and security of Russia.

Extension of Subsoil Licenses

The term of a subsoil license is set forth in the license and runs from the date the license is registered. Under the Russian Subsoil Law, exploration licenses may have a maximum term of five years (except for exploration licenses in relation to inland sea waters, territorial seas and continental shelves, which may be issued for a term of up to ten years); production licenses may have a one-year term in a limited number of special cases, but are generally granted for a term matching the expected operational life of the field based on a feasibility study; and combined exploration, assessment and production licenses may be granted for the term of the expected operational life of the field based on a feasibility study. Under the amendments made to the Russian Subsoil Law in July 2013, some exploration licenses may have a maximum term of 7 years, that are connected with the subsoil exploration in several directly mention regions of Russia specified in the Russian Subsoil Law: Yakutia region, Kamtchatka region, Krasnoyarks region, Khabarovsk region, Irkutsk region, Magadan region, Sakhalin region, Neneckiy District region, Chuktoskiy and Yamalo-Neneckiy Distrct regions.

The Russian Subsoil Law permits a subsoil licensee to request an extension of a production license in order to complete the production from the subsoil plot covered by the license or the procedures necessary to vacate the land once the use of the subsoil is complete, provided the user complies with the terms and conditions of the license and the relevant regulations. In order to extend a subsoil license, a company must file an application with the federal authorities to amend the license.

In practice, the factors that may affect a company's ability to obtain the approval of license amendments include its compliance with the license terms and conditions and its managements experience and expertise relating to subsoil issues, including experience in amending licenses.

Maintenance and Termination of Subsoil Licenses

A license granted under the Russian Subsoil Law is generally accompanied by a licensing agreement between the Federal Agency for Subsoil Use and the licensee.

Under a licensing agreement, the licensee makes certain environmental, safety and production commitments, including extracting annually an agreed target amount of reserves, conducting agreed mining and other exploratory and development activities, protecting the environment in the license areas from damage, providing geological information and data to the local authorities, submitting on a regular basis formal progress reports to regional authorities, making all obligatory payments when due and commitments with respect to social and economic development of the region. When the license expires, the licensee must return the land to a condition that is suitable for future use. Most of the conditions set out in a license are based on mandatory rules contained in Russian law, and these conditions are generally not negotiable.

The fulfillment of a subsoil licenses conditions is a major factor in the good standing of the licensee. If the subsoil licensee fails to fulfill the licenses terms and conditions, upon notice, the license may be terminated by the licensing authorities. However, if a subsoil licensee cannot meet certain deadlines or achieve certain volumes of exploration work or production output as set forth in a license, the licensee may apply to amend the relevant license conditions, though such amendments may be denied.

The Russian Subsoil Law and other Russian legislation contain extensive provisions for license termination. A licensee may be fined or the license may be limited, suspended or terminated for the reasons noted above, as well as for repeated breaches of the law, upon the occurrence of a direct threat to the lives or health of people working or residing in the local area or upon the occurrence of certain emergency situations. A license may also be limited, suspended or terminated for violations of material license term. Although the Russian Subsoil Law does not specify which terms are material, failure to pay subsoil taxes and failure to commence operations in a timely manner have been common grounds for suspension or termination of licenses. Consistent underproduction, failure to meet obligations to finance a project, to submit data reports (as required by law) and to protect the environment would also likely constitute violations of material license terms. In addition, certain licenses provide that the violation by a subsoil licensee of any of its obligations may constitute grounds for limiting, suspending or terminating the license.

If the licensee does not agree with a decision of the licensing authorities (including a decision relating to a license limitation, suspension or termination or the refusal to reissue an existing license), the licensee may appeal the decision through administrative or judicial proceedings. In certain cases of termination, the licensee has the right to attempt to cure the violation within three months of receipt of notice of the violation. If the issue has been resolved within such a three month period, no termination or other action may be taken.

Licenses may be transferred only under those certain limited circumstances identified in the Russian Subsoil Law, including the reorganisation of the license holder or in the event that an initial license holder transfers its license to a legal entity in which it has at least a 50% ownership interest, provided that the transferee possesses the equipment and authorisations necessary to conduct the exploration or production activity that is covered by the transferred license.

Land Use Rights

Land use rights are needed and granted for the portions of the subsoil license area being used, including the plot being mined, access areas and areas where other mining related activities occur.

Under the Land Code of the Russian Federation No. 136-FZ dated 25 October 2001, as amended (the "**Land Code**"), legal entities may generally have the rights of ownership or lease with regard to land plots in the Russian Federation. A majority of land plots in the Russian Federation are owned by federal, regional or municipal bodies, which can sell, lease or grant other rights to land to third parties. Legal entities may also have a so called right of perpetual use of land plots, provided such type of title was obtained by them prior to the enactment of the Land Code; however, the Federal Law "On Introduction of the Land Code" dated 25 October, 2001, with certain exceptions, requires legal entities using land plots on the right of perpetual use to purchase or to lease the respective land plot from the relevant federal, regional or municipal authority by 1 July 2012.

The Group's Russian mining subsidiaries generally have a right of perpetual use of their plots or have entered into long-term lease agreements. A land plot lessee has a priority right to enter into a new land lease agreement with a lessor upon the expiration of a land lease. To renew a land lease agreement, the lessee must apply to the

lessor (usually state or municipal authorities) for a renewal prior to the expiration of the agreement. Any lease agreement (save for the lease agreement entered into for indefinite term) for a period of one year or more must be registered with the relevant state authorities.

Environmental Considerations

The Group is subject to laws, regulations and other legal requirements relating to the protection of the environment, including those governing the discharge of substances into the air and water, the management and disposal of hazardous substances and waste, the clean-up of contaminated sites, flora and fauna protection and wildlife protection. Environmental protection matters in the Russian Federation are regulated primarily by the Federal Law No. 7-FZ "On Environmental Protection" dated 10 January, 2002, as amended (the "**Environmental Protection Law**"), as well as by a number of other federal and local laws and regulations.

Pay-to-Pollute

The Environmental Protection Law establishes a pay-to-pollute regime administered by federal and local authorities. The Ministry of Natural Resources and Ecology, the Rostekhnadzor, the Federal Service for the Supervision of the Use of Natural Resources and other government agencies establish guidelines for setting limits for different types of permissible impact on the environment, including the emission, disposal of substances and waste disposal, and extraction of natural resources.

According to the Environmental Protection Law, every entity making a negative impact on the environment or disposing of waste is obliged to pay fees calculated by a payer itself on the basis of relevant statutory limits on emissions and effluents. The Russian Government has established fees for pollution in excess of these limits which may be increased by statutory approved multiples. Starting from 1 January 2020, the highest multiple of 100 applies to companies exceeding such pollution limits and having a significant negative environmental impact. Fees are assessed on a sliding scale for both the statutory or individually approved limits on emissions and effluents and for pollution in excess of these limits: the lowest ratio is applied to disposal of waste subject to reutilisation by its producer, intermediate ratio is applied to pollution within the statutory limits, enhanced ratio is applied to pollution within the individually approved limits, and the highest ratio is applied to pollution exceeding such limits. Payments of such fees do not relieve a company of its responsibility to take environmental protection measures and undertake restoration and clean-up activities.

In addition, starting from 1 January 2019, production facilities are divided into four categories depending on their negative impact on environment. Companies with category I facilities (significant impact) are required to obtain a complex environmental approval from Rosprirodnadzor whereas category II facilities (moderate impact) only require a declaration of negative impact to be filed with Rosprirodnadzor. No such documents need to be obtained or filed in relation to other facilities. Previously obtained environmental approvals are effective until the date of their expiry and, until then or until 1 January 2025 (whichever is sooner), no complex approval or declaration is required to be obtained or filed. In order to obtain the complex environmental permit, the companies shall develop technological standards of emission which comply with the technological standards for the best available technologies set out pursuant to the Environmental Protection Law. In case the technological standards of the facilities do not comply with the said standards, a temporary emissions permit shall be obtained from Rosprirodnadzor for a period of no longer than seven years, during which a company shall modernise their facilities to comply with the best available technologies. As a condition to such approval, a plan for the reduction of the emissions or disposals must be developed by the company and cleared with the appropriate governmental authority. The Environmental Protection Law also provides for stimuli for companies to apply the best available technologies in their category I and II facilities. Starting from 1 January 2020, the companies that have implemented the best available technologies shall pay no charges for a negative impact on the environment within the emissions range set out under technological standards for the best available technologies.

Environmental Approvals

Certain activities that may affect the environment are subject to state ecological approval by the Russian federal authorities in accordance with the Federal Law No. 174-FZ "On Ecological Expert Examination" dated 23 November 1995, as amended. Conducting operations that may cause damage to the environment without state ecological approval may result in the negative consequences described under "*Environmental Liability*" below.

Enforcement Authorities

The Rosprirodnadzor, the Rostekhnadzor, the Federal Service for Hydrometrology and Environmental Monitoring, the Federal Agency on Subsoil Use, the Federal Agency on Forestry and the Federal Agency on

Water Resources and certain other federal authorities (along with their regional branches) are involved in environmental control, implementation and enforcement of relevant laws and regulations. The federal government and the Ministry of Natural Resources and Ecology are responsible for coordinating the activities of the regulatory authorities in this area. These regulatory authorities, along with other state authorities, individuals and public and non-governmental organisations, also have the right to initiate lawsuits for the compensation of damage caused to the environment. The statute of limitations for such lawsuits is 20 years.

Environmental Liability

If the operations of a company violate environmental requirements or cause harm to the environment or any individual or legal entity, a court action may be brought to limit or ban these operations and require the company to remedy the effects of the violation. Any company or employees that fail to comply with the requirements of applicable environmental laws and regulations may be subject to administrative and/or civil liability, while individuals may be subject to either civil liability or criminal liability. Courts may also impose clean-up obligations on violators in lieu of or in addition to imposing fines.

Subsoil licenses generally require certain environmental commitments. Although these commitments can be substantial, the penalties for failing to comply and the clean-up requirements are generally low.

Employment and Labour

General

The Labor Code of the Russian Federation effective 1 February 2002, as amended (the "**Labor Code**") is the key law in Russia which governs labour matters. In addition to this core legislation, various federal laws, such as Russian Law No. 1032-1 "On Employment of Population in the Russian Federation" dated 19 April 1991, as amended, regulate relationships between employers and employees.

Employment contracts

As a general rule, employers must conclude employment contracts for an indefinite term with all employees. Russian labour legislation expressly limits the possibility of entering into fixed term employment contracts. However, employers and employees may enter into an employment contract for a fixed term in certain cases where it is not possible to establish labour relations for an indefinite term due to the nature of the duties or the conditions of the performance of such duties, as well as in other cases expressly identified by the Labor Code or other federal laws.

An employer may terminate an employment contract only on the basis of the specific grounds stated in the Labor Code, including, among others:

- the liquidation of the company or downsizing of staff;
- the failure of the employee to comply with the position's requirements due to incompetence confirmed by results of the employee's appraisal;
- the systematic failure of the employee to fulfil his or her labour duties if he or she was the subject of disciplinary measures;
- the gross violation by the employee of labour duties; and
- the provision by the employee of false documents upon entering into the employment contract.

Employees' rights

The Labor Code provides an employee with certain minimum rights, including the right to a working environment which complies with health and safety requirements and the right to receive a salary on a timely basis and to participate in the management of the authorized entity. These rights may be extended by other federal laws, the company's constituent documents and local regulations, and collective and other agreements.

An employee dismissed from the company due to downsizing or liquidation is entitled to receive compensation from his or her employer, including a severance payment and, depending on the circumstances, salary payments for a specified period of time.

The Labor Code also provides protections for specified categories of employees. For example, except in limited circumstances, an employer cannot dismiss minors, expectant mothers, mothers with a child under the age of three, single mothers with a child under the age of 14 (or with a disabled child under the age of 18) or other persons caring for a child under the age of 14 without a mother.

Any termination by an employer that is inconsistent with the Labor Code requirements may be invalidated by a court, which may require the employer to reinstate the employee. Lawsuits resulting in the reinstatement of illegally dismissed employees and the payment of damages for wrongful dismissal are increasingly frequent and Russian courts tend to support employees' rights in most cases. Where a court reinstates an employee, the employer must compensate the employee for unpaid salary for the period between the wrongful termination and reinstatement, as well as for any mental distress.

Work time

The Labor Code sets the regular working week at 40 hours. In general, an employer must compensate an employee for any time worked beyond 40 hours per week, as well as for work on public holidays and weekends, at a higher rate.

Annual paid vacation leave is generally 28 calendar days. Employees who perform underground and open pit mining works or other work in harmful conditions are entitled to additional paid vacation of at least 7 calendar days. Employees required to work non-standardized working hours are entitled to additional paid vacation of at least three calendar days.

Salary

The minimum monthly salary in Russia is established by federal law from time to time. Starting from 1 January 2021, the minimum monthly salary is set at an amount of RUB 12,392. Although the law requires that the minimum wage be at or above a minimum subsistence level, the current statutory minimum monthly salary is generally considered to be less than the minimum subsistence level. Salaries of the Group's employees are generally higher than the statutory minimum and none are below such minimum.

Strikes

The Labor Code defines a strike as the temporary and voluntary refusal of workers to fulfil their work duties with the intention of settling a collective labour dispute. Russian legislation contains several requirements which must be met for strikes to be legal. An employer may not use an employee's participation in a legal strike as grounds for terminating an employment contract, although Russian law generally does not require employers to pay wages to striking employees for the duration of the strike. Conversely, an employee's participation in an illegal strike may provide adequate grounds for termination of his or her employment contract.

Trade unions

Trade unions are defined by Federal Law No. 10-FZ "On Trade Unions, Their Rights and Guaranties of Their Activity", dated 12 January 1996, as amended (the "**Trade Union Law**"), as voluntary unions of individuals with common professional interests which are created for the purposes of representing and protecting social and labour rights and interests of their members. Russian law also permits national trade union associations, which coordinate activities of trade unions throughout Russia.

Although Russian labour regulations have curtailed the authority of trade unions, they still retain significant influence over employees and, as such, may affect the operations of large industrial companies in Russia.

The Group's management routinely interacts with trade unions in order to ensure the appropriate treatment of its employees and the stability of the Group's business.

The activities of trade unions are generally governed by the Trade Union Law and applicable legal acts including the Labor Code.

As part of their activities, trade unions may:

- negotiate collective contracts and agreements such as those between the trade unions and employers, federal, regional and local governmental authorities and other entities;
- monitor compliance with labour laws, collective contracts and other agreements;

- access work sites and offices, and request information relating to labour issues from the management of companies and state and municipal authorities;
- represent their members and other employees in individual and collective labour disputes with management;
- participate in strikes and meetings to protect social and labour rights of employees; and
- monitor the redundancy of employees and seek action by municipal authorities to delay or suspend mass redundancies.

Russian laws require that companies cooperate with trade unions and not interfere with their activities. Trade unions and their members enjoy certain guarantees as well, such as:

- the retention of job positions for those employees who stop working due to their election to the management of trade unions;
- protection from dismissal for employees who previously served in the management of a trade union for two years after the termination of the office term; and
- the provision of the necessary equipment, premises and transportation vehicles by the employer for use by the trade union free of charge, if provided for by a collective bargaining contract or other agreement.

If a trade union discovers any violation of work conditions requirements, notification is sent to the employer with a request to cure the violation and to suspend work if there is an immediate threat to the lives or health of employees. The trade union may receive information on social and labour issues from an employer (or employers' unions) and state and local authorities, as well as cooperate with state authorities for the purposes of supervision of compliance with Russian labour laws. Trade unions may also initiate collective labour disputes, which may lead to strikes.

To initiate a collective labour dispute, trade unions must present their demands to the employer. The employer is then obliged to consider the demands and notify the trade union of its decision. If the dispute remains unresolved, a reconciliation commission attempts to end the dispute. If this proves unsuccessful, collective labour disputes are generally referred to mediation or labour arbitration.

The Trade Union Law provides that those who violate the rights and guarantees of trade unions and their officers may be subject to disciplinary, administrative and criminal liability. The Russian Code on Administrative Offences dated 30 December 2001, as amended, specifies that such violations may lead to imposition of an administrative fine. Although the Russian Criminal Code dated 13 June 1996, as amended, currently has no provisions specifically relating to these violations, general provisions and sanctions may be applicable.

Health and Safety

Due to the nature of the Group's business, much of its activity is conducted at industrial sites by large numbers of workers, and workplace safety issues are of significant importance to the operation of these sites.

The principal law regulating industrial safety is the Federal Law No. 116-FZ "On Industrial Safety of Dangerous Industrial Facilities" dated July 21 1997, as amended (the "**Safety Law**"). The Safety Law applies, in particular, to mining facilities and sites where certain activities are conducted, including sites where lifting machines and high-pressure devices are used, flammable, toxic and explosive substances are produced, used, stored, processed and transported and where certain types of mining are executed. The Safety Law also contains a comprehensive list of dangerous substances and their permitted concentration, and extends to facilities and sites where these substances are used.

There are also regulations that address safety rules for mining works.

Any construction, reconstruction, liquidation or other activities in relation to regulated mining sites is subject to a state industrial safety review. Any deviation from project documentation in the process of construction, reconstruction and liquidation of industrial sites is prohibited unless reviewed by a licensed expert and approved by the Rostekhnadzor.

Companies that operate such mining facilities and sites have a wide range of obligations under the Safety Law and the Labor Code. In particular, they must limit access to such sites to qualified specialists, maintain industrial safety controls and carry insurance for third party liability for injuries caused in the course of operating industrial sites.

The Safety Law also requires these companies to enter into contracts with professional wrecking companies or create their own wrecking services in certain cases, conduct personnel training programmes, create systems to cope with and inform Rostekhnadzor of accidents and maintain these systems in good working order.

In certain cases, companies operating industrial sites must also prepare declarations of industrial safety which summaries the risks associated with operating a particular industrial site and measures the company has taken and will take to mitigate such risks and use the site in accordance with applicable industrial safety requirements. Such declaration must be adopted by the chief executive officer of the company, who is personally responsible for the completeness and accuracy of the data contained therein. The industrial safety declaration, as well as a state industrial safety review, are required for the issuance of a license permitting the operation of a dangerous industrial facility.

The Safety Law also provides that the use of technical equipment at dangerous industrial facilities is subject to Rostekhnadzor permit issuance.

The Rostekhnadzor has broad authority in the field of industrial safety. In case of an accident, a special commission led by a representative of the Rostekhnadzor conducts a technical investigation of the cause. The company operating the hazardous industrial facility where the accident took place bears all costs of an investigation. The officials of the Rostekhnadzor have the right to access industrial sites and may inspect documents to ensure a company's compliance with safety rules. The Rostekhnadzor may suspend or terminate operations or impose administrative liability.

Any company or individual violating industrial safety rules may incur administrative and/or civil liability, and individuals may also incur criminal liability. A company that violates safety rules in a way that negatively impacts the health of an individual may also be obligated to compensate the individual for lost earnings, as well as health related damages.

Investments in Russian Companies of Strategic Importance

The Russian Strategic Investments Law establishes certain restrictions for foreign investments made into Russian companies which are deemed strategically important for the defense and security of the Russian Federation ("**Strategic Companies**"). The Russian Strategic Investments Law provides for the list of activities that have strategic importance for the national defense and security. This list, *inter alia*, includes (a) geological exploration of and production on Strategic Deposits (including land plots with vein gold reserves not less than 50 tonnes) and (b) production of explosives for industrial purposes and activity relating to distribution thereof.

Under the Russian Strategic Investments Law, an establishment by foreign entity (or any other person that is a member of the group with the participation of a foreign entity) of direct or indirect control over a Strategic Company requires a permit of the Government Commission of Russia. Therefore, inter alia, a direct or indirect acquisition by a foreign entity (or its group member) of a stake in a Strategic Company which vests an acquirer with right to exercise certain percentage of voting rights (ranging from 5% to 50% depending on type of the foreign investor and type of the Strategic Company) in the charter capital of the Strategic Company, requires obtaining a prior permit of the competent state authority. Both sovereign foreign investors (such as foreign governments, foreign governmental organisation or international organisations) and foreign investors which do not disclose information on their beneficiaries or legal entities controlled by any of them are barred from obtaining control over a Strategic Company and in particular from acquiring 50% (or 25% for certain types of Strategic Companies) of the total voting rights in that Strategic Company. If an acquisition of a stake over the relevant percentage happens without obtaining such prior permit, the acquisition transaction is treated as null and void. A court may apply consequences of a void transaction upon the claim of any interested party (including the FAS) or take a decision to deprive the acquirer of voting rights which correspond to the stake acquired in the Strategic Company. Any transfers of a stake, or certain rights, in a Strategic Company between foreign investors that are (i) companies controlled by the Russian Federation or (ii) companies controlled by Russian nationals, provided that such Russian nationals are Russian tax residents and do not have dual nationality, will not require prior permit from the state authorities.

Moreover, in accordance with the Foreign Investment Law, starting from 30 July 2017, any acquisition by a foreign investor of a stake in any Russian company (not only a company deemed to be a Strategic Company) may require a prior approval of the Government Commission of Russia if the chair of the Government Commission (i.e., the Prime Minister of Russia) decides that such transaction may threaten national defence and the state security of Russia.

Competition and Mergers Control

The Federal Law No. 135-FZ "On the Protection of Competition" dated 26 July 2006, as amended (the "**Russian Competition Law**"), establishes a merger control regime and requires that the FAS be notified of certain transactions.

Under the Russian Competition Law, an investor or several entities constituting a group of entities and/or individuals should apply for the prior consent of the FAS or submit to it a post-completion notification in relation to:

- an initial acquisition of more than 25.0% of the voting shares in a Russian joint stock company, or more than 33.3% of the participation interest in a Russian limited liability company, provided that the acquirer did not have any shares (participation interest) in such company or had less than the above threshold before the acquisition;
- a subsequent acquisition of the voting shares in a Russian joint stock company or participation interests in a Russian limited liability company such that the level of the holding of the company's shares (participation interest) passes the thresholds of 50.0% or 75.0% of the voting shares in a joint stock company or 50% or 66.6% of the participation interests in a limited liability company;
- acquisition or lease of production and/or intangible assets (other than land and non-industrial buildings, constructions, premises and parts thereof or constructions in progress) located on the territory of the Russian Federation, if the book value of such assets exceeds 20.0% of the book value of the production and intangible assets of the transferor;
- an acquisition (direct or indirect)of rights to determine the terms of conduct of business of another Russian legal entity (e.g., rights to give binding instructions to another entity or control the decision making process in another entity, including rights to exercise powers of the sole executive body of another entity);
- an acquisition of certain blocks of shares, resulting in the acquirer and its group holding in total over 50.0% of the voting shares in a foreign company if its Russian turnover in the preceding year exceeded RUB1 billion; and
- an acquisition of (direct or indirect) rights to determine the terms of the business of a foreign company (through shareholdings, agreements, voting arrangements, rights etc.) if its Russian turnover in the preceding year exceeded RUB1 billion.

The FAS's prior consent for an acquisition is required if (i) either the aggregate balance sheet value of the assets of the acquirer and the target and the companies of their respective groups exceeds RUB 7 billion or the aggregate value of sales of the same entities in the last calendar year exceeds RUB 10 billion and, simultaneously, (ii) the aggregate value of assets of the target and the companies of its group exceeds RUB 400 million.

Under the Russian Competition Law, a transaction without prior FAS approval or post-notification may be invalidated by a court resolution held upon the FAS claim, provided that such transaction has led or may lead to the restriction of competition, for example, by strengthening a dominant position in the relevant market. Russian law envisages fines to be imposed on the acquirer for completion of the notifiable transaction without the FAS clearance.

More generally, Russian law provides for civil, administrative and criminal liability for the breach of anti-monopoly law.

Intra-group transfers are subject to merger control. They may be exempt from the prior approval requirement and may be subject to post-completion notification if:

- an intra-group transfer is made to a transferee (a) in which the transferor holds more than 50% of voting shares or (b) which holds more than 50% of voting shares in the transferor; or
- no later than 1 month prior to completion a list of group members is disclosed to the FAS in accordance with Article 31 of the Russian Competition Law. The list should specify the grounds for including each of the group members in the group. The list submitted to the FAS will be published on the FAS website.

The Russian Competition Law expressly provides for its extraterritorial application to transactions and actions which are made outside of Russia between Russian and(or) foreign entities if such transactions or actions relate to production and(or) intangible assets located in the territory of Russia or to the shares (participation interests)

in, or rights in relation to, companies operating in the territory of Russia as well as those of non-Russian entities that, during the year preceding the transaction that is subject to merger control, imported to Russia products with a total value in excess of RUB1 billion.

As part of its competition monitoring activities, the FAS keeps a Register of Entities Holding a Dominant Position or Entities with a Market Share Exceeding 35% (the "Register"). The FAS may rule that even certain companies do not appear on the Register they have a dominant position in the market. Such companies are subject to more rigorous governmental regulation including the imposition of price controls.

Regional Investment Project Regime

On 23 June 2016, Russian tax law was amended to simplify the procedure for the application of tax incentives to companies registered in the Far East of Russia and the Transbaikal region. As a result of the amendment, such companies have been able to claim tax relief relating to taxable profits and mining tax, with effect from the most recent tax period, without being included on the Register of Participants in Regional Investment Projects. For the tax relief to apply, the company is required to have invested over RUB 50 million within three years or over RUB 500 million within five years. As the Group satisfied the investment requirement for Gross, a zero coefficient to mining tax has been applied for Gross since January 2019, and will be applied for a total period of twenty-four months. Upon the expiry of this twenty-four month period, the mining tax coefficient shall be increased by 0.2 over each subsequent twenty-four month period, until the mining tax coefficient is 1. In addition, the Group applied a 0% tax rate for profits generated at Gross ("Neryungri-Metallik" LLC) from 2019 to 2020. On 1 January 2021, the applicable tax rate for profits generated at Gross increased to 10% due to the changes in the regional regulation. Starting from 1 January 2024, the Group will be subject to the regional tax rate at 13.5% for profits generated at Gross, while the federal tax rate will remain at 0%. This tax relief will be applicable for the next five years.

Currency Restrictions

The Group's operations are subject to certain currency control restrictions, which are set forth in Federal Law No. 173-FZ "On Currency Regulation and Currency Control" dated 10 December 2003, as amended (the "**Russian Currency Law**") and respective regulations of the CBR.

Pursuant to the Russian Currency Law, Russian residents and non-residents may settle transactions between them either in roubles or in a foreign currency, and there are no restrictions on currency operations between Russian residents and non-residents. However, the settlement of transactions between Russian residents in a foreign currency is generally prohibited.

Under the Russian Currency Law, Russian residents conducting foreign trade operations must, subject to certain exemptions stipulated by the Russian Currency Law, repatriate to accounts in authorized Russian banks all roubles and foreign currency payable to them under foreign trade contracts. In addition, such Russian residents must procure the repatriation of funds paid to non-residents for goods, works, services, intellectual property and information that were not delivered into the Russian Federation.

In addition, the Russian Currency Law and the CBR Instruction No. 181-I dated 16 August 2017 set forth the requirement for Russian residents to record a contract with an authorized Russian bank if the amounts of liabilities under such contact is not less than RUB 3 million for import and loan contacts and RUB 6 million for export contracts. The violation of Russian currency control requirements may entail civil, administrative or criminal liability.

PART VII

DIRECTORS, SENIOR MANAGEMENT AND CORPORATE GOVERNANCE

Directors

The following table lists the names, ages, positions and dates of appointment of the Directors:

Name	Age	Position	Date appointed
Michael Nossal	62	Independent Chair	March 2021
Nikolai Zelenski	47	Director and Chief Executive Officer	October 2010
Evgeny Tulubensky	40	Director, Chief Legal Officer and ESG Director	June 2014
Alexey Mordashov	55	Non-executive Director	June 2012
David Morgan	63	Non-executive Director	October 2010
Brian Beamish	64	Independent Non-executive Director	August 2018
John Munro	52	Independent Non-executive Director	October 2015
Gregor Mowat	49	Independent Non-executive Director	August 2017
Yulia Chekunaeva	39	Independent Non-executive Director	March 2021

Michael Nossal — Independent Chair

Mr. Nossal is a senior resources industry executive with more than 30 years' experience in a range of commodities, jurisdictions and roles. This includes public company board experience and senior positions in business development, exploration and operations with companies including Newcrest, MMG and WMC Resources. He previously served as an Independent Non-Executive Director of Nordgold from 2010-2015, chairing the Remuneration Committee and was member of the Audit and Safety and Sustainable Development committees. Michael is a non-executive Director of ASX-Listed IGO limited and holds a BSC from Monash University and an MBA from the Wharton School of the University of Pennsylvania.

Nikolai Zelenski — Director and Chief Executive Office

Mr. Zelenski joined Severstal in 2004 and, prior to being appointed Chief Executive Officer of the Group in 2007, held positions as head of the gold division and head of strategy of Severstal Resources. Previously, Mr. Zelenski was an engagement manager at McKinsey & Company in the mining sector. Mr. Zelenski holds a Master of Technical Sciences degree from the Saint Petersburg State Technical University (Russia), a Ph.D. in molecular genetics from the University of Texas (United States), and an MBA from Vanderbilt University (United States).

Evgeny Tulubensky — Director, Chief Legal Officer and ESG Director

Mr. Tulubensky was appointed Chief Legal Officer, Director of ESG in 2020 having joined the Group as Chief Legal Officer in 2007. He was previously a senior lawyer at the mining division of Severstal. Evgeny graduated from the Law Faculty of St. Petersburg State University and he has an LLM (with honours) from Northwestern University (Chicago).

Alexey Mordashov — Non-executive Director

Mr. Mordashov has been working for Severstal, one of the world's leading vertically integrated steel and steel-related mining companies, since 1988. He started his career as a Senior Economist, becoming Chief Financial Officer in 1992. In December 1996, he was appointed as Severstal's Chief Executive Officer. Between 2002 and 2006, he served as Chief Executive Officer of Severstal Group and was Chairman of Severstal's Board of Directors. Between December 2006 and December 2014, Mr. Mordashov was Chief Executive Officer of Severstal. From December 2014 until May 2015, Mr. Mordashov served as CEO of AO Severstal Management, the managing company of PAO Severstal. Mr. Mordashov was elected Chairman of the Board of Directors of PAO Severstal in May 2015.

Mr. Mordashov was appointed as a non-executive director on 14 June 2012.

Mr. Mordashov earned his undergraduate degree from the Leningrad Institute of Engineering and Economics. He also holds an MBA degree from Business School of Northumbria University (Newcastle, UK). Mr. Mordashov was granted an honorary doctorate of science from the Saint-Petersburg State University of Engineering and Economics in 2001 and from the University of Northumbria, UK in 2003.

Mr. Mordashov is the Chairman of the Board of Directors, Member of the Health, Safety and Environmental Committee of PAO Severstal. Since June 2010 he is a member of the Supervisory Board of the Non-Profit Partnership Consortium Russian Steel (currently – Association Russian Steel), between 2013 and 2015 he was the President of the Non-Profit Partnership Consortium "Russian Steel", and between 2016 and 2017 he was the Chairman of the Supervisory Board. Also, Mr. Mordashov is a member of the Executive Committee of the World Steel Association headquartered in Brussels, Belgium. Prior to that, between 2012 and 2013, Mr. Mordashov was the Chairman and between 2013 and 2015 he was the Vice-Chairman of World Steel Association. Currently, Mr. Mordashov is the Head of the Russian Union of Industrialists and Entrepreneurs' (RSPP) Committee on Integration, Trade and Customs Policy and WTO; Co-Chairman of the Northern Dimension Business Council; the Vice-President of the Russian-German chamber of commerce and member of the Russian-German workgroup responsible for strategic economic and finance issues; the Chairman of the Board of Directors of IPJSC Lenta; a Member of the Supervisory Board of TUI AG; and a Member of the Strategic Council for Investments in New Industries under the direction of the Minister for Trade Industry of the Russian Federation.

David Morgan — Non-executive Director

Mr. Morgan was appointed Deputy Chairman in March 2021, having previously served as Nordgold's Chairman since June 2014. David first joined the Company as an Independent Non-Executive director in October 2010. He brings vast leadership and industry experience, having held senior financial and general management roles in the chemicals and precious metals sectors. Previously, Mr. Morgan spent 20 years with Johnson Matthey plc and was on the board as the executive director responsible for corporate development from 1999-2009. He is currently chairman of AMTE Power plc and a non-executive director of Maidstone and Tunbridge Wells NHS Trust. He was previously chairman of Hargreaves Services plc, deputy chairman of SFC Energy AG and senior independent director of the Royal Mint. He also chaired the advisory board of the Chemistry Department of Imperial College, London from 2011 to 2016. Mr. Morgan is a member of the institute of Chartered Accountants in England and Wales and has an MA in Mineralogy and Petrology from Cambridge University.

Brian Beamish — Independent Non-executive Director

Mr. Beamish joined the Board in August 2018 as an independent non-executive director and Chairman of the Safety and Sustainable Development Committee. He was formerly the CEO of the Anglo American Global Base Metals business and Group Director, Mining and Technology at Anglo American, with whom he had a 36 year career. He was also a non-executive director of Lonmin plc from 2013 to 2019 (Chairman 2014 – 2019) and of JSE-listed Anglo American Platinum Limited and DeBeers from 2010 to 2013. His previous executive roles included four years as Operations Director of Anglo Platinum and working as COO of Anglo American's global Base Metals business. Mr. Beamish is a graduate in mechanical engineering from Wits University and of the PMD programme at Harvard Business School, he has long experience in the global mining industry. Mr. Beamish is currently a non-executive director of Sappi.

John Munro — Independent Non-executive Director

Mr. Munro joined the Group in October 2015 as an independent non-executive director. He is an international mining industry executive with 30 years' experience in the sector. Mr. Munro is currently an executive director of Cupric Canyon Capital, and a non-executive director of Manuli Rubber Industries. Previously, he was CEO of Cupric Canyon Capital. Previously, he was a Director at First Reserve's Mining Buyout Group in London, and CEO at Rand Uranium, where he was responsible for the establishment of a new gold and uranium company in South Africa. Prior to that, Mr. Munro held various positions in Gold Fields Limited, Gold Fields of South Africa Limited and Northam Platinum Limited, where he was variously responsible for corporate development, strategy, and international operations and projects. Mr. Munro holds a BSc in Chemical Engineering from the University of Cape Town and an AMP from Harvard Business School.

Gregor Mowat — Independent Non-executive Director

Mr. Mowat joined the Group in August 2017 as a non-executive director. He has more than 20 years of experience in public accounting much of its spent as an audit partner with KPMG in Emerging Market countries. Mr. Mowat was a member of the Board of Partners and Chief Financial Officer of KPMG in Russia and the CIS and the Managing Partner of KPMG in Kazakhstan. He was also the founding Chairman of the British Chamber of Commerce in Kazakhstan. Mr. Mowat is currently a non-executive director of PJSC Magnit, Fix Price Group Ltd., PJSC PIK Group and Ak Bars Bank as well as an executive director of nooli UK Ltd and its subsidiaries. He is a member of the Institute of Chartered Accountants of Scotland (ICAS). He also holds a Bachelor of Arts degree in English Literature and Language from the University of Durham.

Yulia Chekunaeva — Independent Non-executive Director

Ms. Chekunaeva joined the Board in March 2021 as an independent non-executive director. Yulia Chekunaeva has served as a director for Capital Markets and Strategic Initiatives and a member of the Executive Management Board of En+ Group. Yulia Chekunaeva joined En+ Group in September 2016 and successfully led the execution team to completing En+ Group's IPO on the London Stock Exchange in November 2017. Before joining EN+ Group, Yulia Chekunaeva was an executive director of Goldman Sachs Global Investment Research. Prior to that, Ms. Chekunaeva held multiple managering positions in Sberbank corporate lending and project financing department. Yulia Chekunaeva graduated studies at International College of Economics and Finance, she holds degree in Economics from the State University – Higher School of Economics and degree in Banking and Finance from the London School of Economics and Political Sciences. In March 2021, Yulia Chekunaeva completed Advanced Management Programme of Harvard Business School (HBS AMP199). She also holds a Master's Degree in Economics and Finance from Warwick Business School (University of Warwick).

Senior Managers

The following are the executive officers of the Group (and for the biographies of Mr. Zelenski and Mr. Tulubensky, see "*Directors*" above):

Name	Age	Position
Nikolai Zelenski	47	Chief Executive Officer
Evgeny Tulubensky	40	Chief Legal Officer and Director of ESG
Georgy Smirnov	41	Chief Financial Officer
Louw Smith	55	Chief Operating Officer
Oleg Pelevin	50	Director of Strategy and Corporate Development
Yulia Sklar	49	Human Resources Director
Yury Bogdanov	48	Security Director
Arnand van Heerden	46	Mineral Resources Director
Igor Klimanov	44	Development Projects Director
Evgeny Galiullin	39	Acting Procurement Director
Ekaterina Nowak	36	Procurement Director
Dmitry Markeev	33	Director of Transformation and Business System Development
Igor Kleev	43	HSE Director
Chris Colbourne	54	Mining Director
Philip Engelbrecht	53	Director of Processing
Gregory Graham Edmonds	51	Mobile Maintenance Director

Georgy Smirnov — Chief Financial Officer

Georgy Valeryevich Smirnov was appointed to serve as Head of Treasury in 2011, and as Chief Financial Officer in 2021. Mr. Smirnov has been responsible for corporate financing, liquidity management and gold sales of the Group. Before joining the Group, Mr. Smirnov held a number of senior roles at Eurochem, X5 Retail Group and Sodrugestvo. Georgy Valeryevich Smirnov holds a degree in International Economic Relations from MGIMO University. Georgy Valeryevich Smirnov also has a certificate of the Executive Education Program at INSEAD Business School.

Louw Smith — Chief Operating Officer

Previously, Mr. Smith was COO of Alacer Gold, leading a successful start-up of the Çopler Gold Mine in Turkey. His responsibilities also included operations in Western Australia and the development of the Group's Technical Services functions. Prior to Alacer Gold, he spent over 15 years at Gold Fields International in Western Australia, Finland, Bulgaria and Ghana, managing a variety of its mines and projects, including such flagship operations as Damang and St. Ives mine complexes. Mr. Smith holds Degrees in geology and geochemistry, engineering geology and commerce and Master's Degrees in Mining Engineering and Business Administration. He is a member of the Australian Institute of Mining and Metallurgy.

Oleg Pelevin — Director of Strategy and Corporate Development

Mr. Pelevin joined Severstal in 2004 and has served as a director of High River since November 2008. Previously, Mr. Pelevin served as a consultant at American Appraisal Russia and as the head of the investment department at Alphayurservis. Mr. Pelevin graduated with distinction from the Moscow Institute of Physics and Technology (Faculty of Control and Applied Mathematics) with a Master of Science degree.

Yulia Sklar — Human Resources Director

Before joining the Group, Ms. Sklar served as Human Resources Director at Ferronordic Machines, a successful start-up of an exclusive Volvo equipment dealership in Russia and Ukraine. Ms. Sklar also worked in a number of Russian and international companies including BP, Alfa Bank, Agros and PepsiCo. She has 18 years of experience in HR. Ms. Sklar holds MA degree from New York University and a certificate of the International Executive Program at INSEAD in France & Singapore, she also graduated from the Krasnoyarsk State Pedagogical Institute with honors.

Yury Bogdanov — Security Director

Before joining the Group, Mr. Bogdanov worked in various departments of OJSC Severstal focusing on security issues. He has also gained previous experience with his service as a military officer and a police officer. Mr. Bogdanov holds degrees in Economics and Technical Science.

Arnand van Heerden — Mineral Resources Director

Mr. van Heerden has over 19 years' experience in mining and exploration geology, for both open and underground operations across a number of projects in West Africa, South Africa, Peru, Canada and the USA. Prior to joining the Group, he worked as a Principal Consulting Geologist based in Colorado, USA, preceded by a successful career in Gold Fields, where he held key management roles at the Damang Gold Mine (Ghana, West Africa) and with Gold Fields' Exploration Group (Denver, USA). Mr. van Heerden holds a BSc Honors degree in Economic Geology from Stellenbosch University, South Africa, and has completed The Executive Programme at the Darden School of Business, University of Virginia, USA. He is a member of Australasian Institute of Mining and Metallurgy (AusIMM).

Igor Klimanov — Development Projects Director

In June 2016, Mr. Klimanov was appointed to serve as Chief Executive Officer of Northquest. In July 2014, he was appointed to the Board of Directors of Northquest Ltd. In September 2009, he was appointed to the Board of Directors of High River Gold. Previously, he was CEO of High River Gold and Manager for Strategy and Corporate Development at Severstal Resources. Mr. Klimanov holds a Ph.D from the Swiss Federal Institute of Technology and an Engineering Physics degree from the Moscow Engineering and Physics Institute.

Evgeny Galiullin — Acting Procurement Director

Since July 2020, Mr. Galiullin has been responsible for procurement function at all business-units and replacing Ekaterina Nowak while she's on maternity leave. Evgeny Galiullin began his career in the Group as a procurement director at Suzdal mine in 2016, and was appointed to serve as procurement director at Lefa mine in 2019. Before joining the Group, Evgeny Galiullin worked at Magnitogorsk Metallurgical Plant for more than 8 years and had a very successful career path from Engineer to Head of Purchasing Department. Previously, Evgeny Galiullin held a managerial role in procurement department at United Metallurgical Company. Mr. Galiullin has a degree in Economics and Management from Magnitogorsk State Technical University.

Dmitry Markeev — Director of Transformation and Business System Development

Before joining the Group, Mr. Markeev worked in KPMG and Ernst & Young focusing on the gold mining industry. Mr. Markeev holds a degree in National Economy from Nizhny Novgorod State University and a degree in French-English Linguistics from Nizhny Novgorod Linguistic University. Dmitry Sergeevich Markeev complicated the Executive Program (Exponential Innovations management) at Singularity University (USA) and the International Economy Program from Université Pierre-Mendes France. Dmitry Sergeevich Markeev holds an Association of Certified Chartered Accountants membership since 2015.

Igor Kleev — HSE Director

Since July 2020, Mr. Kleev has been responsible for all H&S and Environmental Management Systems in the Group. Igor Vladimirovich Kleev has over 15 years of experience in managing HSE functions for large industrial companies, such as EVRAZ, RUSAL, TNK-BP, Rosneft and Polyus, where he held key management roles.

Mr Kleev is a permanent contributor to the Board's Safety and Sustainable Development Committee and an official representative of the Russian Federation in an ISO organisation, where he participates in the development of ISO 45001 series standards for "Occupational Health and Safety Management Systems". In addition, Mr Kleev is also a member of an industrial safety committee under the Russian Union of Industrialists and Entrepreneurs. Igor Vladimirovich Kleev graduated from Moscow Chemical Technological University as an

engineer in environmental science and additionally obtained qualifications in the area of production process safety, having completed the NEBOSH international health and safety management course.

Chris Colbourne — Mining Director

Chris Colbourne has over 30 years' experience in the mining industry. Prior to joining the Group, Mr. Colbourne was a Vice-President in a joint venture company established by New Zealand and China focused on developing a new integrated mine, port and rail project in Western Australia. Before that Chris Colbourne worked at Rio Tinto and held a number of senior roles from General Manager Operations to Chief Advisor Mining and Geosciences. Chris Colbourne holds a Master of Science in Mineral Economics from Curtin University and a degree in Mining Engineering from Camborne School of Mines. Chris Colbourne also completed Management Development Program at the University of South Africa and the Business Leadership Development Program at the Duke University.

Philip Engelbrecht — Director of Processing

Philip Engelbrecht has over 28 years' experience in optimising and managing multiple ore processing plants in remote locations in Russia, West Africa, Peru, Ghana, South Africa and Australia. Previously, Philip Engelbrecht served as a Head of Mineral Processing at Newcrest in Australia. From 2013 – 2018, Philip Engelbrecht served as a Director of Processing at the Company. Philip Engelbrecht is a member of the Australasian Institute of Mining and Metallurgy. Mr. Engelbrecht has a Higher National Diploma in Extractive Metallurgy from Vaal Triangle University of Technology. Philip Engelbrecht also completed the Global Leadership Programme Administered in Duke University.

Ekaterina Nowak — Procurement Director

Ms. Nowak was previously a consultant at A.T. Kearney and specialised in procurement transformation projects. She graduated from MGIMO University and the University of Saarland with a degree in Economics.

Gregory Edmonds — Mobile Maintenance Director

Gregory Graham Edmonds has been working in the Group since 2016 and responsible for mobile mining fleet performance at all CIS and West African mines. Mr. Edmonds has more than 30 years' experience in managing mobile mining assets in Australia, Africa, Asia and CIS with Caterpillar, Rio Tinto, Thiess, Leighton and Petrosea. Mr. Edmonds holds Master of Maintenance Management from Central Queensland University of Australia since 2011 and has a certificate IV Frontline Management of 2005.

Corporate Governance

UK Corporate Governance Code

The Board is committed to the highest standards of corporate governance. As of the date of this Registration Document the Board complies, and intends to continue to comply, with the requirements of the UK Corporate Governance Code.

The Company will report to its shareholders on its compliance with the UK Corporate Governance Code in accordance with the Listing Rules.

As envisaged by the UK Corporate Governance Code, the Board has established three committees: an Audit Committee, a Nomination Committee and a Remuneration Committee. In addition, the Board has also established a Disclosure Committee and a Safety and Sustainable Development Committee. If the need should arise, the Board may set up additional committees as appropriate.

The UK Corporate Governance Code recommends that at least half the board of directors of a company with a premium listing on the Official List of the FCA, excluding the chair, should comprise non-executive directors determined by the Board to be independent in character and judgement and free from relationships or circumstances which may affect, or could appear to affect, the director's judgement. As of the date of this Registration Document, the Board is currently made up of nine directors, of whom two are Executive Directors (the Chief Executive Officer and the Chief Legal Officer and Director of ESG) and seven are Non-executive Directors, of which five are deemed independent.

The UK Corporate Governance Code recommends that the chair of a company with a premium listing on the Official List should be independent on appointment when assessed against the circumstances set out in the UK Corporate Governance Code. The Chair was deemed independent on appointment.

The UK Corporate Governance Code recommends that the board of directors of a company with a premium listing on the Official List of the FCA should appoint one of the independent Non-executive Directors to be the Senior Independent Director to provide a sounding board for the chair and to serve as an intermediary for the other directors when necessary. The Senior Independent Director should be available to shareholders if they have concerns which contact through the normal channels of the chair, CEO or other executive director has failed to resolve or for which such contact is inappropriate. Brian Beamish has been appointed Senior Independent Director.

The UK Corporate Governance Code further recommends that directors should be subject to annual re-election. The Company intends to comply with these recommendations.

Audit Committee

The Group has established an Audit Committee which operates pursuant to terms of reference approved by the Board. The Audit Committee typically meets at least twice a year, or more frequently if required, and helps the Board meet its responsibilities in relation to financial reporting, internal and external audits and controls, including: reviewing and monitoring the integrity of the Group's annual, half-yearly and any quarterly or interim financial statements; agreeing the annual internal audit plan; considering the scope of the annual audit and the extent of the external auditors' non-audit work; advising on the appointment of external auditors; and reviewing the effectiveness of the Group's internal controls. The ultimate responsibility for reviewing and approving the annual report and accounts remains with the Board.

Members of the Audit Committee are appointed by the Board on the recommendation of the Nomination Committee and in consultation with the chair of the Audit Committee. The Audit Committee currently consists of four independent non-executive directors, Mr. Gregor Mowat (chair), Mr. Brian Beamish, Mr. John Munro and Yulia Chekunaeva.

The UK Corporate Governance Code recommends that an audit committee comprise at least three members who are independent non-executive directors and includes one member with recent and relevant financial experience. The Board considers that the Company complies with the recommendations of the UK Corporate Governance Code in those respects.

Nomination Committee

The Group has established a Nomination Committee, which operates pursuant to terms of reference approved by the Board. Pursuant to its terms of reference, the Nomination Committee is responsible for: drafting selection criteria and appointment procedures for the Board members; identifying and nominating, for the approval of the Board, candidates to fill Board vacancies as and when they arise; periodically assessing the Board structure, size and composition (including the skills, independence, knowledge,experience and diversity and taking into account the need for progressive refreshing of the Board); making recommendations to the Board about suitable candidates for membership on each of the Audit Committee and Remuneration Committee, in consultation with the chair of the relevant committee; and identifying and recommending directors who are to be put forward for retirement by rotation.

Members of the Nomination Committee are appointed by the Board. The Nomination Committee currently consists of Mr. Michael Nossal, Mr. Brian Beamish and Mr. Alexey Mordashov. The chair of the Nomination Committee is appointed by the Board and is required to be either the Chair or an independent Non-executive Director.

The UK Corporate Governance Code recommends that a majority of the members of a nomination committee should be independent non-executive directors. The Board considers that the Company complies with the recommendations of the UK Corporate Governance Code in this respect.

Remuneration Committee

The Remuneration Committee operates pursuant to terms of reference approved by the Board. The Remuneration Committee normally meets at least twice a year and is responsible for, among other things: recommending executive remuneration policies; determining the policy for directors' remuneration; setting the directors' and

senior management's, including the company secretary's, remuneration; reviewing executive performance; reviewing executive staffing and submission and producing an annual remuneration report to be approved by shareholders at the annual general meeting.

Members of the Remuneration Committee are appointed by the Board on the recommendation of the Nomination Committee and in consultation with the chair of the Remuneration Committee. The Remuneration Committee currently consists of Mr. John Munro (chair), Mr. Brian Beamish, Mr. Gregor Mowat, Mr. Michael Nossal and Mrs. Yulia Chekunaeva.

The UK Corporate Governance Code provides that a remuneration committee should comprise at least three members, all of whom should be independent non-executive directors. The chair of the Board may also be a member of, but not chair, the Remuneration Committee if they were considered independent on appointment. The chair of the Remuneration Committee should have served on a remuneration committee for at least 12 months. The Board considers that the Company complies with the recommendations of the UK Corporate Governance Code in these respects.

Safety and Sustainable Development Committee

The safety and sustainable development committee ("**SSD Committee**") operates pursuant to a mandate approved by the Board. The SSD Committee normally meets at least twice a year and is responsible for monitoring and evaluating reports on the effectiveness of safety and sustainable development policies, management standards, strategy, performance and governance across the Group, and reports to the Board on key issues. Members of the SSD Committee are appointed by the Board. The SSD Committee currently consists of Mr. Brian Beamish (chair), Mr. David Morgan, Mr. Gregor Mowat, Mr. Michael Nossal Mr. John Munro and Mrs.Yulia Chekunaeva.

Disclosure Committee

The Company has established a Disclosure Committee, which operates pursuant to terms of reference approved by the Board, in order to ensure timely and accurate disclosure of all information that is required to be so disclosed to the market to meet the legal and regulatory obligations and requirements arising from the listing of the Company's securities on the London Stock Exchange, including the Listing Rules, the Disclosure Guidance and Transparency Rules, the UK Market Abuse Regulation and the EU Market Abuse Regulation.The market disclosure committee will meet as often as necessary to fulfil its responsibilities. The market disclosure committee must have at least two members. Members of the market disclosure committee are appointed by the Board. The Disclosure Committee currently consists of Mr. Evgeny Tulubensky (chair), Mr. Georgy Smirnov (Chief Financial Officer) and Olga Ulyeva (Head of corporate communications).

Share Dealing Code

The Group has adopted an internal code on securities dealing in relation to the Group's Shares and other financial instruments, the value of which is determined by the value of the Shares, by the directors, persons discharging managerial responsibilities and persons related to them and employees, which is based on the requirements of the UK Market Abuse Regulation and the EU Market Abuse Regulation. The Share Dealing Code applies to the directors and other relevant employees of the Group. The Share Dealing Code includes rules relating to: notifications by or on behalf of persons associated with the Group who are required to make notifications of transactions in the Shares and related securities; the obligations of employees, managers and directors with respect to the ownership of, and transactions in, the Shares and related securities; and if relevant, the period during which such persons may not effect transactions in the Shares and related securities. The Group has adopted a memorandum on procedures for dealing with inside information outlining the procedures applicable to persons working for the Group who could have access to inside information on a regular or incidental basis and has informed the persons concerned of the rules on insider trading and market manipulation, including the sanctions which can be imposed in the event of a violation of those rules.

Conflicts of interest

Save as set out in paragraph 13.2 of Part XII: "*Additional Information*" of this Registration Document, there are no actual or potential conflicts of interest between the duties owed by the Directors, the Senior Managers, or members of any administrative, management or supervisory body of the Company or the Group, and the private interests and/or other duties that they may also have.

PART VIII

DIVIDEND POLICY

Under its dividend policy, the Group intends to pay a minimum dividend of U.S.$400 million in two equal instalments following the release of the Group's financial results for the six months ended 30 June 2021 and the year ended 31 December 2021. Starting from 2022, the Group intends to pay minimum dividends equivalent to 50% of the Group's free cash flow pre-growth capital expenditure, subject to a Net Debt / EBITDA threshold of 1.5x. In any reporting period that the Net Debt / EBITDA ratio increases above 1.5x, the Board will exercise its discretion and may reduce the dividend below the minimum 50% of the Group's free cash flow pre-growth capital expenditure. The Group intends to pay dividends twice a year on a semi-annual basis. In applying this policy, the Board will have regard for a range of factors including the macroeconomic outlook, business performance, balance sheet position and growth outlook of the Company and may exercise its discretion and revise the calculated pay-out either up or down, to the extent these factors substantially impact the Company.

PART IX

SELECTED FINANCIAL AND OPERATING INFORMATION

The selected financial information relating to the Group set out below has been extracted, without adjustment, from Part IX: "Historical Financial Information". The selected non-IFRS measures and operating information relating to the Group set out below has been calculated on the basis set out in Part II: "Important Information—Presentation of Information". The selected financial and operating information presented below should be read in conjunction with Part X: "Operating and Financial Review". Investors should read the whole of this Registration Document before making an investment decision and not rely solely on the summarised information in this Part X.

Selected Consolidated Financial and Other Information

The following tables present summary consolidated financial and other information for the Group as at the dates and for the periods indicated. The selected consolidated financial information presented below has been derived from the Historical Financial Information. The selected consolidated financial and other information presented below should be read together with "*Historical Financial Information*", "*Operating and Financial Review*".

Selected Operating Information

	Year ended 31 December		
	2020	2019	2018
Run of mine, kt[1]	211,706	202,959	172,439
Waste mined, kt[1]	168,010	162,256	139,376
Ore mined, kt	44,996	42,098	34,279
Stripping ratio, t/t[1]	3.84	3.99	4.22
Ore processed, kt[2]	46,215	43,704	34,830
Grade in ore processed, g/t	0.84	0.92	1.02
Recovery, %	81.4	79.4	79.6
Refined gold produced, koz[10]	1,045.6	1,041.1	907.0
Refined gold sold, koz[13]	1,046.3	1,034.5	901.7
Average realised gold price per ounce sold, U.S.$/oz	1,779	1,399.0	1,268.0
LTIFR[9]	0.14	0.33	0.19

Selected Consolidated Income Statements Data

	Year ended 31 December		
	2020	2019	2018
		(U.S.$'000)	
Revenue	1,861,410	1,448,281	1,143,214
Cost of sales	(1,093,662)	(1,022,795)	(806,261)
Gross profit	**767,748**	**425,486**	**336,953**
General and administrative expenses	(66,933)	(60,333)	(55,403)
Net impairment charge of non-current assets	(42,937)	(129,739)	(39,126)
Gain on disposal of associate	21,320	—	—
Loss on partial disposal of subsidiary	—	—	(35,731)
Other operating income/(expenses), net	2,159	(6,497)	(7,109)
Profit from operations	**681,357**	**228,917**	**199,584**
Share of post-tax result of associate	(2,209)	—	—
Finance income	881	28,152	4,284
Finance costs	(46,803)	(59,376)	(115,601)
Foreign exchange gain / (loss), net	24,706	(18,833)	38,040
Profit before income tax	**657,932**	**178,860**	**126,307**
Income tax expense	(79,763)	(25,022)	(34,412)
Profit for the year	**578,169**	**153,838**	**91,895**
Attributable to:			
Shareholders of the Company	568,669	161,030	87,663
Non-controlling interests	9,500	(7,192)	4,232
Weighted average number of shares outstanding during the year (millions of shares) - basic and diluted	336,264	336,274	338,589
Earnings per share (U.S.$):			
Basic and diluted earnings per share (U.S.$)	1.69	0.48	0.26

Selected Consolidated Statements of Financial Position Data

	As at 31 December		
	2020	2019	2018
		(*U.S.$'000*)	
Cash and cash equivalents	739,203	189,891	90,346
Total assets	3,194,197	2,752,879	2,529,315
Total liabilities	1,462,636	1,458,710	1,466,561
Total equity attributable to: Shareholders of the Company	1,594,680	1,182,411	942,487
Non-controlling interests	136,881	111,758	120,267

Selected Consolidated Statements of Cash Flows Data

	As at 31 December		
	2020	2019	2018
		(*U.S.$'000*)	
Cash and cash equivalents at beginning of the year	189,891	90,346	270,402
Cash flows generated from operating activities	1,054,068	705,192	376,758
Cash used in investing activities	(322,734)	(422,545)	(440,589)
Cash used in financing activities	(184,392)	(180,824)	(105,781)
Effect of exchange rate fluctuations on cash and cash equivalents	704	(612)	(10,444)
Reclassification of cash and cash equivalents from assets previously classified as held for sale	1,666	(1,666)	—
Cash and cash equivalents at the end of the year	**739,203**	**189,891**	**90,346**

Selected Non-IFRS Measures

	Year ended 31 December		
	2020	2019	2018
Total cash cost, U.S.$m[3]	774.5	741.2	643.2
Total cash cost per ounce produced, U.S.$/oz[11]	751	722	712
Total all-in sustaining cost U.S.$m[4]	1,056.6	1,051.3	949.3
All-in sustaining cost, U.S.$/oz[4][12]	1,024	1,023	1,051
Adjusted EBITDA, U.S.$m[6]	1,016.9	667.3	470.2
Adjusted EBITDA Margin, (%)[6]	54.6	46.1	41.1
Free cash flow, U.S.$m[7]	551.9	171.5	(156.0)
Free cash flow per ounce, U.S.$/oz[16]	527	161	(173)
Gross Debt, U.S.$m[15]	991	982	1,008
Net Debt, U.S.$m[8]	251.8	791.9	917.2
Net Debt / Adjusted EBITDA ratio[8]	0.2	1.2	2.0
Net Working Capital, U.S.$m[14]	147.8	122.9	81.4

Notes:

(1) Presented only for open pit mines.

(2) Includes ore processed at the Berezitovy heap leach.

(3) See Part II: "*Important Information—Presentation of Financial Information—Total Cash Cost*". For a reconciliation of AISC and TCC, see Part X: "*Operating and Financial Review—Overall Performance*".

(4) See Part II: "*Important Information—Presentation of Financial Information—All-In Sustaining Cost*". For a reconciliation of AISC and TCC, see Part X: "*Operating and Financial Review—Overall Performance"*.

(5) These amounts are included in the line item "Capital expenditure" above.

(6) See Part II: "*Important Information—Presentation of Financial Information—Adjusted EBITDA and Adjusted EBITDA Margin*". For a reconciliation profit before income tax for the period to Adjusted EBITDA, see Part X: "*Operating and Financial Review—Overall Performance*".

(7) See Part II: "*Important Information—Presentation of Financial Information—Free Cash Flow*". For a reconciliation of free cash flow, see Part X: "*Operating and Financial Review—Overall Performance*".

(8) See Part II: "*Important Information—Presentation of Financial Information—Net Debt and Net Debt / Adjusted EBITDA ratio*". For a reconciliation of the Group's net debt, see Part X: "*Operating and Financial Review—Overall Performance*".

(9) LTIFR number comparable with gold mining industry practice.

(10) Includes 6.4 thousand, 4.75 thousand and 3.69 thousand of gold equivalent ounces of silver production in 2020, 2019 and 2018, respectively (based on the ratio of gold to silver used for the purpose of calculating the gold equivalent of 1:87 Au/Ag, 1:87 Au/Ag and 1:81 Au/Ag, respectively).

(11) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production).

(12) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production).

(13) Includes gold equivalent ounces of silver.

(14) See Part II: "*Important Information—Presentation of Financial Information—Net Working Capital*". For a reconciliation of net working capital, see Part X: "*Operating and Financial Review—Overall Performance*".

(15) See Part II: "*Important Information—Presentation of Financial Information—Gross Debt*". For a reconciliation of gross debt, see Part X: "*Operating and Financial Review—Overall Performance*".

(16) Free cash flow per ounce is calculated as free cash flow divided by refined gold sold.

Individual Mine Operational Data

					Gold Production[4], Koz			Total Cash Cost, U.S.$/oz[5]		
					Year ended 31 December			Year ended 31 December		
	The Group Ownership	Location	Mine Type	Technology	2020	2019	2018	2020	2019	2018
Gross	100.0%	Russia	Open-pit	Heap-leach	278.0	259.2	59.2	316	314	233
Taborny (former Neryungri)[1]	100.0%	Russia	Open-pit	Heap-leach	77.3	76.4	99.8	623	559	498
Suzdal[2]	100.0%	Kazakhstan	Underground	Flotation, BIOX, CIL	75.6	75.8	83.5	693	633	602
Buryatzoloto[3]	92.53%	Russia	Underground	Gravity, floatation, CIP	47.0	57.7	64.7	844	805	1,181
Irokinda	92.53%	Russia	Underground	Gravity, floatation, CIP	39.4	38.5	41.9	843	856	1,011
Zun-Holba[3]	92.53%	Russia	Underground	Gravity, floatation, CIP	7.5	19.2	22.8	1,739	668	1,493
Berezitovy	100.0%	Russia	Open-pit	CIP	68.7	60.1	48.4	721	718	667
Taparko	90.0%	Burkina Faso	Open-pit	CIL	94.8	68.2	102.2	1,034	1,390	791
Lefa	85.0%	Guinea	Open-pit	CIP	177.5	189.8	187.8	955	944	807
Bissa-Bouly	90.0%	Burkina Faso	Open-pit	Heap-leach, CIL	226.8	253.8	261.5	1,075	840	743
Total					**1,045.6**	**1,041.1**	**907.0**	**751**	**722**	**712**

Notes:

(1) The Neryungri segment was split into Gross and Taborny (former Neryungri) from 1 January 2019.

(2) Suzdal comprised the Suzdal and Balazhal mines before the sale of the Balazhal mine to a third party in 2018. Accordingly, Suzdal results in 2020 and 2019 did not include the results of Balazhal.

(3) Buryatzoloto comprises the Irokinda and Zun-Holba mines. Zun-Holba mine was sold outside the Group on 26 April 2021 through the sale by the Group of its entire participatory interest in LLC Zun-Holba to Chesio Limited.

(4) Includes gold equivalent production of silver.

(5) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production of silver).

The table below sets forth the Group's reserves and resources by operating asset as at 31 December 2020:

		As at 31 December 2020	
Operating asset	Location	Reserves, koz[1]	Resources, koz[1]
Gross	Russia	6,583	12,359
Taborny	Russia	957	2,107
Suzdal	Kazakhstan	5.4	1,524
Irokinda	Russia	198	802
Berezitovy	Russia	108	204
Taparko	Burkina Faso	211	730
Lefa	Guinea	1,281	4,460
Bissa	Burkina Faso	1,144	2,982
Bouly	Burkina Faso	957	4,978
Montagne d'Or	French Guiana	2,745	4,810
Pistol Bay	Canada	—	1,581
Tokko	Russia	—	3,611
Uryakh	Russia	—	1,926
Total		**15,161**	**42,073**

Note:

(1) The mineral resource and reserve estimates presented have been prepared in accordance with the JORC Code by SRK Consulting (UK) Limited. See also Part I: "*Risk Factors—Risks Relating to the Group's Business—The Group's stated Ore Reserves and Mineral Resources are only estimates based on a range of assumptions and there can be no assurance that the anticipated tonnages or grades will be achieved*".

PART X

OPERATING AND FINANCIAL REVIEW

This Part X: "Operating and Financial Review" should be read in conjunction with Part II: "Important Information—Presentation of Financial Information", Part IV: "Market Overview", Part V: "Business Description" and Part XI— "Historical Financial Information". Prospective investors should read the entire document and not just rely on the summary set out below. The financial information considered in this Part X: "Operating and Financial Review" is extracted from the financial information set out in Part XI: "Historical Financial Information".

The following discussion of the Group's results of operations and financial conditions contains forward-looking statements. The Group's actual results could differ materially from those that it discusses in these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed below and elsewhere in this Registration Document, particularly under Part I: "Risk Factors" and Part II: "Important Information—Presentation of Financial Information". In addition, certain industry issues also affect the Group's results of operations and are described in Part IV: "Market Overview".

Overview of the Group

The Group is a leading, pure-play, internationally diversified gold producer, producing over one million ounces of gold per annum, anchored in the Gross Region of Yakutia, the Russian Federation, with approximately 15.2 Moz of proved and probable gold reserves and 42.1 Moz of measured, indicated and inferred gold resources, according to the JORC Code, as at 31 December 2020 (see "*Business — Summary of the Group's Ore Reserves and Mineral Resources*"). Since 2008, the Group's gold production has increased at a CAGR of approximately 15%, from approximately 193 koz in 2008 to approximately 1,046 koz in 2020, including as a result of the Group's acquisition of the Berezitovy, Irokinda, Zun-Holba, Suzdal, Taparko, Lefa and Taborny mines between 2007 and 2011, and the construction and commencement of operations of three new mines between 2013 and 2018 (Bissa, Bouly and Gross), each of which was constructed by the Group on time and on budget, and which newly constructed mines in aggregate represented approximately 50% of the Group's total gold production in 2020. While producing approximately 5.3 Moz of gold between 2015 and 2020, the Group increased its proved and probable gold reserves by approximately 6.5 Moz, which represents more than 120% replenishment of the Group's reserves base.

The Group has achieved, and intends to maintain, a strong financial position, including as a result of its focus on operational efficiency through technical excellence and increased automation and digitalisation. This has enabled the Group to distribute cash to its shareholders in each of the previous 8 years (from 2013 to 2020) in an aggregate amount of approximately U.S.$0.5 billion, which includes dividends and share/GDR buybacks. The following table sets out certain financial data for the Group for the periods indicated:

	As at and for the year ended 31 December		
	(U.S.$m)		
	2020	**2019**	**2018**
Adjusted EBITDA[(1)]	1,016.9	667.3	470.2
Adjusted EBITDA margin (%)[(1)]	54.6	46.1	41.1
Free cash flow (U.S. $m)[(2)]	551.9	171.5	(156.0)
Net Debt[(3)]	251.8	791.9	917.2
Net Debt / Adjusted EBITDA ratio[(3)]	0.2	1.2	2.0

Notes:

(1) See Part II: "*Important Information—Presentation of Financial Information—Adjusted EBITDA and Adjusted EBITDA* Margin". For a reconciliation of profit before income tax to Adjusted EBITDA, see Part X: "*Operating and Financial Review—Overall Performance*".

(2) See Part II: "*Important Information—Presentation of Financial Information—Free Cash Flow*". For a reconciliation of free cash flow, see Part X: "*Operating and Financial Review—Overall Performance*".

(3) See Part II: "*Important Information—Presentation of Financial Information—Net Debt and Net Debt / Adjusted EBITDA* ratio". For a reconciliation of net debt, see Part X: "*Operating and Financial Review—Overall Performance*".

Recent developments

In January 2021, the Group sold its entire interest in the share capital of Zherek LLP, which operates the Zherek mine in Kazakhstan, to a third party for a total consideration of approximately U.S.$0.09 million, and the Group fully repaid the outstanding principal amount of U.S.$200 million under the Syndicated Facility.

In February 2021, the Group confirmed positive Preliminary Economic Assessment for the Tokkinsky project.

On 23 March 2021, the Company was converted into a public limited company registered in England and Wales (PLC) under company number 13287342.

On 18 March 2021, the Board of Directors approved a final dividend of 0.2 U.S. cents per share in respect of 2020, representing a total pay-out of U.S.$ 0.8 million.

On 25 March 2021, the Company's subsidiary Celtic Resources Holdings DAC entered into a two-year U.S.$100 million ESG-linked revolving credit facility with a group of international banks: ING Bank N.V., AO Raiffeisenbank, Deutsche Bank AG, Amsterdam Branch. The margin under the loan is directly linked to the Group's EcoVadis ESG-rating.

In April 2021, the Company appointed Georgy Smirnov as Chief Financial Officer with effect from 10 April 2021.

In April 2021, the Group sold its entire participatory interest in LLC Zun-Holba outside the Group to Chesio Limited. Zun-Holba mine had been operational for 35 years and its gold reserves were largely depleted as at the date of its sale. From the second quarter 2021, the Group started to sell flotation concentrate produced at Irokinda, which was previously processed at Zun-Holba mine, to Zoloto Severnogo Urala, a subsidiary of Polymetal International plc. On 26 April 2021, the Group fully repaid the outstanding principal amount under the U.S.$325 million credit facility with Sberbank maturing in 2024.

Trading Update

The table below sets forth certain operating information for the Group for the periods indicated.

	Three months ended 31 March	
	2021	**2020**
Run of mine, kt[(1)]	59,780	53,586
Waste mined, kt[(1)]	45,989	43,795
Ore mined, kt	14,139	10,154
Stripping ratio, t/t[(1)]	3.33	4.47
Ore processed, kt[(3)]	11,504	10,171
Grade in ore processed, g/t	0.86	0.87
Recovery, %	79.1	82.1
Refined gold produced[(4)], koz	241.1	225.9
Average realised gold price per ounce sold, U.S.$/oz	1,789	1,593.0
LTIFR	0.09	0.15

Notes:

(1) Presented only for open pit mines.

(2) These amounts are included in the line item "Capital expenditure" above.

(3) Includes ore processed at the Berezitovy heap leach.

(4) Includes 1.478 thousand and 0.986 thousand of gold equivalent ounces of silver production in the first quarter of 2021 and 2020, respectively (based on the ratio of gold to silver used for the purpose of calculating the gold equivalent of 68 Au/Ag and 1:120 Au/Ag, respectively).

In the three months ended 31 March 2021, the Group increased volumes of ore mined by 39% to 14.1 million tonnes, and ore processed by 13% to 11.5 mt. The difference between ore mined and processed mainly represents low grade ore stockpiled at the Group's West African assets and the Gross mine. The Group's stripping ratio improved by 26% which was driven by ore mined with lower stripping ratios at the majority of the Group's mines, which was in line with its mining plans. The Group's recovery totaled 79.1% as a result of a reduction in recovery rates at Bissa-Bouly, Taparko, Gross, Suzdal mines, in line with the mining plan.

Gold prices in the first quarter of 2021 were supported by the continuing stimulus from the World's central banks amid the challenges caused by the COVID-19 pandemic, and the average realized gold price per ounce sold increased to 1,789 U.S.$/oz in the three months ended 31 March 2021 from 1,593 U.S.$/oz in the same period in 2020.

In the three months ended 31 March 2021, the Group had LTIFR of 0.09 compared to 0.15 in the same period in 2020, which represents a substantial improvement of 40%. In January 2021, the Group had an incident at the underground Irokinda mine resulting in one employee fatality.

The Group's gold production increased by 15.2 koz, or 7%, to 241.1 koz in the three months ended 31 March 2021 compared to 225.9 koz in the same period in 2020, which was mainly driven by a higher production at the Bissa-Bouly, Lefa and Taborny mines.

The table below sets forth the Group's gold production with a breakdown by operating asset for the periods indicated.

		Gold Production[1], Koz	
		Three months ended 31 March	
Operating asset	**Location**	**2021**	**2020**
Gross	Russia	48.5	52.7
Taborny	Russia	16.9	13.2
Suzdal	Kazakhstan	11.5	16.8
Irokinda	Russia	10.3	9.2
Zun-Holba[2]	Russia	0.2	1.6
Berezitovy	Russia	15.2	14.9
Taparko	Burkina Faso	20.5	25.8
Lefa	Guinea	44.3	40.6
Bissa-Bouly	Burkina Faso	73.7	50.9
Bissa	Burkina Faso	50.1	31.6
Bouly	Burkina Faso	23.6	19.3
Total		**241.1**	**225.9**

Notes:
(1) Gold production includes gold and gold equivalent production of silver.
(2) Zun-Holba mine was sold outside the Group on 26 April 2021 through the sale by the Group of its entire participatory interest in LLC Zun-Holba to Chesio Limited.

In the three months ended 31 March 2021, Bissa increased production by 59% to 50.1 koz compared to 31.6 in the same period in 2020, which was mainly the result of higher grade ore mined at SW pit, and Bouly increased production by 22% to 23.6 koz compared to 19.3 koz in the same period in 2020, which was driven by higher volumes of ore mined and processed in line with the mining plan.

Lefa production increased by 9% to 44.3 koz in the three months ended 31 March 2021 compared to 40.6 koz in the same period in 2020 mainly driven by higher head grade and recovery, processing high grade ore from the completed Karta Stage 3 and Banko pits, and first ore mining from the CDB pit.

Gross production declined by 8% to 48.5 koz in the three months ended 31 March 2021 compared to 52.7 koz in the same period in 2020 due to planned lower grade and recovery partially offset by a 60% increase in ore mined and a 30% increase in ore processed.

Taparko production declined by 21% to 20.5 koz compared to 25.8 in the same period in 2020 due to lower ore grade mined at the 35 pit, which was in line with the mining plan.

Taborny production increased by 28% to 16.9 koz compared to 13.2 koz in the same period in 2020 mainly due to planned growth in the volumes of ore mined and processed as well as a 36% improvement in head grade mainly delivered from the West 2 cutback.

Suzdal production decreased by 32% to 11.5 koz in the three months ended 31 March 2021 compared to 16.8 koz in the same period in 2020 mainly due to lower volumes of ore processed as a result of decreased throughput at BIOX circuit, which was impacted by planned maintenance works at the cooling tower. Gold production at Suzdal was also impacted by lower recovery due to decreased flotation concentrate mass pull which has normalised starting from the second quarter of 2021.

There were no material developments in the Group's financial performance during the first three months of 2021. Profit for the three month period ended 31 March 2021 increased moderately compared to the three month period ended 31 March 2020, primarily as a result of an increase in sales, driven by an increase in refined gold produced and in the average realised gold price per ounce sold, partially offset by higher cost of sales and general and administrative expenses, a reduction in foreign exchange gains and higher income tax expenses.

Significant factors affecting the Group's results of operations

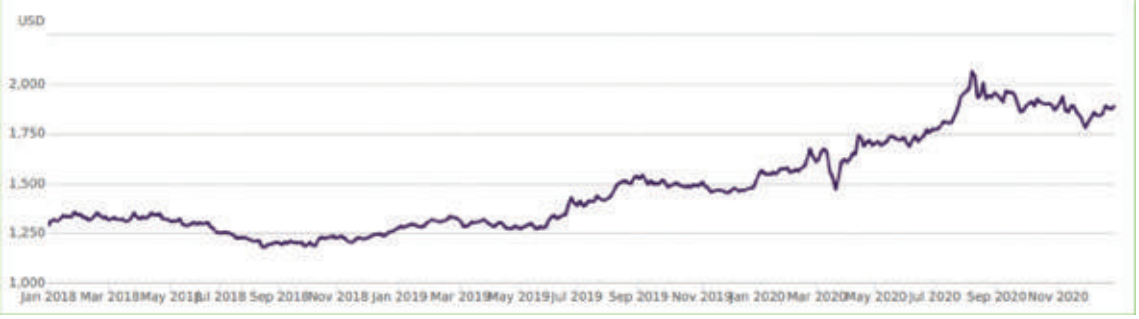
Gold Prices

Substantially all of the Group's revenues are generated from sales of gold. Therefore, the price at which the Group is able to sell its gold (i.e. the realised gold price) is, and is expected to continue to be, a significant factor determining its financial performance. The Group's realised gold price is heavily dependent on the market price of gold, and substantially tracked the prevailing market price in each of the years ended 31 December 2018, 2019 and 2020. Although the Group monitors gold price trends and regulates its revenue accordingly, the Group does not have any gold price hedge in place and does not use derivatives to mitigate its exposure to the volatility in the price of gold.

The market price of gold can fluctuate significantly and is affected by factors which are outside the Group's control. See Part I: "*Risk Factors – Risks Relating to the Group's Business – The Group's results of operations are significantly affected by changes in the market price for gold*". The global gold price has fluctuated significantly since 2019, and has been subject to volatile movements over short periods of time. In 2016, 2017 and 2018, the average LBMA gold price remained relatively stable at U.S.$1,251 per ounce, U.S.$1,257 per ounce, and U.S.$1,268 per ounce, respectively. However, in 2019 and 2020, the average LBMA gold price increased to U.S.$1,393 and U.S.$1,770 per ounce, respectively, with the price of gold peaking at U.S.$2,067 per ounce in August 2020 before falling to U.S.$1,763 per ounce in November 2020. Recently, the average London gold price decreased from U.S.$1,937 per ounce as at 4 January 2021 to U.S.$1,903 per ounce as at 31 May 2021. As at 31 May 2021, gold opened at US$1,904 per ounce.

Price variations and market cycles have influenced the financial results of the Group during the periods under review, and the Group expects that this will remain the case for the foreseeable future. A 20 percent decrease of gold price would have decreased profit after tax for the year ended 31 December 2018, 2019 and 2020 by U.S.$ 189.0 million, U.S.$ 251.6 million and U.S.$ 291.6 million.

Gold Performance (U.S.$/oz)



Source: World Gold Council.

Average realised price gold against average London PM (U.S.$)	2020	2019	2018
Realised price on an annual basis	1,779	1,399	1,268
Average market price	1,770	1,393	1,268

Source: Company data, Bloomberg and LBMA.

Gold production

The Group's financial performance is significantly affected by the amount of gold it produces which, in turn, largely determines the amount of gold it is able to sell. The Group's gold production is impacted by a number of factors, including operational disruptions and prevailing geological conditions at the Group's operating assets which affect its ability to access ore bodies, ore grade and recovery rates. Production levels are heavily dependent on the Group's ability to invest in the exploration and development of new mines and reserves, as well as the improvement of its existing mines. For example, following significant investment in the construction of the Gross mine between 2016 and 2018, Group production increased by approximately 15% in 2019 compared to 2018, primarily as a result of the commencement of production at Gross in September 2018. The Group's future production levels depend on its reserves base. The Group's reserves may decline as it produces gold and its existing reserves are depleted. The Group's future production growth, therefore, will be dependent upon it successfully discovering or acquiring and developing additional reserves.

Further, the Group's production was adversely affected in 2020 by travel and other restrictions implemented to combat the effects of the COVID-19 pandemic. See Part I: "*Risk Factors - The Group faces risks related to the adverse impact of the COVID-19 pandemic.*"

Gold production per mine, Koz

The table below sets forth the Group's gold production with a breakdown by operating asset for the periods indicated.

		Gold Production[1], Koz		
		Year ended 31 December		
Operating asset	**Location**	**2020**	**2019**	**2018**
Gross	Russia	278.0	259.2	59.2
Taborny (former Neryungri)[2]	Russia	77.3	76.4	99.8
Suzdal	Kazakhstan	75.6	75.8	83.5
Irokinda	Russia	39.4	38.5	41.9
Zun-Holba[3]	Russia	7.5	19.2	22.8
Berezitovy	Russia	68.7	60.1	48.4
Taparko	Burkina Faso	94.8	68.2	102.2
Lefa	Guinea	177.5	189.8	187.8
Bissa-Bouly	Burkina Faso	226.8	253.8	261.5
Bissa	Burkina Faso	148.2	152.0	154.9
Bouly	Burkina Faso	78.6	101.8	106.6
Total		**1,045.6**	**1,041.1**	**907.0**

Notes:
(1) Gold production includes gold and gold equivalent production of silver.
(2) The Neryungri segment was split into Gross and Taborny from 1 January 2019.
(3) Zun-Holba mine was sold outside the Group on 26 April 2021 through the sale by the Group of its entire participatory interest in LLC Zun-Holba to Chesio Limited.

Key costs and expenses

The long-term financial performance of the Group is dependent upon its ability to maintain low-cost and efficient gold mining operations. The key cost drivers affecting the production cost are stripping ratios, production volumes of ore mined and processed, grades of ore processed, recovery rates, inflation and fluctuations in the local currencies to U.S. dollar exchange rate. The key components of the production costs are materials, fuel and energy, personnel costs and external services, as set out in the table below.

	Year ended 31 December		
U.S.$'000	**2020**	**2019**	**2018**
Materials	176,720	163,928	139,058
Fuel and energy	156,705	164,633	132,084
Personnel costs	158,978	135,486	131,485
External services	110,822	105,701	85,907
Taxes other than income tax	92,992.5	78,040	74,682
Repair and Maintenance cost	79,984	72,873	58,939
Other expenses	4,088.5	4,401	480
Change in obsolete provision and work-in-progress impairment	(3,535)	6,784	(-3,026)
Production cost	**776,756**	**731,846**	**619,608**
Depreciation and amortisation	316,907	290,949	186,652
Cost of sales	**1,093,662**	**1,022,795**	**806,261**

(a) Materials

The cost of materials employed in the production process represents a significant portion of the Group's production costs and depends on the level of production, as well as macroeconomic factors such as inflation, and the relationship with suppliers. The primary materials on which the Group depends comprise sodium cyanide, explosives, cement, and steel balls for milling. The price of key supplies, such as cyanide, is typically fixed for one year and then renegotiated annually.

(b) Fuel and energy

At certain mines the Group consumes diesel fuel and heavy fuel oil for power generation and mining operations. Diesel fuel and heavy fuel oil are refined from crude oil and hence are subject to the same price volatility that affects crude oil prices. Diesel fuel and heavy fuel prices are determined by the market in the Russian Federation and Kazakhstan and are controlled by the government in Burkina Faso and Guinea.

(c) Personnel costs

Personnel costs are a significant component of the production costs and are comprised of the wages and salaries paid to both permanent employees of the Group and contractors employed on a temporary basis as required, and payroll taxes. The average number of employees at the Group's production operations in 2018, 2019 and 2020 was 8,331, 8,285 and 8,190, respectively.

(d) External services

Production external services mainly include drilling and other mining services.

Acquisitions and disposals

The Group's profit is affected by the acquisitions and disposals it makes. For example, in 2018, a 7.5% interest in SMD, a subsidiary of the Group which owns the Lefa mine, was transferred by the Group to the government of Guinea in accordance with SMD/DGM Convention de Base (as amended), which requires the Guinean government to hold 15% of the share capital of SMD (see Part VI: "*Regulatory Overview—Republic of Guinea—SMD/DGM Convention de Base*"). This resulted in the recognition by the Group of a U.S.$21.1 million loss on partial disposal of subsidiary in 2018. This loss included U.S.$10.5 million related to the first transition of 7.5% of shares in SMD and U.S.$10.5 million of provision for transition of second 7.5% of shares in SMD. Expenses of U.S.$14.7 million relating to this extension were also recognised as loss on partial disposal of subsidiary in 2018. In October 2020, the Group transferred a further 7.5% of shares in SMD to the Guinean government and accordingly reclassified the provision, created earlier for the second tranche, to non-controlling interest within the consolidated statement of changes in equity.

In June 2019, the Group entered into an option agreement with Alicanto Minerals Ltd for the exclusive right to acquire a 100% interest in the Arakaka Gold Project located in Guyana. Under the terms of the option agreement, the Group had an option to acquire a 100% interest in the Arakaka Gold Project by sole funding U.S.$3 million in exploration expenditure within one year option period and paying an additional U.S.$5 million to Alicanto Minerals Ltd to exercise the option. Based on unsatisfactory results of the drilling campaign the Company has decided not to exercise its option to acquire Arakaka. As a result, related investment value in the amount of U.S.$ 2.9 million was fully impaired as at 31 December 2020.

Furthermore, in March 2020, the Group acquired 98,443,593 shares, or approximately 19.9%, in Cardinal Resources Limited, the owner of the Namdini Gold project in Ghana, for the total consideration of U.S.$ 27.2 million. During July-September 2020, the Group acquired additional 50,901,121 shares for total consideration in amount of U.S.$ 33.8 million resulting in the Group's interest in Cardinal Resources Limited increasing to 27.8%. In July 2020, the Group made an unconditional offer to acquire all of the outstanding ordinary shares it did not already own in the share capital of Cardinal Resources Limited. However, following a competitive bidding process between the Group and Shandong Gold Mining (Hong Kong), being one of the shareholders of Cardinal Resources Limited, the Group decided to withdraw its offer and to accept the offer from Shandong Gold Mining (Hong Kong). As a result, in December 2020, the Group sold its shares in Cardinal Resources Limited for a total cash consideration in amount of U.S.$ 122.9 million (of which U.S.$120 million was paid in December 2020 and U.S.$2.9 million was paid in January 2021). The Group recognized a net gain on disposal of Cardinal Resources Limited in its consolidated statement of profit or loss amounted to U.S.$ 21.3 million, and a related gain in revaluation reserve of U.S.$32.3 million (net of tax, the amount of income tax relating to gain on revaluation was U.S.$7.6 million) was transferred to the Group's retained earnings.

Foreign currency exchange rates

The Group's results are affected by exchange rate fluctuations between the U.S. dollar, which is the presentation currency for the Group's consolidated financial statements, the Russian rouble, the Kazakhstani tenge and the CFA franc, which are the functional currencies of the Group's operating companies in the Russian Federation,

Kazakhstan and Burkina Faso, respectively. Currency translation affects the financial results of the Group in two principal ways. First, it affects operating subsidiaries, where any transactions in foreign currencies are translated into the functional currency of the relevant operating entity at the foreign exchange rate on the date of the transaction - foreign exchange gains and losses arising on the translation are recognised in the consolidated statement of profit or loss; and second, at the level of the consolidated Group financial statements, where all functional currencies are first translated into the presentation currency of U.S. dollars and are then consolidated - exchange differences are recognised as a separate component in other comprehensive income. Assets and liabilities are translated into U.S. dollars at the closing exchange rates at the date of each financial statement presented. All income and expenses are translated into U.S. dollars at the average exchange rate for each period presented, and all resulting exchange differences are recognised as a separate component, the line item foreign exchange differences, in other comprehensive income in the consolidated statement of comprehensive income. The average rouble to U.S. dollar and West African CFA franc to U.S. dollar exchange rates changed from 62.70 U.S.$/RUB in 2018 to 64.70 U.S.$/RUB in 2019 and 72.32 U.S.$/RUB in 2020 and from 556 U.S.$/CFA in 2018 to 586 U.S.$/CFA in 2019 and 575 U.S.$/CFA in 2020. In 2020, the Group incurred foreign exchange loss on translation of foreign operations of U.S.$120.2 million compared to a foreign exchange gain of U.S.$ 85.1 million in 2019 and a foreign exchange loss of U.S.$ 191.8 million in 2018.

The Group also keeps a U.S. dollar-denominated debt to correspond to its U.S. dollar denominated cash flows and, from time to time, enters into certain derivatives in relation to its non U.S. dollar-denominated debt to hedge against currency risks. In 2018, the Group incurred a derivative net loss of U.S.$44.8 million, which included U.S.$11.8 million of net interest from a cross currency swap netted against a U.S.$56.6 million charge in respect of the derivative instrument, with a corresponding U.S.$58.4 million financial liability recognised on the statement of financial position as at 31 December 2018. In 2019, the Group incurred a net income from derivative of U.S.$ 27.3 million from a cross currency swap, which included U.S.$ 2.3 million of net interest and U.S.$ 25.0 million derivative instrument fair value change. The swap provided an economic hedge of a Ruble denominated loan into US dollar debt. The translation of the loan gave a U.S.$ 24.0 million loss included in the net foreign exchange loss in 2019. The swap was closed out in 2019 (with the financial liability of U.S.$ 33.4 million fully de-recognised) and the loan redenominated into US dollar with no gain or loss, or transfer of cash arising.

Seasonality

Operations at certain of the Group's mines can be affected by weather conditions and seasonality. For example, cold winter weather at the Gross and Taborny mines limits the Group's ability to mine there, so the majority of the crushing and stockpiling of ore at Gross and Taborny occurs from May to September each year, and the majority of gold production occurs from July to December, as the cyanide spray used in heap-leaching cannot penetrate frozen ore. Ore is usually placed on heap-leach pads in the second and third quarters of each year, with revenue being generated primarily in the third and fourth quarters of each year. In addition, the Group's West African operations can be affected by weather conditions during the wet season, which typically lasts from June to October, as heavy rains and/or flooding can lead to production stoppages or decreases in productivity due to additional time and resources required for dewatering and pumping. See Part I: "Risk Factors—Risks Relating to the Group's Business—Gold exploration and the development of mines involves a high degree of risk and uncertainty". The effects of seasonality are not significant at the Group's other mines.

Overall performance

Selected Historical Financial Information and Other Information

Summary Consolidated Statement of Profit or Loss

	Year ended 31 December		
	2020	**2019**	**2018**
		(U.S.$'000)	
Revenue	1,861,410	1,448,281	1,143,214
Cost of sales	(1,093,662)	(1,022,795)	(806,261)
Gross profit	**767,748**	**425,486**	**336,953**
General and administrative expenses	(66,933)	(60,333)	(55,403)
Net impairment charge of non-current assets	(42,937)	(129,739)	(39,126)
Gain on disposal of associate	21,320	—	—
Loss on partial disposal of subsidiary	—	—	(35,731)
Other operating income/(expenses), net	2,159	(6,497)	(7,109)
Profit from operations	**681,357**	**228,917**	**199,584**
Share of post-tax result of associate	(2,209)	—	—
Finance income	881	28,152	4,284
Finance costs	(46,803)	(59,376)	(115,601)
Foreign exchange gain / (loss), net	24,706	(18,833)	38,040
Profit before income tax	**657,932**	**178,860**	**126,307**
Income tax expense	(79,763)	(25,022)	(34,412)
Profit for the year	**578,169**	**153,838**	**91,895**
Attributable to:			
Shareholders of the Company	568,669	161,030	87,663
Non-controlling interests	9,500	(7,192)	4,232
Weighted average number of shares outstanding during the year (thousands of shares) — basic and diluted	336,264	336,274	338,589
Earnings per share (U.S.$):			
Basic and diluted earnings per share (U.S.$)	1.69	0.48	0.26

Summary Consolidated Statement of Comprehensive Income / (Loss)

Items that may be reclassified subsequently to profit or loss:			
Foreign exchange (loss) / gain on translation of foreign operations	(120,263)	85,126	(191,781)
Recycling of foreign exchange gain/(loss) on translation of foreign operations related to subsidiary disposal to profit or loss	1,117	(2,149)	17,576
Items that will not be reclassified subsequently to profit or loss:			
Revaluation of equity investments designated as FVOCI, net of tax	32,652	(758)	(5,029)
Other comprehensive income/(loss) for the year, net of tax	**(86,494)**	**82,219**	**(179,234)**
Total comprehensive income/(loss) for the year	491,675	**236,057**	**(87,339)**
Attributable to:			
Shareholders of Company	476,109	243,548	(87,339)
Non-controlling interests	15,566	(7,491)	(3,588)

Other Financial Data

(U.S.$m)			
Adjusted EBITDA[1]	1,016.9	667.3	470.2
Adjusted EBITDA margin (%)[1]	54.6	46.1	41.1
Free cash flow[2]	551.9	171.5	(156.0)
Free cash flow per ounce, U.S.$/oz[9]	527	161	(173)
Total cash cost[3]	774.5	741.2	643.2
Total cash cost, U.S.$/oz[7]	751	722	712
Total all-in sustaining cost[4]	1,056.6	1,051.3	949.3
Total all-in sustaining cost, U.S.$/oz[4][8]	1,024	1,023	1,051
Gross Debt, U.S.$m[10]	991.0	981.8	1,007.8
Net Debt[5]	251.8	791.9	917.2
Net Debt / Adjusted EBITDA ratio[6]	0.2	1.2	2.0
Net Working Capital, U.S.$m[11]	147.8	122.9	81.4

	Year ended 31 December		
	2020	2019	2018
		(U.S.$'000)	

Summary Consolidated Balance Sheet

(U.S.$000)			
Cash and cash equivalents	739,203	189,891	90,346
Total assets	3,194,197	2,752,879	2,529,315
Total liabilities	1,462,636	1,458,710	1,466,561
Total equity attributable to: Shareholders of the Company	1,594,680	1,182,411	942,487
Non-controlling interests	136,881	111,758	120,267

Notes:

(1) See Part II: "*Important Information—Presentation of Financial Information—Adjusted EBITDA and Adjusted EBITDA Margin*". For a reconciliation of profit before income tax to Adjusted EBITDA, see the table below.

(2) See Part II: "*Important Information—Presentation of Financial Information—Free Cash Flow*". For a reconciliation of free cash flow, see the table below.

(3) See Part II: "*Important Information—Presentation of Financial Information—Total Cash Cost*". For a reconciliation of TCC and AISC, see the table below.

(4) See Part II: "*Important Information—Presentation of Financial Information—All-In Sustaining Cost*". For a reconciliation of TCC and AISC, see the table below.

(5) See Part II: "*Important Information—Presentation of Financial Information—Net Debt and Net Debt / Adjusted EBITDA ratio*". For a reconciliation of net debt, see the table below

(6) This ratio is calculated as net debt divided by Adjusted EBITDA. See Part II: "*Important Information—Presentation of Financial Information—Net Debt and Net Debt / Adjusted EBITDA ratio*".

(7) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production).

(8) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production).

(9) Free cash flow per ounce is calculated as free cash flow divided by refined gold sold.

(10) See Part II: "*Important Information—Presentation of Financial Information—Gross Debt*". For a reconciliation of gross debt, see the table below.

(11) See Part II: "*Important Information—Presentation of Financial Information—Net Working Capital*". For a reconciliation of net working capital, see the table below.

Reconciliation of Profit before Income Tax to Adjusted EBITDA

	Year ended 31 December		
	2020	2019	2018
		(U.S.$'000)	
Profit for the year	578,169	153,838	91,895
Income tax expense	(79,763)	(25,022)	(34,412)
Profit before income tax	657,932	178,860	126,307
Finance income	881	28,152	4,284
Finance costs	(46,803)	(59,376)	(115,601)
Foreign exchange gain/(loss), net	24,706	(18,833)	38,040
Depreciation and amortisation	(323,717)	(296,743)	(193,403)
Impairment charge of non-current assets	(42,937)	(129,739)	(39,126)
Reversal of impairment/(Impairment) of work-in-progress recognised in cost of sales	7,194	(8,261)	3,297
Net loss on disposal of property, plant and equipment	(7,054)	(1,471)	(1,009)
Other income/(expenses)	9,693	(2,136)	(4,637)
Adjusted EBITDA(1)	**1,016,858**	**667,267**	**470,193**
Adjusted EBITDA margin (%)(1)	**54.6**	**46.1**	**41.1**

Notes:

(1) See Part II: "*Important Information—Presentation of Financial Information—Adjusted EBITDA and Adjusted EBITDA Margin*".

The Group's Adjusted EBITDA increased by U.S.$ 349.6 million, or 52.4%, from U.S.$ 667.3 million in 2019 to U.S.$ 1,016.9 million in 2020. The growth in the Group's Adjusted EBITDA and the profit before income tax was largely due to an increase in the average gold price by 27.2% from U.S.$1,399 per ounce in 2019 to U.S.$1,779 per ounce in 2020.

The Group's Adjusted EBITDA increased by U.S.$ 197.1 million, or 41.9%, from U.S.$ 470.2 million in 2018 to U.S.$ 667.3 million in 2019. This increase was mainly due to an increase in the profit before income tax for the period from U.S.$126.3 million in 2018 to U.S.$ 178.9 million in 2019 which was largely due to an increase in revenue volumes by 15% from 901.7 koz in 2018 to 1,034.5 koz in 2019, an increase in the average gold price by 10.3% from U.S.$1,268 per ounce in 2018 to U.S.$1,399 per ounce in 2019.

Reconciliation of Total Cash Cost and All-In Sustaining Cost

	Year ended 31 December		
	2020	2019	2018
		(*U.S.$m*)	
Cost of sales	**(1,093.7)**	**(1,022.8)**	**(806.3)**
(Less) / plus items in income statements:			
Depreciation and amortisation	(323.7)	(296.7)	(193.4)
Change in obsolete provision and work-in-progress impairment	(3,5)	(6.7)	3.3
Change in finished goods	(0.5)	(0.5)	2.0
Revenue of by-products	(11.6)	(7.1)	(4.7)
Cost of production	**753.3**	**717.6**	**620.2**
General and administrative expenses	(66.9)	(60.3)	(55.4)
(Less) / plus items in income statements:			
Depreciation and amortisation	(6.7)	(5.8)	(6.7)
Corporate overheads	(39.0)	(30.9)	(25.7)
Mining administrative expenses	**27.9**	**29.4**	**23.0**
Total cash cost[(1)]	**774.5**	**741.2**	**643.2**
Gold produced[(2)], koz	1,032.0	1,027.2	903.4
Total cash cost, U.S.$/oz[(3)]	**751**	**722**	**712**
Corporate overheads	39.0	30.9	25.7
Sustaining CAPEX	243.1	277.6	274.9
Other cash expenses	0.0	1.6	5.5
Total All-in sustaining cost (AISC)	1,056.6	1,051.3	949.3
Total All-in sustaining cost (AISC), U.S.$/oz[(4)]	**1,024**	**1,023**	**1,051**

Notes:

(1) Total cash cost is calculated for ounces of gold only. See Part II: "*Important Information—Presentation of Financial Information—Total Cash Cost*".

(2) Gold produced does not include gold equivalent ounces of silver produced.

(3) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production).

(4) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

The Group's TCC increased by U.S.$ 33.3 million, or 4.5%, from U.S.$ 741.2 million in 2019 to U.S.$ 774.5 million in 2020 and TCC per ounce increased from U.S.$ 722 per ounce in 2019 to U.S.$ 751 per ounce in 2020, which was mainly attributable to increase in TCC per ounce at each mine except for Taparko in 2020.

The Group's total AISC in 2020 remained relatively flat with a slight increase in total AISC from U.S.$ 1,051.3 million in 2019 to U.S.$ 1,056.6 million in 2020 and an increase in AISC per ounce from U.S.$ 1,023 per ounce in 2019 to U.S.$ 1,024 per ounce in 2020.

The Group's TCC increased by U.S.$98 million, or 15.2%, from U.S.$643.2 million in 2018 to U.S.$741.2 million in 2019 and the TCC per ounce increased from U.S.$712 per ounce in 2018 to U.S.$722 per ounce in 2019, which was mainly attributable to: (i) a 76% increase in TCC at Taparko from U.S.$791 per ounce to U.S.$1,390 per ounce in 2019 mainly due to a lower head grade and a lower recovery rate; (ii) a 17% increase in TCC at Lefa from U.S.$807 per ounce in 2018 to U.S.$944 per ounce in 2019 mainly due to an increase in fuel consumption and mining contractor unit cost, as well as a higher operational stripping ratio and a lower recovery rate; (iii) a 13% increase in TCC at Bissa-Bouly from U.S.$743 per ounce in 2018 to U.S.$840 per ounce in 2019 mainly due to a higher consumption of fuel and materials, (iv) a 5% increase in TCC at Suzdal from U.S.$602 per ounce in 2018 to U.S.$633 per ounce in 2019 mainly due to a lower head grade in ore processed and lower recovery; and (iv) a 8% increase in TCC at Berezitovy from U.S.$667 per ounce in 2018 to U.S.$718 per ounce in 2019.

The Group's total AISC increased by U.S.$102 million, or 10.7%, from U.S.$949.3 million in 2018 to U.S.$1,051.3 million in 2019 and the Group's AISC per ounce decreased to U.S.$1,023 per ounce in 2019 from

U.S.$1,051 per ounce in 2018 which was mainly attributable to: (i) a 16% decrease in AISC at Buryatzoloto to U.S.$1,170 per ounce in 2019 from U.S.$1,398 per ounce in 2018 primarily due to lower TCC which was partially offset by a higher sustaining exploration per ounce produced; and (ii) a 13% decrease in AISC at Berezitovy to U.S.$1,148 per ounce in 2019 from U.S.$1,325 per ounce in 2018 due to a decrease in maintenance capital expenditures per ounce produced. The decrease in AISC at Buryatzoloto and Berezitovy was partially offset by an increase in AISC at the other mines.

Reconciliation of Free Cash Flow

	Year ended 31 December		
U.S.$000	2020	2019	2018
Cash generated from operating activities	**1,054,068**	**705,192**	**376,758**
Purchases presented in financing activities	(123,180)	(115,856)	(44,270)
Acquisition of property, plant and equipment	(332,882)	(367,130)	(447,023)
Acquisition of exploration and evaluation assets	(46,055)	(50,716)	(41,002)
Free cash flow	**551,951**	**171,490**	**(155,537)**

In 2020, the Group had a positive free cash flow of U.S.$ 551.9 million due to an increase in cash flow from operating activities and a decrease in payments for property, plant and equipment and exploration and evaluation activity. In 2020, all mines had a positive free cash flow.

In 2019, the Group had a positive free cash flow of U.S.$ 171.5 million due to an increase of cash flow from operating activities and a decrease in payments for property, plant and equipment. In 2019, all mines except for Taparko and Buryatzoloto had a positive free cash flow.

In 2018, the Group had a negative free cash flow of U.S.$ 156.0 million mainly due to peak investment commitments related to the construction of the Gross mine. In 2018, the Group spent U.S.$ 174.0 million in Gross completion. In 2018, Bissa and Bouly, Suzdal, Taparko and Lefa generated a positive free cash flow while Buryatzoloto, Berezitovy and Neryungri had negative free cash flows.

Reconciliation of Net Debt and Gross Debt

Net Cash/Debt

	As at 31 December		
U.S.$'000	2020	2019	2018
Bank loans	80,000	—	342,598
Factoring arrangements	49,865	38,038	34,275
Accrued interest	5,180	6,153	4,656
Lease liability	6,075	5,872	—
Unamortised balance of transaction costs	—	—	(160)
Total short-term borrowings	**141,120**	**50,063**	**381,369**
Bank loans	445,000	525,000	576,051
Bonds issued	400,000	400,000	—
Lease liability	11,469	16,259	—
Unamortised balance of transaction costs	(6,595)	(9,549)	(8,251)
Total long-term borrowings	**849,874**	**931,710**	**567,800**
Derivative financial instrument	—	—	58,402
Cash and cash equivalents	(739,203)	(189,891)	(90,346)
Net Debt	**251,791**	**791,882**	**917,225**

Gross and Net Debt Reconciliation

U.S.$'000	As at 31 December 2020	2019	2018
Non-current interest bearing loans and borrowings	849,874	931,710	567,800
Derivative financial instrument	—	—	58,402
Current interest bearing loans and borrowings	141,120	50,063	381,369
Gross Debt	990,994	981,773	1,007,571
Less: cash and cash equivalents	(739,203)	(189,891)	(90,346)
Net Debt	**251,791**	**791,882**	**917,225**

Reconciliation of Net Working Capital

U.S.$'000	As at 31 December 2020	2019	2018
Current inventories	225,731	219,756	196,545
Non-current inventories	110,471	87,419	88,952
Current VAT receivable	67,025	62,118	72,427
Non-current VAT receivable	46,846	54,906	25,404
Accounts receivable	34,484	37,632	30,007
Accounts payable	(274,056)	(297,342)	(283,841)
Factoring arrangements	(49,865)	(38,038)	(34,275)
Current lease liability	(6,075)	(5,872)	—
Net income tax payable	(1,049)	6,736	904
Provisions	(5,676)	(4,462)	(12,891)
Net working capital	**147,836**	**122,853**	**83,232**

Year Ended 31 December 2020 Compared to Year Ended 31 December 2019

Revenue

In 2020, revenue increased by U.S.$413.1 million, or 28.5%, from U.S.$1,448.3 million in 2019 to U.S.$1,861.4 million in 2020. The increase was largely the result of an increase in the average gold price by 27.2% from U.S.$1,399 per ounce in 2019 to U.S.$1,779 per ounce in 2020.

Cost of sales

In 2020, the Group's cost of sales increased by U.S.$ 70.9 million, or 6.9%, from U.S.$1,022.8 million in 2019 to U.S.$ 1,093.7 million in 2020, which was largely driven by higher volumes of gold produced and sold in 2020 as compared to 2019.

The table below shows a breakdown of the Group's cost of sales in 2020 and 2019:

U.S.$ '000	Year ended 31 December 2020	2019
Material	176,720	163,928
Fuel and energy	156,705	164,633
Personnel costs	158,978	135,486
External services	110,822	105,701
Taxes other than income tax	92,992.5	78,040
Repair and Maintenance cost	79,984	72,873
Other expenses	4,088.5	4,401
Change in obsolete provision and work-in-progress impairment	(3,535)	6,784
Production cost	**776,756**	**731,846**
Depreciation and amortisation	323,717	296,743
Cost of sales	**1,093,662**	**1,022,795**

Materials Costs

Materials cost increased by U.S.$12.8 million, or 7.8%, from U.S.$163.9 million in 2019 to U.S.$176.7 million in 2020, which was mainly due to higher stripping costs and higher consumption of materials at Bissa-Bouly.

Fuel and Energy Costs

Fuel and energy costs decreased by U.S.$ 8.0 million, or 4.9%, from U.S.$ 164.7 million in 2019 to U.S.$ 156.7 million in 2020, which was mainly driven by a decrease in fuel and energy costs at Lefa as a result of reduction of light fuel oil price by 19% and heavy fuel oil price by 10%, which was partially offset by increase of fuel expenses at Taparko due to higher volumes of ore mined and higher transportation costs.

Personnel Costs

Personnel costs increased by U.S.$23.5 million, or 17.3%, from U.S.$135.5 million in 2019 to U.S.$159 million in 2020. This growth was mainly attributable a 10% increase in the average headcount at Bissa-Bouly and a 12% increase of the average headcount at Gross in 2020 and an average increase in wages by 5% in U.S. dollar terms in 2020.

External Services Costs

External services, which mainly include drilling and other mining services, increased by U.S.$5.1 million, or 4.8%, from U.S.$105.7 million in 2019 to U.S.$110.8 million in 2020, which was primarily attributable to higher stripping costs at Bissa-Bouly and transportation services on Samtenga.

Taxes Other Than Income Tax

Taxes other than income tax increased by U.S.$15 million, or 19.2%, from U.S.$78 million in 2019 to U.S.$93 million in 2020 mainly due to mining tax increase associated with higher revenue in 2020.

Repair and Maintenance Costs

Repair and maintenance costs increased by U.S.$ 7.1 million, or 9.7%, from U.S.$ 72.9 million in 2019 to U.S.$ 80 million in 2020 mainly due to repairment of Bissa power plant and Lefa maintenance expenses of mining equipment.

Depreciation and Amortisation

Depreciation and amortisation increased by U.S.$26 million, or 8.9%, from U.S.$290.9 million in 2019 to U.S.$316.9 million in 2020, primarily due to higher depreciation of stripping assets and higher amortization of mineral rights at Lefa and higher depreciation of plant and equipment at Taparko which was partially offset by higher depreciation of capital stripping assets at Bissa-Bouly.

General and Administrative Expenses

The table below shows a breakdown of the Group's general and administrative expenses in 2020 and 2019:

U.S.$'000	Year ended 31 December	
	2020	**2019**
Wages and salaries	41,897	34,209
Professional and other services	16,059	17,853
Depreciation and amortisation	6,672	5,830
Other	2,305	2,441
Total	**66,933**	**60,333**

General and administrative expenses increased by U.S.$ 6.6 million, or 10.9%, from U.S.$ 60.3 million in 2019 to U.S.$ 66.9 million in 2020, which was primarily due to an increase in wages and salaries by U.S.$ 7.7 million, or 22.5%, from U.S.$ 34.2 million in 2019 to U.S.$ 41.9 million in 2020, mainly driven by an increase in the salary rate in 2019, partially offset by a U.S.$ 1.8 million decrease in professional and other services by U.S.$2.6 million, or 10%, from U.S.$ 17.9 million in 2019 to U.S.$ 16.1 million in 2020.

Impairment charge of non-current assets

Impairment charges and reversals were recognised in the Group's consolidated statements of profit or loss for 2020 and 2019, as follows:

U.S.$'000	Year ended 31 December 2020	2019
Property, plant and equipment:		
Berezitovy cash generating unit	28,432	23,707
Taparko cash generating unit	—	23,652
Buryatzoloto cash generating unit	—	6,339
Berezitovy individual assets	—	34,522
	28,432	**88,220**
Intangible assets:		
Berezitovy cash generating unit	1,258	4,134
Taparko cash generating unit	—	6,370
Buryatzoloto cash generating unit	—	3,024
Taparko individual assets	6,714	—
Buryatzoloto individual assets	—	7,522
Bissa individual assets	—	5,699
Other intangible assets	403	563
	8,375	**27,312**
Other assets:		
Assets held for sale impairment	7,927	22,140
Long-term financial investments	3,009	—
Reversal of impairment	(4,806)	(7,933)
	6,130	**14,207**
Impairment of non-current assets	**42,937**	**129,739**

The Group's net impairment charge of non-current assets decreased by U.S.$ 86.8 million, or 66.9%, from U.S.$129.7 million in 2019 to U.S.$ 42.9 million in 2020, which was mainly due to a U.S.$29.8 million decrease in the impairment loss for property, plant and equipment at Berezitovy, a U.S.$23.7 million decrease in the impairment loss for property, plant and equipment at Taparko, a U.S.$ 9.4 million decrease in the impairment loss in respect of Buryatzoloto mineral rights and exploration and evaluation assets and no impairment charge in respect of assets held for sale recognized in 2020 compared to 2019.

Finance Income and Finance Costs

The table below shows a breakdown of the Group's finance income in 2020 and 2019:

U.S.$'000	Year ended 31 December 2020	2019
Finance income		
Interest income	881	822
Net gain per mark up of derivative instruments	—	27,330
Total	881	**28,152**
Finance costs		
Interest expense	(39,045)	(51,971)
Environmental provision discount unwinding	(2,213)	(1,898)
Royalties related to West African operations	(2,412)	(2,752)
Other	(3,133)	(2,755)
Total	**(46,803)**	**(59,376)**

Finance Income

Finance income decreased by U.S.$27.3 million, or 96.9%, from U.S.$28.2 million in 2019 to U.S.$0.9 million in 2020, which was driven by the fact that no net income from derivative was recognized in 2020 compared to a net income from derivative of U.S.$27.3 million in 2019.

Finance Costs

Finance costs decreased by U.S.$ 12.6 million, or 21.2%,from U.S.$59.4 million in 2019 to U.S.$46.8 million in 2020, which was mainly attributable to a decrease in interest expense from U.S.$52 million in 2019 to U.S.$39 million in 2020 resulting from the refinancing of certain of the Group's bank loans with proceeds from issuance of the 2024 Notes in the last quarter of 2019.

Foreign exchange (loss)/gain

In 2020, the Group recorded a net foreign exchange gain of U.S.$24.7 million compared to a net foreign exchange loss of U.S.$18.8 million in 2019, which was mainly due to a depreciation of the Russian Rouble against the U.S. dollar in 2020 resulting in a foreign exchange gain on translation of the Group's Russian Rouble denominated borrowings into the U.S. Dollar, which is the Group's reporting currency.

Income tax expense

The table below shows a breakdown of the Group's income tax expense in 2020 and 2019:

U.S.$'000	Year ended 31 December	
	2020	2019
Current tax charge	(45,459)	(29,190)
Prior period adjustments	—	4,104
Deferred tax expense	(34,304)	64
Income tax expense	(79,763)	(25,022)

The Group's income tax expense increased by U.S.$54.8 million, or 219.2%, from U.S.$25.0 million in 2019 to U.S.$79.8 million in 2020, which was mainly attributable to higher profit before income tax in 2020. The effective tax rate remained roughly flat at 12% in 2020 and 14% in 2019.

Profit for the year

As a result of the factors discussed above, the Group's profit increased by U.S.$424.3 million, or 275.9%, from U.S.$ 153.8 million in 2019 to U.S.$578.1 million in 2020.

Year Ended 31 December 2019 Compared to Year Ended 31 December 2018

Revenue

In 2019, revenue increased by U.S.$305.1 million, or 26.7%, from U.S.$ 1,143.2 million in 2018 to U.S.$ 1,448.3 million in 2019. The increase was the result of an increase in revenue volumes by 15% from 901.7 Koz in 2018 to 1,034.5 Koz in 2019, as well as an increase in the average gold price by 10.3% from U.S.$1,268 per ounce in 2018 to U.S.$1,399 per ounce in 2019.

Cost of sales

The Group's cost of sales increased by U.S.$ 216.5 million, or 26.9%, from U.S.$806.3 million in 2018 to U.S.$1,022.8 million in 2019, which was largely driven by higher volumes of gold produced and sold in 2019 as compared to 2018.

The table below shows a breakdown of the Group's cost of sales in 2019 and 2018:

U.S.$m	Year ended 31 December	
	2019	2018
Material	163,928	139,058
Fuel and energy	164,633	132,084
Personnel costs	135,486	131,485
External services	105,701	85,907
Taxes other than income tax	78,040	74,682
Repair and Maintenance cost	72,873	58,939
Other expenses	4,401	480
Change in obsolete provision and work-in-progress impairment	6,784	(3,026)
Production cost	**731,846**	**619,608**
Depreciation and amortisation	296,743	193,403
Cost of sales	**1,022,795**	**806,261**

Materials Costs

Materials cost increased by U.S.$25.0 million, or 18.0%, from U.S.$139 million in 2018 to U.S.$164 million in 2019, which was mainly due to higher volumes of gold produced on both Gross and Taborny mines and a higher consumption of materials at Taparko and Lefa partially offset by lower Buryatzoloto operational production.

Fuel and Energy Costs

Fuel and energy costs increased by U.S.$32.6 million, or 24.7%, from U.S.$132.1 in 2018 to U.S.$164.7 million in 2019, which was also largely driven by a higher production on Gross and Taborny partially offset by lower Buryatzoloto operational production.

Personnel Costs

Personnel costs increased by U.S.$4.0 million, or 3.0%, from U.S.$131.5 million in 2018 to U.S.$135.5 million in 2019, which was primarily due to an increase in Gross headcount and an average increase in wages in 2019 by 5% in US Dollar terms compared to 2018, which was partially offset by a 30% headcount reduction on Buryatzoloto. The average headcount of production employees reduced to 8,285 in 2019 compared to 8,331 in 2018.

External Services Costs

External services, which mainly include drilling and other mining services, increased by U.S.$ 19.8 million, or 23.1%, from U.S.$85.9 million in 2018 to U.S.$105.7 million in 2019. In 2019 mining services increased mainly on Lefa, Bissa and Taparko which was partially offset by a decrease in mining services at Buryatzoloto due to lower operational production in that period.

Taxes Other Than Income Tax

Taxes other than income tax increased by U.S.$ 3.3 million, or 4.4%, from US$ 74.7 million in 2018 to US$ 78 million in 2019 mainly due to mining tax increase associated with higher revenue in 2019.

Repair and Maintenance Costs

Repair and maintenance costs increased by U.S.$ 14.0 million, or 23.8%, from U.S.$ 58.9 million in 2018 to U.S.$ 72.9 million in 2019, mainly due to repair and maintenance expenses at Gross and higher maintenance cost per unit of production at Taparko, Bissa and Lefa.

Depreciation and Amortisation

Depreciation and amortisation increased by U.S.$104.2, or 55.8%, from U.S.$186.7 million in 2018 to U.S.$ 290.9 million in 2019, primarily due to higher depreciation of capitalised stripping assets at Bissa and start of depreciation of Gross assets following its launch in September 2018.

General and Administrative Expenses

The table below shows a breakdown of the Group's general and administrative expenses in 2019 and 2018:

U.S.$'000	Year ended 31 December	
	2019	2018
Wages and salaries	34,209	31,418
Professional and other services	17,853	15,273
Depreciation and amortisation	5,830	6,721
Other	2,441	1,991
Total	**60,333**	**55,403**

General and administrative expenses increased by U.S.$ 4.9 million, or 8.8%, from U.S.$ 55.4 million in 2018 to U.S.$ 60.3 million in 2019, which was primarily due to (i) an increase in wages and salaries by U.S.$ 2.8 million, or 8.9%, from U.S.$31.4 million in 2018 to U.S.$34.2 million in 2019, mainly driven by an increase in wages by 5% in U.S. dollar terms in 2020, and (ii) an increase in professional and other services by 17.0%, from U.S.$15.3 million in 2018 to U.S.$ 17.9 million in 2019, mainly driven by increase of licenses and maintenance cost for certain software products.

Impairment charge of non-current assets

Impairment charges and reversals were recognised in the Group's consolidated statements of profit or loss for 2019 and 2018, as follows:

	Year ended 31 December	
U.S.$'000	**2019**	**2018**
Property, plant and equipment:		
Berezitovy cash generating unit	23,707	—
Taparko cash generating unit	23,652	—
Buryatzoloto cash generating unit	6,339	4,813
Berezitovy individual assets	34,522	—
	88,220	**4,813**
Intangible assets:		
Berezitovy cash generating unit	4,134	—
Taparko cash generating unit	6,370	—
Buryatzoloto cash generating unit	3,024	37,154
Taparko individual assets	—	—
Buryatzoloto individual assets	7,522	—
Bissa individual assets	5,699	—
Other intangible assets	563	969
	27,312	**38,123**
Other assets:		
Assets held for sale impairment	22,140	
Long-term financial investments	—	—
Reversal of impairment	(7,933)	(3,810)
	14,207	**(3,810)**
Impairment of non-current assets	**129,739**	**39,126**

Due to the presence of impairment indicators, management conducted impairment valuation reviews at Buryatzoloto, Berezitovy and Lefa in 2018 and at Buryatzoloto, Berezitovy and Taparko in 2019. The recoverable amounts were calculated based on the asset's value in use, using discounted cash flow projections.

As a result of the 2018 impairment review, a U.S.$4.8 million impairment loss for property, plant and equipment and a U.S.$37.2 million impairment loss for intangible assets were recognised at Buryatzoloto. As a result of the 2019 impairment review, a U.S.$58.2 million impairment loss for property, plant and equipment was recognised at Berezitovy (including U.S.$34.5 million related to a capital stripping asset which was impaired due to a change in mining plan), a U.S.$.23.7 million impairment loss for property, plant and equipment was recognised at Taparko, and U.S.$27.3 million of impairment losses for intangible assets were recorded at Buryatzoloto, Taparko, Bissa and Berezitovy. In addition a U.S.$22.1 million impairment charge was recognised in 2019 in respect of assets held for sale (LLC Zun-Holba), being the difference between the expected proceeds from disposal (U.S.$3 million) and the carrying amount of the related net assets as at 31 December 2019 (U.S.$25.1 million).

Finance Income and Finance Costs

The table below shows a breakdown of the Group's finance income in 2019 and 2018:

U.S.$'000	Year ended 31 December	
	2019	2018
Finance income		
Interest income	822	4,284
Net income from derivative	27,330	—
Total	**28,152**	**4,284**
Finance costs		
Interest expense	(51,971)	(61,764)
Net loss from derivative	—	(44,762)
Environmental provision discount unwinding	(1,898)	(1,484)
Royalties related to West African operations	(2,752)	(5,654)
Other	(2,755)	(1,937)
Total	**(59,376)**	**(115,601)**

Finance Income

Finance income increased by U.S.$23.9 million, or 555.8%, from U.S.$4.3 million in 2018 to U.S.$28.2 million in 2019, which was driven by the recognition of a net income from derivative of U.S.$27.3 million in 2019, which was partially offset by decrease in the interest income by U.S.$3.5 million. The net income from derivative, which was comprised of U.S.$2.3 million of net interest and U.S.$ 25.0 million derivative instrument fair value change, related to the closing of a cross currency swap with respect to a Rouble denominated loan from Sberbank in 2019.

Finance Costs

Finance costs decreased by U.S.$56.2, or 48.6%, from U.S.$115.6 million in 2018 to U.S.$59.4 million in 2019, which was mainly attributable to a decrease in interest expense from U.S.$52 million in 2019 to U.S.$39 million in 2020 resulting from the refinancing of certain of the Group's bank loans with proceeds from issuance of the 2024 Notes in the last quarter of 2019, partial repayment of U.S.$100 million in principal amount of the Syndicated Facility at the end of 2019 and a decrease in LIBOR in 2020 resulting in lower interest payments under the Group's credit facilities.

Foreign exchange (loss)/gain

In 2019, the Group's net foreign exchange loss increased by U.S.$ 56.8 million, or 149.5%, from a net foreign exchange gain of U.S.$ 38 million in 2018 to a loss of U.S.$ 18.8 million in 2019, which was mainly attributable to the closing of a cross currency swap with respect to a Rouble denominated loan from Sberbank in 2019 that resulted in a U.S. $24 million net foreign exchange loss.

Income tax expense

The table below shows a breakdown of the Group's income tax expense in 2019 and 2018:

U.S.$'000	Year ended 31 December	
	2019	2018
Current tax charge	(29,190)	(38,809)
Prior period adjustments	4,104	(375)
Deferred tax expense	64	4,772
Income tax expense	(25,022)	**(34,412)**

The Group's income tax expense decreased by U.S.$ 9.4 million, or 27.3%, from U.S.$ 34.4 million in 2018 to U.S.$ 25.0 million in 2019, due to a decrease in current tax charge by U.S.$ 9.6 million in 2019 which was primarily the result of a reduced tax rate being applied to the Gross mine as a regional investment project with effect from 1 January 2019, as well as due to an increase in deferred tax expense by U.S.$ 4.7 million in 2019.

Profit for the year

As a result of the factors discussed above, the Group's profit increased by U.S.$61.9 million or 67.4% from U.S.$91.9 million in 2018 to U.S.$153.8 million in 2019.

Discussion of operations

	Year ended 31 December		
	2020	2019	2018
Run of mine, kt[1]	211,706	202,959	172,439
Waste mined, kt[1]	168,010	162,256	139,376
Ore mined, kt	44,996	42,098	34,279
Stripping ratio, t/t[1]	3.84	3.99	4.22
Ore processed, kt[3]	46,215	43,704	34,830
Grade in ore processed, g/t	0.84	0.92	1.02
Recovery, %	81.4	79.4	79.6
Refined gold produced[4], koz	1,045.6	1,041.1	907.0
Refined gold sold[5], koz	1,046.3	1,034.5	901.7
Average realised gold price per ounce sold, U.S.$/oz	1,779	1,399.0	1,268.0
LTIFR	0.14	0.33	0.19
Capital expenditure, U.S.$m	382.3	429.0	514.7
Payments for exploration and evaluation activity, U.S.$m[2]	46.1	50.7	41.0

Notes:

(1) Presented only for open pit mines.

(2) These amounts are included in the line item "Capital expenditure" above.

(3) Includes ore processed at the Berezitovy heap leach.

(4) Includes 6.4 thousand, 4.75 thousand and 3.69 thousand of gold equivalent ounces of silver production in 2020, 2019 and 2018, respectively (based on the ratio of gold to silver used for the purpose of calculating the gold equivalent of 1:87 Au/Ag, 1:87 Au/Ag and 1:81 Au/Ag, respectively).

(5) Includes gold equivalent ounces of silver.

Operating results in the years ended 31 December 2020 and 2019

Total volume of ore processed during 2020 was 46.2 million tonnes, a 5.7% increase over 2019. Average head grade in ore processed was 0.84 g/t in 2020, a 8.7% decrease over 2019. The recovery rate increased from 79.4% in 2019 to 81.4% in 2020. The LTIFR decreased by 57.6% from 0.33 in 2019 to 0.14 in 2020.

Total refined gold production in 2020 amounted to 1,045.6 Koz, an increase of 0.4% over 2019, largely as a result of higher production levels at Gross, Taparko and Berezitovy which compensated production decline at Bissa-Bouly, Lefa and Zun-Holba. Total refined gold sold in 2020 was 1,046.3 Koz, a 1.1% increase over 2019, mainly due to an increase in the overall refined gold production in 2020. Average realised gold price per ounce sold was U.S.$ 1,779 per ounce in 2020, a 27.2% increase over 2019.

Capital expenditures decreased by 10.9% from U.S.$ 429.0 million in 2019 to U.S.$ 382.3 million in 2020. Capital expenditures for 2020 included U.S.$ 41 million spent on exploration and evaluation activity.

Operating results in the years ended 31 December 2019 and 2018

2019 Summary

Total volume of ore processed during 2019 was 43.7 million tonnes, a 25.5% increase over 2018. Average head grade in ore processed of 0.92 g/t in 2019, a decrease of 9.8% over 2018. The recovery rate slightly decreased from 79.6% in 2018 to 79.4% in 2019. The LTIFR increased by 73.7% from 0.19 in 2018 to 0.33 in 2019.

Total refined gold production in 2019 amounted to 1,041.1 koz, an increase of 14.8% over 2018, largely as a result of higher production levels at certain mines. Gold production in 2019 increased at the Gross mine, Berezitovy mine and Lefa mine, and fell at all other mines, compared to 2018. Gold production at the Gross mine increased by 200 koz, or 337.8%, from 59.2 koz in 2018 to 259.2 koz in 2019 due to the mine reaching its full operating capacity in 2019.

Total refined gold sold in 2019 was 1,034.5 koz, a 14.7% increase over 2018, mainly due to increase in production on Gross mine and Berezitovy mine in 2019. Average realised gold price per ounce sold was U.S.$ 1,399 per ounce in 2019, a 10.3% increase over 2018.

Capital expenditures decreased by 16.7% from U.S.$ 514.7 million in 2018 to U.S.$ 429.0 million in 2019. Capital expenditures for 2019 included U.S.$ 50.7 million spent on exploration and evaluation activity.

Operating Segments

In the period covered by the Group's consolidated financial statements as at and for the year ended 31 December 2020, the Group had nine reportable operating segments, as described below, representing its strategic business units. The following summary describes the operations of each reportable segment:

- *Gross*. An open-pit operating mine located in the Republic of Sakha (Yakutia) of the Russian Federation, using heap-leaching technology for gold processing.
- *Taborny (former Neryungri)*. A single open-pit mine located in the Republic of Sakha (Yakutia) of the Russian Federation, using heap-leaching technology for gold processing.
- *Suzdal*. An underground gold mine located in Kazakhstan using flotation, BIOX and CIL technology for gold processing. The Group disposed of the Balazhal gold deposit in 2018.
- *Buryatzoloto*. Includes an underground gold mine located in the Republic of Buryatia of the Russian Federation, Irokinda, which uses gravity and flotation technology for gold processing and, before its sale in April 2021, included Zun-Holba, which used gravity, flotation and CIP technology for gold processing.
- *Berezitovy*. An open-pit gold mine with underground located in the Amur region of the Russian Federation using CIP technology for gold processing.
- *Taparko*. An open-pit gold mine located in Burkina Faso, West Africa using CIL technology for gold processing.
- *Lefa*. An open-pit gold mine located in Guinea, West Africa using CIP technology for gold processing.
- *Bissa and Bouly*. Open-pit gold mines located in Burkina Faso, West Africa using CIL and heap-leaching technologies for gold processing.
- *Greenfields and development assets*. Include a number of gold deposits at the exploration and evaluation stages located in Burkina Faso, the Russian Federation, Canada and the Montagne d'Or gold development project in French Guiana.

The following tables show the Group's revenue, Adjusted EBITDA and capital expenditures by segment in the years ended 31 December 2020, 2019 and 2018:

	Year ended 31 December		
	2020	2019	2018
		(*U.S.$'000*)	
Revenue			
Gross	498,671	367,619	68,880
Taborny (former Neryungri)	139,298	108,546	124,507
Suzdal[(1)]	134,629	107,060	104,980
Buryatzoloto	84,824	67,075	82,905
Berezitovy	122,676	85,069	62,307
Taparko	167,061	96,683	129,845
Lefa	312,483	263,532	238,964
Bissa and Bouly	401,768	352,697	330,826
Total	1,861,410	**1,448,281**	**1,143,214**

	Year ended 31 December		
	2020	2019	2018
		(*U.S.$'000*)	
Adjusted EBITDA by segment			
Gross	405,886	282,768	55,572
Taborny (former Neryungri)	90,839	65,391	78,858
Suzdal(1)	82,269	59,044	54,681
Buryatzoloto	35,261	27,934	6,653
Berezitovy	72,195	40,813	29,369
Taparko	68,540	2,514	48,773
Lefa	142,710	84,349	87,406
Bissa and Bouly	157,910	138,420	136,808
Greenfields	(75)	(119)	(55)
Total adjusted EBITDA for reportable segments	**1,055,535**	**701,114**	**498,065**
Adjusted EBITDA for all other segments	(38,677)	(33,847)	(27,872)
Total	**1,016,858**	**667,267**	**470,193**

	Year ended 31 December		
	2020	2019	2018
		(*U.S.$'000*)	
Segment capital expenditures			
Gross	91,460	68,627	174,020
Taborny (former Neryungri)	33,761	49,058	16,924
Suzdal	20,225	17,644	12,843
Buryatzoloto	13,589	22,768	27,618
Berezitovy	26,301	39,129	48,518
Taparko	8,461	39,589	60,102
Lefa	77,168	89,927	74,622
Bissa and Bouly	95,239	86,852	85,567
Greenfields	14,491	10,005	13,868
Total capital expenditures for reportable segments	**380,695**	**423,599**	**514,082**
All other segments	1,556	5,388	581
Total segment capital expenditures	**382,251**	**428,987**	**514,663**
Depreciation capitalised	38,116	35,269	30,880
Other transfers	7,446	(5,647)	(2,052)
Additions to PP&E and Intangible assets	**427,813**	**458,609**	**543,491**

The table below sets forth the mine-by-mine comparison of TCC and AISC for the periods indicated.

		Total Cash Cost, U.S.$/oz[3]			All-In Sustaining Cost, U.S.$/oz[4]		
		Year ended 31 December			Year ended 31 December		
Operating asset	**Location**	**2020**	**2019**	**2018**	**2020**	**2019**	**2018**
Gross	Russia	316	314	233	469	407	342
Taborny (former Neryungri)[2]	Russia	623	559	498	967	893	634
Suzdal	Kazakhstan	693	633	602	900	864	756
Buryatzoloto[1]	Russia	844	805	1,181	1,329	1,170	1,398
Irokinda	Russia	843	856	1,011	1,184	1,262	1,276
Zun Holba[1]	Russia	1,739	668	1,493	1,849	1,007	1,621
Berezitovy	Russia	721	718	667	1,087	1,148	1,325
Taparko	Burkina Faso	1,034	1,390	791	1,115	1,844	1,307
Lefa	Guinea	955	944	807	1,332	1,354	1,205
Bissa-Bouly	Burkina Faso	1,075	840	743	1,272	1,069	992
Total		**751**	**722**	**712**	**1,024**	**1,023**	**1,051**

Notes:

(1) Buryatzoloto comprises the Irokinda and Zun-Holba mines. Zun-Holba mine was sold outside the Group on 26 April 2021 through the sale by the Group of its entire participatory interest in LLC Zun-Holba to Chesio Limited.

(2) The Neryungri segment was split into Gross and Taborny from 1 January 2019.

(3) Total cash cost per ounce produced is calculated as total cash cost divided by refined gold produced (exclusive of gold equivalent production).

(4) All-in sustaining cost per ounce produced is calculated as all-in sustaining cost divided by refined gold produced (exclusive of gold equivalent production of silver).

Gross segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Gross segment revenue increased by U.S.$ 131.1 million, or 35.7%, from U.S.$ 367.6 million in 2019 to U.S.$ 498.7 million in 2020, which was due to an increase in gold production from 259.2 koz in 2019 to 278.0 koz in 2020 and an increase in the average realized gold price at Gross from U.S.$ 1,409 per ounce in 2019 to U.S.$ 1,793 per ounce in 2020.

Adjusted EBITDA of the Gross segment for the same period increased by U.S.$ 123.1 million, or 43.5%, from U.S.$ 282.8 million in 2019 to U.S.$ 405.9 million in 2020 primarily due to an increase in Gross segment sales.

Capital expenditures of the Gross segment increased by U.S.$ 22.9 million, or 33.3%, from U.S.$ 68.6 million in 2019 to U.S.$ 91.5 million in 2020 due to investments made in 2020 as part of the Gross expansion project.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Gross segment revenue increased by U.S.$ 298.7 million, or 433.5%, from U.S.$ 68.9 million in 2018 to U.S.$ 367.6 million in 2019, which was due to a significant increase in gold production at Gross mine in 2019 with mine reaching its full operating capacity and a corresponding increase in gold sales from 56.3 koz in 2018 to 259 koz in 2019.

Adjusted EBITDA of the Gross segment for the same period increased by U.S.$ 227.2 million, or 408.6%, from U.S.$ 55.6 million in 2018 to U.S.$ 282.8 million in 2019, which was primarily attributable to increase in Gross segment revenue supported.

Capital expenditures of the Gross segment decreased by U.S.$105.4 million, or 60.6%, from U.S.$174.0 million in 2018 to U.S.$68.6 million in 2019 due to the launch of Gross in September 2018 and a consequent decrease in development capital expenditures. In 2019, Gross sustaining capital expenditure was U.S.$ 23.8 million compared to U.S.$ 11.1 million in 2018, which included capital stripping expenditure of U.S.$ 15.7 million and maintenance of U.S.$ 7.8 million in 2019 compared to U.S.$ 6.4 million and U.S.$ 4.6 million in 2018, respectively. In 2019, Gross development capital expenditures were U.S.$ 47.4 million including U.S.$ 34.7 million spent for completion of Gross construction compared to U.S.$ 162.9 million in 2018 and U.S.$ 10.1 million spent for mining equipment for Gross expansion in 2019 compared to zero expenditures in 2018.

Taborny segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Taborny segment revenue increased by U.S.$ 30.8 million, or 28.4%, from U.S.$ 108.5 million in 2019 to U.S.$ 139.3 million in 2020, which was mainly due to an increase in the average realized gold price from U.S.$ 1,409 per ounce in 2019 to U.S.$ 1,801 per ounce in 2020.

Adjusted EBITDA of the Taborny segment for the same period increased by U.S.$ 25.4 million, or 38.8%, from U.S.$ 65.4 million in 2019 to U.S.$ 90.8 million in 2020 primarily due to an increase in Taborny segment revenue.

Capital expenditures of the Taborny segment decreased by U.S.$ 15.3 million, or 31.2%, from U.S.$ 49.1 million in 2019 to U.S.$ 33.8 million in 2020 due to less development capital expenditures in 2020 (mining fleet and processing equipment for expansion of processing to 6 mtpa were in 2019), and higher volume of non-sustaining exploration were in 2019 (in 2020 accounted in separate development project Tokko).

Segment results in the years ended 31 December 2019 and 2018

In 2019, Taborny segment revenue decreased by U.S.$ 16 million, or 12.9%, from U.S.$ 124.5 million in 2018 to U.S.$ 108.5 million in 2019, which was due to a decrease in gold production at Taborny mine by 23.4% in 2019 compared to 2018 that was partially offset by a 10.5% increase in average realised gold price per ounce from U.S.$ 1,258 in 2018 to U.S.$ 1,409 in 2019.

Adjusted EBITDA of the Taborny segment for the same period decreased by U.S.$ 13.5 million, or 17.1%, from U.S.$ 78.9 million in 2018 to U.S.$ 65.4 million in 2019 primarily due to a decrease in gold production at Taborny mine in 2019.

Capital expenditures of the Taborny segment increased by U.S.$32.2 million, or 190.5%, from U.S.$ 16.9 million in 2018 to U.S.$ 49.1 million in 2019 due to an increase in capital stripping and purchase of mining equipment in 2019. In 2019, Taborny sustaining capital expenditure was U.S.$ 25.4 million compared to U.S.$ 13.5 million in 2018, which included capital stripping expenditure in total amount U.S.$ 13.6 million and maintenance expenditures of U.S.$ 10.7 million in 2019 compared to U.S.$ 2.7 million and U.S.$ 10.5 million, respectively, in 2018. Taborny development expenditures were U.S.$ 23.2 million including and U.S.$ 7.8 million of non-sustaining exploration compared to U.S.$ 2.9 million in 2018 and U.S.$ 12.6 million investment in mining equipment for further production expansion compared to zero investment in 2018.

Suzdal segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Suzdal segment revenue increased by U.S.$ 27.5 million, or 25.7%, from U.S.$ 107.1 million in 2019 to U.S.$ 134.6 million in 2020, which was due to an increase in the average realized gold price from U.S.$ 1,412 per ounce in 2019 to U.S.$ 1,782 per ounce in 2020.

Adjusted EBITDA of the Suzdal segment for the same period increased by U.S.$ 23.3 million, or 39.5%, from U.S.$ 59 million in 2019 to U.S.$ 82.3 million in 2020 primarily due to an increase in Suzdal segment revenue.

Capital expenditures of the Suzdal segment increased by U.S.$ 2.6 million, or 14.8%, from U.S.$ 17.6 million in 2019 to U.S.$20.2 million in 2020 due to advances for new desorption at the plant and higher cost for mining fleet replacement in 2020.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Suzdal segment revenue increased by U.S.$2.1 million, or 2%, from U.S.$105 million in 2018 to U.S.$ 107.1 million in 2019, which was due to a 10.3% increase in average realised gold price per ounce from U.S.$ 1,268 in 2018 to U.S.$ 1,399 in 2019 that was partially offset by a decrease in gold production at Suzdal mine by 9.2% in the same period.

Adjusted EBITDA of the Suzdal segment for the same period increased by U.S.$ 4.3 million, or 7.9%, from U.S.$ 54.7 million in 2018 to U.S.$ 59 million in 2019 primarily due to a 10.3% increase in average realised gold price per ounce from U.S.$ 1,268 in 2018 to U.S.$ 1,399 in 2019 and an increase in Suzdal segment revenue.

Capital expenditures of the Suzdal segment increased by U.S.$ 4.8 million, or 37.5%, from U.S.$ 12.8 million in 2018 to U.S.$ 17.6 million in 2019 due to the construction of the tailing storage facilities and two camps at the mine and higher exploration costs. In 2019, Suzdal invested U.S.$ 13.8 million in maintenance expenditures and U.S.$ 2.5 million capitalized stripping capital expenditures compared to U.S.$ 10.6 million and U.S.$ 1.9 million, respectively, in 2018.

Suzdal results in 2018 included the results of the Suzdal and Balazhal mines. During 2018, the Group sold Balazhal to a third party. Accordingly, Suzdal results in 2020 and 2019 did not include the results of Balazhal.

Buryatzoloto segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Buryatzoloto segment revenue increased by U.S.$ 17.7 million, or 26.4%, from U.S.$ 67.1 million in 2019 to U.S.$ 84.8 million in 2020, which was due to an increase in the average realized gold price from U.S.$ 1,420 per ounce in 2019 to U.S.$1,760 per ounce in 2020.

Adjusted EBITDA of the Buryatzoloto segment for the same period increased by U.S$ 7.4 million, or 26.5%, from U.S.$ 27.9 million in 2019 to U.S.$ 35.3 million in 2020 primarily due to an increase in Buryatzoloto segment revenue.

Capital expenditures of the Buryatzoloto segment decreased by U.S.$ 9.2 million, or 40.4%, from U.S.$22.8 million in 2019 to U.S.$13.6 million in 2020 due to reductions in mining operations at Zun-Holba.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Buryatzoloto segment revenue decreased by U.S.$ 15.8 million, or 19.1%, from U.S.$ 82.9 million in 2018 to U.S.$ 67.1 million in 2019, which was primarily attributable to a decrease in gold production at Irokinda and Zun-Holba mines by 10.8% in 2019 compared to 2018.

Adjusted EBITDA of the Buryatzoloto segment for the same period increased by U.S.$ 21.2 million, or 316.4%, from U.S.$ 6.7 million in 2018 to U.S.$ 27.9 million in 2019 primarily due to capitalization of expenses in 2019 related to the development of a ramp at Buryatzoloto mine.

Capital expenditures of the Buryatzoloto segment decreased by U.S.$ 4.8 million, or 17.4%, from U.S.$ 27.6 million in 2018 to U.S.$ 22.8 million in 2019 due to the replacements of worn-out mining fleet at Zun-Holba, the expansions of the existing tailing dams at both Irokinda and Zun-Holba, the installation of a new system of ventilation at Zun-Holba in 2018. In 2019, Buryatzoloto spent U.S$. 17.2 million on sustaining capital expenditures compared to U.S.$ 13.8 million in 2018 and invested U.S.$ 12.7 million in underground capital development. In 2018 development expenditures were U.S.$ 13.8 million and included expenditures on development phase of Zun-Holba expansion.

Berezitovy segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Berezitovy segment revenue increased by U.S.$ 37.6 million, or 44.2%, from U.S.$ 85.1 million in 2019 to U.S.$ 122.7 million in 2020, which was due to an increase in gold sales from 60.2 koz in 2019 to 68.1 koz and an increase in the average realized gold price from U.S.$ 1,395 per ounce in 2019 to U.S.$ 1,781 per ounce in 2020.

Adjusted EBITDA of the Berezitovy segment for the same period increased by U.S.$ 31.4 million, or 77%, from U.S.$ 40.8 million in 2019 to U.S.$ 72.2 million in 2020 primarily due to an increase in Berezitovy segment revenue.

Capital expenditures of the Berezitovy segment decreased by U.S.$12.8 million, or 32.7%, from U.S.$39.1 million in 2019 to U.S.$26.3 million in 2020 due to lower volume of capital stripping in 2020 and Uryakh exploration cost in 2019.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Berezitovy segment revenue increased by U.S.$ 22.7 million, or 36.4%, from U.S.$ 62.3 million in 2018 to U.S.$ 85 million in 2019, which was due to an increase in gold production at Berezitovy mine by 24.2% in 2019 compared to 2018, as well as a 10.3% increase in average realised gold price per ounce from U.S.$ 1,268 in 2018 to U.S.$ 1,399 in 2019.

Adjusted EBITDA of the Berezitovy segment for the same period increased by U.S.$ 11.4 million, or 38.8%, from U.S.$ 29.4 million in 2018 to U.S.$ 40.8 million in 2019, which was primarily attributable to an increase in segment revenue in 2019.

Capital expenditures of the Berezitovy segment decreased by U.S.$ 9.4 million, or 19.4%, from U.S.$ 48.5 million in 2018 to U.S.$ 39.1 million in 2019 due to replacement of the open pit fleet in 2018 and higher costs on underground mine construction. In 2019, Berezitovy invested U.S.$ 20.8 million in capitalized stripping, U.S.$ 4.8 million in maintenance expenditures, U.S.$ 4.2 million in new exploration and U.S.$ 8.9 million in underground mining development and exploration compared to U.S.$ 20.9 million, U.S.$ 10.0 million, U.S.$ 4.5 million and U.S.$ 12.9 million, respectively, in 2018.

Taparko segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Taparko segment revenue increased by U.S.$ 70.4 million, or 72.7%, from U.S.$96.7 million in 2019 to U.S.$ 167.1 million in 2020, which was due to an increase in gold sale from 68.1 koz in 2019 to 94.1 koz in 2020 and an increase in the average realized gold price U.S.$ 1,420 per ounce in 2019 to U.S.$1,761 per ounce in 2020.

Adjusted EBITDA of the Taparko segment for the same period increased by U.S.$ 66.0 million, or 2,640%, from U.S.$2.5 million in 2019 to U.S.$ 68.5 million in 2020 primarily due to an increase in Taparko segment revenue.

Capital expenditures of the Taparko segment decreased by U.S.$31.1 million, or 78.5%, from U.S.$39.6 million in 2019 to U.S.$8.5 million in 2020 due to the reduction in mining activity and switch to old cutbacks and processing of the existing stock piles.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Taparko segment revenue decreased by U.S.$ 33.1 million, or 25.5%, from U.S.$ 129.8 million in 2018 to U.S.$ 96.7 million in 2019, which was due to a decrease in gold production at Taparko mine by 32.2% in 2019 compared to 2018 that was partially offset by a 11.5% increase in average realised gold price per ounce from U.S.$ 1,274 in 2018 to U.S.$ 1,420 in 2019.

Adjusted EBITDA of the Taparko segment for the same period decreased by U.S.$ 46.3 million, or 94.9%, from U.S.$ 48.8 million in 2018 to U.S.$ 2.5 million in 2019 primarily due to a decrease in Taparko revenue in 2019, as well as an increase in costs related to increased stripping activities at the mine.

Capital expenditures of the Taparko segment decreased by U.S.$ 20.5 million, or 34.1%, from U.S.$ 60.1 million in 2018 to U.S.$ 39.6 million in 2019 due to lower capital stripping expenditures in 2019. In 2019, Taparko decreased capitalised stripping costs to U.S.$ 21.5 million compared to U.S.$ 41.7 million in 2018. Maintenance and the non-sustaining exploration and development expenditures amounted to U.S.$ 8.3 million and U.S.$ 8.8 million, respectively, compared to U.S.$ 9.6 million and U.S.$ 7.6 million, respectively, in 2018.

Lefa segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Lefa segment revenue increased by U.S.$49.0 million, or 18.6%, from U.S.$ 263.5 million in 2019 to U.S.$ 312.5 million in 2020, which was due to an increase in the average realized gold price from U.S.$ 1,389 per ounce in 2019 to U.S.$1,764 per ounce in 2020.

Adjusted EBITDA of the Lefa segment for the same period increased by U.S.$ 58.4 million, or 69.3%, from U.S.$84.3 million in 2019 to U.S.$142.7 million in 2020 primarily due to an increase in Lefa segment revenue.

Capital expenditures of the Lefa segment decreased by U.S.$ 12.7 million, or 14.1%, from U.S.$ 89.9 million in 2019 to U.S.$77.2 million in 2020 due to decrease of capital stripping from 15 to 12 million tonnes and less mining equipment purchase in 2020.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Lefa segment revenue increased by U.S.$ 24.5 million, or 10.3%, from U.S.$ 239 million in 2018 to U.S.$ 263.5 million in 2019, which was primarily attributable to a 10.3% increase in average realised gold price per ounce from U.S.$ 1,268 in 2018 to U.S.$ 1,399 in 2019.

Adjusted EBITDA of the Lefa segment for the same period decreased by U.S.$ 3.1 million, or 3.5%, from U.S.$ 87.4 million in 2018 to U.S.$ 84.3 million in 2019, which was mostly due to an increase in mining equipment and other related consumables as well as an increase in operating stripping ratio by 14% in 2019.

Capital expenditures of the Lefa segment increased by U.S.$ 15.3 million, or 20.5%, from U.S.$ 74.6 million in 2018 to U.S.$ 89.9 million in 2019 due to an increase in capital stripping and purchase of mining equipment in 2019. In 2019, Lefa incurred U.S.$ 39.2 million of maintenance expenditures compared to U.S.$ 37.2 million in 2018 and invested U.S.$ 33.2 million in capital stripping activity compared to U.S.$ 30.8 million in 2018. In 2019 Lefa non-sustaining capital expenditures were U.S.$ 6.6 million which related mainly to powerhouse replacement project compared to zero non-sustaining capital expenditures in 2018.

Bissa and Bouly segment

Segment results in the years ended 31 December 2020 and 2019

In 2020, Bissa and Bouly segment revenue increased by U.S.$ 49.1 million, or 13.9%, from U.S.$ 352.7 million in 2019 to U.S.$ 401.8 million in 2020, which was mainly due to a 28% increase in the average realized gold price per ounce from U.S.$ 1,387 per ounce in 2019 to U.S.$ 1,775 per ounce in 2020.

Adjusted EBITDA of the Bissa and Bouly segment for the same period increased by U.S.$ 19.5 million, or 14.1%, from U.S.$ 138.4 million in 2019 to U.S.$ 157.9 million in 2020 primarily due to an increase in Bissa and Bouly segment revenue.

Capital expenditures of the Bissa and Bouly segment increased by U.S.$ 8.3 million, or 9.6%, from U.S.$ 86.9 million in 2019 to U.S.$95.2 million in 2020 due to the start of a new satellite pit Zandkom and the purchase of a mining fleet from the former contractors AMS after the management of AMS had decided to cease operations in Burkina-Faso.

Segment results in the years ended 31 December 2019 and 2018

In 2019, Bissa and Bouly segment revenue increased by U.S.$ 21.9 million, or 6.6%, from U.S.$ 330.8 million in 2018 to U.S.$ 352.7 million in 2019, which was primarily attributable to a 9% increase in average realised gold price per ounce from U.S.$ 1,272 per ounce in 2018 to U.S.$ 1,387 per ounce in 2019.

Adjusted EBITDA of the Bissa and Bouly segment for the same period slightly increased by U.S.$ 1.6 million, or 1.2%, from U.S.$ 136.8 million in 2018 to U.S.$ 138.4 million in 2019, which was due to an increase in segment revenue, as well as an increase in costs related to increased stripping activities at the mine.

Capital expenditures of the Bissa and Bouly segment slightly increased by U.S.$ 1.3 million, or 1.5%, from U.S.$ 85.6 million in 2018 to U.S.$ 86.9 million in 2019. In 2019, Bissa-Bouly capital expenditures included capital stripping and maintenance expenditures of U.S.$ 29.8 million and U.S.$ 23.8 million, respectively, compared to U.S.$ 36.7 million and U.S.$ 24.3 million in 2018, and sustaining exploration of U.S.$ 4.5 million compared to U.S.$ 3.8 million in 2018. An investment in development was U.S.$ 25.9 million including Bouly stage 2 construction and development projects related to tailing storage facility, Samtenga infrastructure and Gougre relocation. In 2018 investment in development was U.S.$ 20.8 million driven by Bouly stage 2 construction and new equipment purchase to increase production volumes at Bissa.

Greenfields and development assets segment

Segment results in the years ended 31 December 2020 and 2019

Capital expenditures of the greenfields and development assets segment increased by U.S.$ 4.5 million, or 45%, from U.S.$ 10 million in 2019 to U.S.$ 14.5 million in 2020 mainly due to an increase of exploration work at Tokko.

Segment results in the years ended 31 December 2019 and 2018

Capital expenditures of the greenfields and development assets segment decreased by U.S.$ 3.9 million, or 28.1%, from U.S.$ 13.9 million in 2018 to U.S.$ 10 million in 2019 mainly due to reduction of exploration activity at Montagne d'Or.

Liquidity and capital resources

The Group manages liquidity risk with the objective of ensuring that funds will be available at all times to honour all cash flow obligations as they become due by preparing annual budgets, continuously monitoring forecast and actual cash flows and matching the maturity profiles of financial assets and liabilities.

The Group believes it can generate sufficient amounts of cash and cash equivalents, in the short term and the long term, to finance the Group's working capital needs and to finance a substantial portion of its planned growth and to fund development activities. Having a strong balance sheet with low leverage, the Group believes it can raise the funding required to fully finance its planned growth and development activities.

Summary Consolidated Statements of Cash Flows Data

	Year ended 31 December		
U.S.$'000	2020	2019	2018
Cash and cash equivalents at beginning of the year	189,891	90,346	270,402
Cash generated from operating activities	1,054,068	705,192	376,758
Cash used in investing activities	(322,734)	(422,545)	(440,589)
Cash used in financing activities	(184,392)	(180,824)	(105,781)
Effect of exchange rate fluctuations on cash and cash equivalents	704	(612)	(10,444)
Reclassification of cash and cash equivalents from assets previously classified as held for sale	1,666	(1,666)	—
Cash and cash equivalents at the end of the year	**739,203**	**189,891**	**90,346**

Cash Flows From Operating Activities

U.S.$'000	Year ended 31 December 2020	2019	2018
Profit for the period	**578,169**	**153,838**	**91,895**
Finance income	(881)	(28,152)	(4,284)
Finance costs	46,803	59,376	115,601
Foreign exchange (gain)/loss	(24,706)	18,833	(38,040)
Income tax expense	79,763	25,022	34,412
Depreciation and amortisation	323,717	296,743	193,403
Net impairment of non-current assets	42,937	129,739	39,126
Gain on disposal of associate	(21,320)	—	—
Share of post-tax result of associate	2,209	—	—

U.S.$'000	Year ended 31 December 2020	2019	2018
(Reversal of impairment) / Impairment of work–in–progress recognised in cost of sales	(7,194)	8,261	(3,297)
Loss on partial disposal of subsidiary	—	—	35,731
Net loss on disposal of property, plant and equipment	7,054	1,471	1,009
De-recognition of financial liabilities	(15,824)	—	—
Other adjustments	4,554	1,196	1,373
	1,015,281	**663,935**	**466,929**
Changes in operating assets and liabilities:			
Accounts receivable	17,832	26,532	8,774
Inventories	(18,243)	(16,350)	(24,923)
VAT recoverable	(1,869)	(8,187)	(16,220)
Accounts payable	(3,028)	(1,543)	5,455
Other changes in operating assets and liabilities, net	1,327	1,488	(5,594)
Purchases presented in financing activities	123,180	115,856	44,270
Cash flows from operations	**1,134,480**	**781,731**	**478,691**
Interest paid	(41,181)	(48,854)	(62,220)
Interest received	877	954	4,279
Net interest from cross currency swap	—	2,010	11,805
Income tax paid	(40,108)	(30,649)	(55,797)
Cash generated from operating activities	**1,054,068**	**705,192**	**376,758**

Cash flows from operating activities increased by U.S.$ 348.9, or 49.5%, from U.S.$ 705.2 million in 2019 to U.S.$ 1,054.1 million in 2020, primarily due to (i) an increase in cash flows generated from operating activities before changes in operating assets and liabilities from U.S.$ 663.9 million in 2019 to U.S.$ 1,015.3 million in 2020 resulting from a higher adjusted EBITDA generated in 2020, and (ii) a decrease in interest paid from U.S.$ 48.9 million in 2019 to U.S.$ 41.2 million in 2020 partially offset by an increase in income tax paid from U.S.$ 30.6 million in 2019 to U.S.$ 40.1 million in 2020.

Cash flows from operating activities increased by U.S.$ 328.4 million, or 87.2%, from U.S.$ 376.8 million in 2018 to U.S.$ 705.2 million 2019 primarily due to (i) an increase in cash flows generated from operating activities before changes in operating assets and liabilities to U.S.$663.9 million in 2019 primarily due to (i) an increase in cash flows generated from operating activities before changes in operating assets and liabilities from U.S.$ 466.9 million in 2018 to U.S.$ 663.9 million in 2019 resulting from an increase in profit from U.S.$ 91.9 million in 2018 to U.S.$ 153.8 million in 2019 and a higher adjusted EBITDA generated in 2019, (ii) a positive change in operating assets and liabilities of U.S.$ 117.8 million in 2019 compared to a negative change in operating assets and liabilities of U.S.$ 39.3 million in 2018 and (iii) a decrease in interest paid to U.S.$48.9 million in 2019 from U.S.$ 62.2 million in 2018 and a decrease in income tax paid to U.S.$ 30.6 million in 2019 from U.S.$ 55.8 million in 2018.

Cash Used in Investing Activities

The table below sets forth the cash used in investing activities:

U.S.$'000	Year ended 31 December 2020	2019	2018
Acquisition of property, plant and equipment	(332,882)	(367,130)	(447,023)
Acquisition of exploration and evaluation assets	(46,055)	(50,716)	(41,002)
Lefa mining convention renewal	—	—	(14,651)
Decrease in short–term deposits	—	—	70,000
Acquisition of associate	(62,218)	—	—
Proceeds from disposal of associate	120,016	—	—
Other movements	(1,595)	(4,699)	(7,913)
Cash used in investing activities	**(322,734)**	**(422,545)**	**(440,589)**

Cash used in investing activities decreased by U.S.$ 99.8, or 23.6%, to U.S.$ 322.7 million in 2020 from U.S.$ 422.5 million in 2019. This decrease was primarily due to a decrease in cash used for the acquisition of property, plant and equipment from U.S.$ 367.1 million in 2019 to U.S.$ 332.9 million in 2020 mostly due to reduction of capital stripping at Bissa and Taparko after improvement of access to the ore in 2019, a decrease in cash used for the acquisition of exploration and evaluation assets from U.S.$ 50.7 million in 2019 to U.S.$ 46.1 million in 2020 due to lower investments in capitalized stripping, cash spent on the acquisition of associate of U.S.$ 62.2 million in 2020 in connection with the acquisition of Cardinal Resources Limited partially offset by the receipt of proceeds from disposal of associate of U.S.$ 120 million in connection with the sale of Cardinal Resources Limited.

Cash used in investing activities decreased by U.S.$18.1 million, or 4.1%, to U.S.$ 422.5 million in 2019 from U.S.$ 440.6 million in 2018. This decrease was largely attributable to a decrease in cash used for the acquisition of property, plant and equipment to U.S.$ 367.1 million in 2019 from U.S.$ 447 million in 2018 due to the completion of construction at Gross mine at the end of 2018 partially offset by an increase in cash used for the acquisition of exploration and evaluation assets to U.S.$ 50.7 million in 2019 from U.S.$ 41 million in 2018 due to Bissa-Bouly, Taborny and Northquest.

Cash Used In Financing Activities

U.S.$'000	Year ended 31 December 2020	2019	2018
Proceeds from borrowings	—	460,000	493,496
Transaction cost paid	—	(4,234)	(4,713)
Repayment of borrowings	(128,792)	(630,091)	(532,520)
Dividends paid	(54,182)	(5,322)	(48,270)
Acquisiiton of non-controlling interests	—	—	(956)
Ordinary shares and GDRs buyback	—	(70)	(10,659)
Other movements	(1,418)	(1,107)	(2,159)
Cash used in financing activities	**(184,392)**	**(180,824)**	**(105,781)**

Cash used in financing activities increased by U.S.$3.6 million, or 2.0%, to U.S.$ 184.4 million in 2020, as compared to U.S.$ 180.8 million in 2019. While Group had lower net proceeds from borrowings amounted to U.S.$ (128.8) million in 2020 against U.S.$ (630.1) million in 2019 Group paid more dividends in 2020 U.S.$ (54.2) million in 2020 as compared to U.S.$ (5.3) million in 2019. Cash used in financing activities increased by U.S.$ 75 million, or 70.9%, to a cash outflow of U.S.$ 180.8 million in 2019 from U.S.$ 105.8 million in 2018 which was mainly attributable to an increase in repayment of borrowings to U.S.$ 630.1 million in 2019 from U.S.$ 532.5 million in 2018, a decrease in proceeds from borrowings from U.S.$ 493.5 million in 2018 to U.S.$ 460 million in 2019 and a decrease in dividends paid from U.S.$ 48.3 million in 2018 to U.S.$ 5.3 million in 2019.

Capital Expenditures

Historical Capital Expenditures

The table below sets forth the capital expenditure breakdown by type during the periods indicated:

U.S.$'000	Year ended 31 December 2020	2019	2018
Sustaining capital expenditures	**243,117**	**288,335**	**274,863**
Sustaining exploration	16,676	20,351	16,541
Maintenance	135,018	130,371	112,330
Capitalised stripping	91,424	137,614	145,992
Non-sustaining capital expenditures	**139,130**	**140,652**	**238,822**
Non-sustaining exploration	24,341	25,776	24,299
Development / new technology	74,148	72,362	38,421
Mine construction	40,641	42,514	176,101
Total Capital Expenditures	**382,248**	**428,987**	**513,685**

The Group's capital expenditures decreased by U.S.$ 46.7 million, or 10.9%, from U.S.$ 429.0 million in 2019 to U.S.$ 382.3 million in 2020, primarily due to a decrease in capital stripping expenditures on Taparko, Bissa-Bouly and Lefa, which was partially offset by higher capital stripping expenditures at Gross.

Capital expenditure decreased by U.S.$ 84.7 million, or 16.5%, from U.S.$ 513.7 million in 2018 to U.S.$ 429.0 million in 2019, primarily due to a reduction in development capital expenditure at Gross as construction was completed in September 2018 and a decrease in capital stripping expenditures at Bissa-Bouly and Taparko and a decrease in maintenance capital expenditures and expenditures for underground mining development and exploration at Berezitovy.

In 2020, U.S.$46.1 million was invested in exploration and evaluation activities, compared to U.S.$ 50.7 million and U.S.$ 41.0 million in 2019 and 2018, respectively.

Capital Expenditure Commitments

Of the U.S.$404 million capital expenditures projected for 2021, the Group expects approximately U.S.$ 77 million, U.S.$ 109 million and U.S.$125 million to be allocated to capital stripping, maintenance (incl., PCR) and development/new technology, respectively. In 2021-2023, Group expects that its annual capital expenditure requirements will be in the range of U.S.$404 million to U.S.$526 million, including capital expenditures for construction. The budgeted capital expenditures set forth above are based on management's current judgement regarding conditions management expects to exist and the course of action management expects to take in the future. Management's assumptions rely on its operational analysis and expectations for the operating performance of the Group's assets based on their historical operating performance, historical costs and expected future performance. Factors beyond the Group's control could cause capital expenditures to vary materially from current expectations, which are discussed in the "*Forward-Looking Statements*" and elsewhere in this Registration Document.

The mining industry is capital intensive and the development and exploitation of gold reserves, the conversion of resources and the acquisition of machinery and equipment require substantial capital expenditure. In line with its strategy, the Group seeks to implement expansion and improvement plans and to develop exploration prospects, which will involve significant capital expenditure. Furthermore, the Group must continue to invest significant capital to maintain or increase its reserves and the amount of gold that it produces.

As at 31 December 2020, the Group had contractual capital commitments of U.S.$ 29.2 million (compared to U.S.$37.9 million and U.S.$76.4 million as at 31 December 2019 and 2018, respectively) relating to the purchases of property, plant and equipment.

Financing Arrangements

The Group has access to various possible funding sources to finance its operating and capital requirements. For example, the Group raised, *inter alia*:

- U.S.$300 million under a syndicated loan in March 2018 to finance the scheduled redemption of its notes maturing in May 2018;

- U.S.$75 million under a revolving credit facility in April 2018, U.S.$50 million under a revolving credit facility in June 2018 and U.S.$90 million under a revolving credit facility in November 2018 to finance the Group's capital expenditure programmes and for general corporate purposes; and
- U.S.$400 million under a Eurobond issue in October 2019 to partially refinance the Group's indebtedness and for general corporate purposes.

These financing arrangements are described in more detail below under "*Financial Liabilities*".

The Group is regularly in touch with its relationship banks to discuss possible financing opportunities and access to debt capital markets.

There are currently no agreements to which the Group is a party that may trigger additional funding requirements or early payment tied to credit rating, profit or cash flows. See "*Financial Liabilities*" and relevant notes to the Historical Financial Information.

Financial Liabilities

The following tables provide an overview of the Group's financial liabilities as at and for the periods indicated:

	As at 31 December		
(U.S.$'000)	2020	2019	2018
Short-term borrowings			
Bank loans	80,000	—	342,598
Factoring arrangements	49,865	38,038	34,275
Accrued interest	5,180	6,153	4,656
Lease liabilities	6,075	5,872	—
Unamortised balance of transaction costs	—	—	(160)
Total short-term borrowings	**141,120**	**50,063**	**381,369**
Long-term borrowings:			
Bonds issued	400,000	400,000	—
Bank loans	445,000	525,000	576,051

	As at 31 December		
(U.S.$'000)	2020	2019	2018
Lease liabilities	11,469	16,259	—
Unamortised balance of transaction costs	(6,595)	(9,549)	(8,251)
Total long-term borrowings	**849,874**	**931,710**	**567,800**

The Group manages liquidity risk with the objective of ensuring that funds will be available at all times to honour all cash flow obligations as they become due by preparing an annual budget, longer term financial model, by continuously monitoring forecast and actual cash flows and matching the maturity profiles of financial assets and liabilities.

The Group aims to maintain its strong liquidity position by keeping a sufficient level of cash on its balance sheet along with necessary level of credit facilities.

In addition, the Group hedges against currency risks by holding U.S. dollar-denominated debt to correspond to its U.S. dollar-denominated revenues.

Notes and bonds issued

In October 2019, the Group raised U.S.$400 million in a Eurobond issue. The notes were issued by Celtic Resources Holdings DAC, a wholly-owned subsidiary of the Company, and are guaranteed by certain subsidiaries of the Group. The notes are denominated in US Dollars, mature in October 2024, and bear interest of 4.125% per annum payable semi-annually in arrears, on 9 April and 9 October, commencing on 9 April 2020. The notes were admitted to the Official List of Euronext Dublin and traded on the Global Exchange Market of Euronext Dublin from 9 October 2019. The notes were further used for full repayment of short term loans and for repayment of the HSBC loan (as defined below) classified as long term.

Bank loans

In March 2017, the Company's wholly owned subsidiary, Celtic Resources Holdings Limited, arranged an unsecured U.S.$325 million loan from Sberbank of Russia JSC, maturing in March 2024 with a grace period of 60 months and quarterly repayments thereafter. The loan is a hybrid instrument consisting of the following separate components:

(a) *Facility A:* RUB 18.6 billion two-year loan, effective from March 2017 until March 2019 ("**Facility A**");

(b) *CCS:* Cross-Currency swap (the "**CCS**"), under which Celtic Resources Holdings Limited agreed to pay floating interest on U.S. dollars denominated portion of the loan and to receive fixed interest on the Russian rouble denominated portion of the loan, starting from March 2017 with the final notional amounts exchanged on maturity in March 2019;

(c) *Facility B:* U.S.$325 million five-year loan, effective from March 2019 until March 2024 ("**Facility B**").

The CCS is conditional on the utilisation of both Facility A and Facility B. Facility A and the CCS resulted in a cash inflow of U.S.$325 million in March 2017 and quarterly interest payments on the U.S. dollar denominated loan.

In March 2019, the CCS was fully settled resulting in full de-recognition of the derivative financial instrument and Facility A from the statement of financial position and recognition of Facility B treated as a long term borrowing in the amount of U.S.$ 325 million without any cash movements. This resulted in no gain or loss from March 2017 till full settlement of the CCS. As of the date of this Registration Document, the debt under the Facility B has been fully repaid.

In May 2017, the Group entered into a U.S.$75 million unsecured loan with AO UniCredit Bank maturing in May 2020. As of the date of this Registration Document, this loan has been repaid in full.

In March 2018, the Group secured a new U.S.$300 million, five-year debt facility with a group of banks (the "**Syndicated Facility**"). The Syndicated Facility was provided by the following mandated lead arrangers: ING (a branch of ING-DIBA AG), AO Raiffeisenbank, Raiffeisen Bank International AG, PJSC Rosbank, Societe Generale and AO UniCredit Bank. The Syndicated Facility is denominated in U.S. dollars and is maturing in March 2023. As of the date of this Registration Document, the Syndicated Facility has been repaid in full.

In April 2018, the Group took out a U.S.$75 million unsecured uncommitted revolving credit facility with Bank GPB International S.A., an affiliate of GPB Financial Services Hong Kong Limited, with final maturity in April 2020 (the "**GPB Loan**"). As of the date of this Registration Document, this credit facility has been repaid in full.

In June 2018, the Group entered into a U.S.$50 million unsecured committed revolving credit facility with Citibank Europe plc, an affiliate of Citigroup Global Markets Limited, with final maturity in June 2020 (the "**Citibank Loan**"). The amounts drawn down are repayable at different maturities to the final maturity date. Interest is variable and payable on a quarterly basis. In June 2020, the facility was prolonged for two more years till June 2022.

In November 2018, the Group entered into a U.S.$90 million unsecured uncommitted multicurrency revolving credit facility with Sberbank of Russia JSC, which matures in November 2021. The amounts drawn down are repayable at different maturities to the final maturity date.

In May 2019, the Group entered into a U.S.$75 million unsecured committed revolving credit facility with HSBC Bank plc denominated in U.S. dollars, which matures in April 2021 (the "**HSBC Loan**"). The amounts drawn down are repayable at different maturities to the final maturity date. Interest is variable and payable on a quarterly basis. As of the date of this Registration Document, there is no outstanding principal amount withdrawn under this credit facility.

The borrowings' average interest rate as at 31 December 2020 was 3.9% (compared to 4.6% and 4.8% as at 31 December 2019 and 2018, respectively).

The fair value of the Group's debt instruments approximated their carrying values at 31 December 2020, 2019 and 2018 except for the fair value of the bonds which had a market value of U.S.$ 425.5 million as at 31 December 2020.

Unused credit facilities at 31 December 2020 amounted to U.S.$215 million (compared to U.S.$290 million and U.S.$90 million as at 31 December 2019 and 2018, respectively). Uncommitted credit facilities amounted to U.S.$90 and committed credit facilities amounted to U.S.$125 million (compared to U.S.$165 and U.S.$125 as at 31 December 2019, respectively).

On 25 March 2021, the Group obtained a loan linked to its ESG performance from ING Bank, a branch of ING-DIBA AG, Deutsche Bank AG, Amsterdam branch and AO Raiffeisenbank for the aggregate principal amount of U.S.$100,000,000 due in 24 months after its effective date. The margin under the loan is directly linked to the Group's EcoVadis ESG-rating. As of the date hereof, the Group has no outstanding debt under this loan.

Factoring arrangements

As at 31 December 2020, the Group owed the amount of U.S.$38 million to third party financial institutions arising from reverse factoring arrangements in respect of non-metal inventory purchases in West Africa. The liabilities for these purchases were legally transferred from the supplier providing the non-metal inventories to financial institutions during the period. Payments to financial institutions for 2020 amounted to U.S.$123.2 compared to U.S.$ 115.9 million in 2019 and U.S.$ 44.3 million in 2018.

Debt Repayment Schedule

The Company maintains a conservative financial policy and proactively manages its repayments and leverage profile. As at 31 December 2020, the Group had U.S.$ 739.2 million of cash and cash equivalents, U.S.$ 125 million of available committed credit lines and U.S.$ 90 million of available uncommitted credit lines.

The table below sets forth the Group's debt repayment schedule as at 31 December 2020 for the periods indicated:

		(U.S.$m)		
2021	**2022**	**2023**	**2024**	**2025**
80	202	203	441	—

In January 2021, the Group fully repaid the outstanding principal amount of U.S.$200 million under the Syndicated Facility. Therefore, the debt due in 2021 has been fully repaid and the debt due in 2022 has been reduced to U.S.$82 million.

Equity

In order to maintain or adjust its capital structure, the Group, upon approval from the Board, may issue or repurchase shares, pay dividends, or undertake other activities as deemed appropriate under the specific circumstances.

Share capital

As at the date of this Registration Document, the Company's issued share capital consists of 336,263,929 ordinary shares with par value of 0.01 EUR per share amounting to 3,362,639.29 EUR. For more information about historical changes in the Company's share capital, see Part XII: "*Additional Information—Share capital*".

Dividends

Under its dividend policy, the Group intends to pay a minimum dividend of U.S.$400 million in two equal instalments following the release of the Group's financial results for the six months ended 30 June 2021 and the year ended 31 December 2021. Starting from 2022, the Group intends to pay minimum dividends equivalent to 50% of the Group's free cash flow pre-growth capital expenditure, subject to a Net Debt / EBITDA threshold of 1.5x. In any reporting period that the Net Debt / EBITDA ratio increases above 1.5x, the Board will exercise its discretion and may reduce the dividend below the minimum 50% of the Group's free cash flow pre-growth capital expenditure. The Group intends to pay dividends twice a year on a semi-annual basis. In applying this policy, the Board will have regard for a range of factors including the macroeconomic outlook, business performance, balance sheet position and growth outlook of the Company and may exercise its discretion and revise the calculated pay-out either up or down, to the extent these factors substantially impact the Company.

The following table sets forth the breakdown of dividends paid by the Group for the periods indicated:

	Cents per share	U.S.$'000	Accrued and paid in
Final dividend 2017	5	15,261	2018
Interim dividend 2018 Q1	3	11,226	2018
Interim dividend 2018 Q2	3	9,635	2018
Interim dividend 2018 Q3	3	9,262	2018
Final dividend 2018	1	4,304	2019
Final dividend 2019	16	53,300	2020
Total dividends for the year ended 31 December 2018			**45,384**
Total dividends for the year ended 31 December 2019			**4,304**
Total dividends for the year ended 31 December 2020			**53,300**

On 18 March 2021, the Board approved a final dividend of 0.2 U.S. cents per share in respect of 2020, representing a total pay-out of U.S.$ 0.8 million.

Related party transactions and balances

Overview

In 2020, the Group's transactions with entities under common control mainly included purchases of goods and services and amounted to U.S.$6.0 million, compared to U.S.$14.5 million in 2019 and U.S.$9.4 million in 2018.

Related Party Balances

As at 31 December 2020, 2019 and 2018, balances with entities under common control included accounts payable of U.S.$ 1.2 million, U.S.$ 2.3 million and U.S.$3.6 million, respectively, all of which were to be settled in cash.

As at 31 December 2020, 2019 and 2018, the Group had no short-term or long-term loans, including any accrued interest, from related parties.

For more information about historical related party transactions and balances, see Part XII: "*Additional Information—Related party transactions and other arrangements*".

Critical accounting judgements and key sources of estimation uncertainty

The following are the critical judgements, apart from those involving estimations (which are dealt with separately below), that management have made in the process of applying the Group's accounting policies and that have the most significant effect on the amounts recognised in the consolidated financial statements.

Assessment of indicators of impairment or impairment reversal

The Group considers both external and internal sources of information in assessing whether there are any indications that its cash generating units ("CGUs") are impaired. External sources of information include changes in the market, economic and legal environment in which the Group operates that are not within its control. Internal sources of information include the manner in which mining properties and plant and equipment are being used or are expected to be used and indicators of economic performance of such assets. Judgement is therefore required to determine whether these updates represent significant changes in the service potential of an asset or CGU, and are therefore indicators of impairment or impairment reversal.

Assets (other than goodwill) that have previously been impaired must also be assessed for indicators of impairment reversal. Such assets are, by definition, carried on the balance sheet at a value at or close to their recoverable amount at the last assessment. Therefore in principle any change to operational plans, economic parameters, or the passage of time, could result in further impairment or impairment reversal if an indicator is identified. Significant operating assets that the Group has previously impaired include Lefa, Taparko, Buryatzoloto, Berezitovy and Suzdal, with a combined carrying value of U.S.$637.1 million within property, plant and equipment and intangible assets as at 31 December 2020.

Determination of significant influence in Cardinal Resources Limited

In March 2020, the Group acquired 19.9% in Cardinal Resources Limited. The fair value of a 19.9% interest in Cardinal Resources Limited was recognised by the Group on the basis of the management judgment that a 19.9% did not represent significant influence in Cardinal Resources Limited. The management judgments was based on the facts that the Company had no representation on the Board of Directors of Cardinal Resources Limited, did not participate in policy-making processes, had no material transactions with Cardinal Resources Limited and had no any interchange of managerial personnel.

Between July and September 2020, the Group acquired additional shares in Cardinal Resources Limited resulting in the Group's interest increasing to 27.8%. The management considered that the Group had obtained significant influence in Cardinal Resources Limited. As a result thereof, the investment in Cardinal Resources Limited was reclassified to investment in associate at an initial value of U.S.$102.1 million as at 2 September 2020, when the Company obtained significant influence. The total revaluation amount recognised in other comprehensive income before reclassification to the investment in associate was U.S.$ 39.9 million.

Functional currency

The Group performs an analysis of the currencies in which each subsidiary primarily generates and expends cash and the currency of any financing facilities. This involves an assessment of the currency in which sales are generated and operational and capital expenditures are incurred, and currency in which external and internal borrowing costs are denominated. Management makes judgements in defining the functional currency of the Group's subsidiaries based on economic substance of the transactions relevant to these entities. For each of the Group's consolidated entities, management performed analysis of relevant factors that are indicators of functional currency and, based on the analysis performed, determined functional currency, accordingly. The Group concluded that the functional currency for each of the operating subsidiaries, except for Lefa, is the currency of their jurisdiction.

The functional currency of Lefa was concluded to be the United States Dollar reflecting a higher proportion of expenditure being denominated in US dollars and the use of US dollar financing arrangements.

Treatment of the Lefa mining convention

In 2018 and 2020, a 15% interest in SMD, a subsidiary of the Group which owns the Lefa mine, was transferred by the Group to the government of Guinea in accordance with SMD/DGM Convention de Base (as amended), which requires the Guinean government to hold 15% of the share capital of SMD (see Part VI: "*Regulatory Overview—Republic of Guinea—SMD/DGM Convention de Base*"). The fair value of a 15% interest in SMD of U.S.$ 21.1 million was recognised by the Group through the income statement in 2018 on the basis of the management judgment that no incremental asset had been secured by the Group notwithstanding the renewal of an existing right to continue operating and the future tax impacts on the Group are not quantifiable. This resulted in the recognition by the Group of a U.S.$ 21.1 million loss on partial disposal of subsidiary in 2018. Expenses relating to this extension, amounting to U.S.$ 14.7 million, were also recognised as loss on partial disposal of subsidiary in 2018.

Key sources of estimation uncertainty

The key assumptions concerning the future, and other key sources of estimation uncertainty at the reporting period, that may have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are discussed below.

Estimating recoverable amounts

Calculation of the recoverable amounts of the Group's CGUs, for those assets with indicators of impairment and/or impairment reversals at the reporting date, requires management to make estimates with respect to future production levels, operational and capital costs, future gold prices, foreign exchange rates, discount rates and the renewal of any expiring mining licences. Any changes in any of the estimates used in determining the recoverable amounts could impact the recoverable amount, and impairment and reversal analysis. As at 31 December 2020, management performed impairment valuation tests for those CGUs where impairment indicators were identified. The estimates adopted in those valuation tests, as well as the relevant sensitivity analysis, are disclosed in the "*Impairment of Non-Current Assets*" note to the Historical Financial Information.

Other sources of estimation uncertainty Other sources of estimation uncertainty reflect those sources of estimation of which management believes users should be aware, but which are not judged to have a significant risk of resulting in a material adjustment to the carrying amount of assets and liabilities within the next financial year. Other sources of estimation uncertainty include mineral reserves assessment and LOM plans, environmental provision, recoverability of indirect taxes, valuation of gold stockpiles and gold-in-process.

Risks and Uncertainties

The Group's senior management is responsible for developing the Group's overall risk strategy and the policies that support it. The risk strategy and policies are then reviewed by the Board.

The Group has established comprehensive risk management policies to identify and analyse the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities.

The Board monitors compliance with the Group's risk management policies and procedures and review the adequacy of the risk management framework in relation to the risks faced by the Group.

The Group's activities expose it to the following risks:

- Credit risk;
- Liquidity risk;
- Market risk;
- Currency risk; and
- Interest rate risk.

Presented below is information about the Group's exposure to each of the above risks, the Group's objectives, policies and processes for measuring and managing risk.

Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group's maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position, and arises principally from the Group's cash and cash equivalents, trade and other receivables, loans given and short-term deposits.

To minimise Group's exposure to credit risk management undertakes the following:

(a) a substantial portion of gold sales are made to banks on immediate payment terms, therefore the credit risk related to trade receivables is minimal;

(b) the Group does not provide significant loans to third parties; and

(c) the majority of the Group's cash and cash equivalents are placed in reputable banks that have credit ratings not lower than "B" from Moody's credit rating agency.

The credit risk on liquid funds is limited because the counterparties are banks with high credit ratings assigned by international credit rating agencies. As at 31 December 2020, the Group had a concentration of cash and cash equivalents and bank deposits with Sberbank in the amount of U.S.$ 527.2 million (compared to U.S.$ 141.2 million as at 31 December 2019 and U.S.$ 20.8 million as at 31 December 2018).

As at 31 December 2020, the Group had a concentration of restricted cash with Banque Centrale des États de l'Afrique de l'Ouest in amount of U.S.$15.8 million (compared to U.S.$14.3 million as at 31 December 2019 and U.S.$12.3 million as at 31 December 2018).

Liquidity Risk

The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and matching the maturity profiles of financial assets and liabilities. For further details in respect of the periods under review, see "*Liquidity risk*" in the "Financial Risk Management" note to the Historical Financial Information.

Market Risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices, will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimising the return.

Commodity Prices Risk

The Group is exposed to commodity prices risk. Future gold price influences the Group's future profitability and the recoverability of assets. The Group does not use derivatives to mitigate its exposure to commodity price risk. The Group monitors gold price trends and regulates sales policy accordingly.

Management believes 20% change in gold price can be reasonably expected considering gold price movements during 2020. A 20% decrease of gold price would have decreased profit after tax for the year ended 31 December 2020 by U.S.$ 291.6 million or by U.S.$ 251.6 million for profit after tax for the year ended 31 December 2019 and by U.S.$ 94.5 million for the year ended 31 December 2018.

Currency Risk

Currency risk arises when the Group entity enters into transactions and balances not denominated in its functional currency. The Group has assets and liabilities denominated in several foreign currencies. Foreign currency risk arises when the actual or forecasted assets in a foreign currency are either greater or less than the liabilities in that currency.

The Group is mainly exposed to changes in the following currencies: U.S. dollar, Russian rouble, Guinean franc and Central African franc. Group's exposure to other foreign currency risk includes exposures to changes in the following currencies: Euro, Canadian dollar, South African rand, Kazakhstani tenge, Norwegian krone, Australian dollar, British pound.

Management believes that a 20% change in foreign currencies can reasonably be expected considering the currency rates movements during 2020. The sensitivity analysis was applied to monetary items at the reporting dates denominated in the foreign currencies and assumes that all variables other than foreign exchange rates remain constant.

A 20% weakening of the following currencies as at 31 December 2020, 2019 and 2018 would have increased / (decreased) profit and equity by the amounts shown below:

	As at 31 December		
	2020	2019	2018
USD	(59,788)	13,806	35,915
RUB	(4,769)	(3,343)	(3,897)
GNF	3,490	2,571	2,608
CFA(XOF)	79	(6,040)	(9,484)
EUR	(851)	(12,931)	1,668
AUD	(19,939)	(34)	(16)
Other	456	771	788
Total	**(81,322)**	**(5,200)**	**27,582**

A 20% weakening of the same currencies as at 31 December 2020, 2019 and 2018 would have an opposite increase/ (decrease) impact on profit and equity.

Transactions in foreign currencies are translated to the functional currency of each entity at the foreign exchange rate ruling on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the reporting date are translated to the functional currency of each entity at the foreign exchange rate ruling at that date. Non-monetary assets and liabilities denominated in foreign currencies are translated to the functional currency of the entity at the foreign exchange rate ruling at the date of the transaction. Foreign exchange gains and losses arising on the translation are recognised in the income statement.

For details of foreign currency exposure in respect of the periods under review, see "*Currency risk*" in the "Financial Risk Management" note to the Historical Financial Information.

Interest Rate Risk

Interest rates on the Group's debt finance are either fixed or variable at a fixed spread over LIBOR for the duration of the contract. Changes in interest rates impact borrowings by changing their fair value (fixed rate debt) or future cash flows (variable rate debt). Management does not have a formal policy of determining how much of the Group's exposure should be to fixed or variable rates. When raising new financing, management uses its judgement to decide whether fixed or variable rate would be more favourable over the expected period until maturity.

The Group's interest-bearing financial instruments at variable rates were:

	As at 31 December		
	2020	2019	2018
Financial liabilities at interest with fixed spread over LIBOR	(525,000)	(525,000)	(918,649)
Net position	**(525,000)**	**(525,000)**	**(918,649)**

Management believes that a 100 basis points change in interest rates can reasonably be expected considering interest rates movements during 2020. A change of 100 basis points in variable interest rates would increase/ (decrease) profit for the year ended 31 December 2020 by U.S.$ 4.2 million. This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

Contingencies

A significant portion of the Group's operations is based in the Russian Federation and is consequently exposed to the economic and political effects of the policies adopted by the Russian Federation government. Operations in the Russian Federation involve risks that typically do not exist in other markets. In addition, the contraction in the capital and credit markets and its impact on the Russian economy has further increase the level of economic uncertainty in the environment.

Starting from 2014, sanctions have been imposed in several packages by the U.S. and the EU on certain Russian officials, businessmen and companies. This led to reduced access of the Russian Federation businesses to international capital markets, economic recession and other negative consequences. The impact of further economic developments on future operations and financial position of the Group's Russian subsidiaries is difficult to determine at this stage. No impact of these circumstances is expected on the Group's subsidiaries located in other countries.

The Group also conducts business in Kazakhstan, Burkina Faso and Guinea. Each of these countries are subject to significant economic, political and social risks. These risks include matters arising from the policies of the government, economic conditions, the imposition of, or changes to, taxes and regulations, foreign exchange fluctuations and the enforceability of contract rights.

The historical financial information reflects management's assessment of the impact of the Russian, Kazakhstan, Burkina Faso and Guinean business environment on the operations and the financial position of the Group. The future developments in political and economic environment in the countries where the Group operates may differ from management's assessment.

Starting from early 2020 a new coronavirus disease (COVID-19) has begun spreading rapidly all over the world resulting in the announcement of the pandemic status by the World Health Organization in March 2020. Responses put in place by many countries to contain the spread of COVID-19 are resulting in significant operational disruption for many companies and have significant impact on global financial markets. As the situation is rapidly evolving it may have a significant effect on business of many companies across a wide range of sectors, including, but not limited to such impacts as disruption of business operations as a result of interruption of production or closure of facilities, supply chain disruptions, quarantines of personnel, reduced demand and difficulties in raising financing.

Currently there is no significant effect of COVID-19 on the Group's operations but the effect largely depends on the duration and the incidence of the pandemic effects on the world economy, which cannot be reasonably predicted. The Company continues to monitor the situation. No impairments were recorded as of 31 December 2020, as no triggering events or changes in circumstances had occurred.

Taxation Systems and Tax Contingencies in the Russian Federation, Kazakhstan, Burkina Faso and Guinea

The taxation system and regulatory environment of the Russian Federation, Kazakhstan, Burkina Faso and Guinea are relatively new and characterised by frequently changing legislation, which is often unclear, contradictory and subject to varying interpretations between the differing regulatory authorities and jurisdictions. Events during recent years suggest that the regulatory authorities within these countries are adopting a more assertive stance regarding the interpretation and enforcement of legislation. This situation creates substantial tax and regulatory risks.

As at 31 December 2020, management has identified the following tax risks where unfavourable outcome was assessed as possible:

Burkina Faso

Total amount of various tax risks of the Group's entities located in Burkina Faso which may lead to negative consequences was estimated at U.S.$ 5.3 million (compared to nil as at 31 December 2019 and U.S.$9.3 million as at 31 December 2018).

Guinea

Total amount of tax risks of SMD located in Guinea which may lead to negative consequences was estimated at U.S.$ 42.6 million (compared to U.S.$34.0 million as at 31 December 2019 and U.S.$31.5 million as at 31 December 2018).

Other jurisdictions

Guinor Gold Corporation, a subsidiary of the Group, which is a Canadian tax resident, is exposed to zero tax risks (compared to U.S.$3.7 million as at 31 December 2019 and U.S.$15.0 million as at 31 December 2018).

The Group believes that it has complied in all material respects with all relevant legislation and will sustain its tax position if challenged by the tax authorities.

Litigation

The Group operates in various jurisdictions, and accordingly is exposed to numerous legal risks. The Group entities are currently and may be from time to time involved in a number of legal proceedings, including inquiries from and discussions with governmental authorities that are incidental to their operations. The material current proceedings related to taxation are discussed below. The outcome of currently pending and future proceedings cannot be predicted with certainty. An adverse decision in a lawsuit could result in additional costs and could significantly influence the business and results of operations. At 31 December 2020, the Company's management estimated the total amount of potential non-tax legal proceedings at U.S.$3.8 million (compared to U.S.$0.4 million as at 31 December 2019 and U.S.$0.8 million as at 31 December 2018). No provision has been recognised in the consolidated financial statements as management does not consider that there is any probable loss.

See Part I: "*Risk Factors—Risks Relating to the Jurisdictions in which the Group Operates*—The on-going development of the legal framework in the jurisdictions in which the Group operates creates an uncertain environment for investment and business activity." and Part XII: "*Additional Information—Litigation*".

PART XI
HISTORICAL FINANCIAL INFORMATION

Section A: Accountant's report on the Historical Financial Information

1 New Street Square
London
EC4A 3HQ

The Board of Directors
on behalf of Nord Gold plc
4th Floor, 27 Dover Street
Mayfair
London
W1S 4LZ

3 June 2021

Dear Sirs/Mesdames

Nord Gold plc and, together with its subsidiaries, the "Group"

We report on the financial information for the three-years ended 31 December 2018, 2019 and 2020 set out in Part XI of the registration document dated 3 June 2021 of Nord Gold plc (the "Company") (the "Registration Document"). This report is required by Annex 1 item 18.3.1 of the UK version of the Commission delegated regulation (EU) No 2019/980 (the "Prospectus Delegated Regulation") and is given for the purpose of complying with that requirement and for no other purpose.

Opinion on financial information

In our opinion, the financial information gives, for the purposes of the Registration Document, a true and fair view of the state of affairs of the Group as at 31 December 2018, 2019 and 2020 and of its profits, cash flows and changes in equity for the three years ended 31 December 2018, 2019 and 2020 in accordance with International Financial Reporting Standards as adopted by the European Union.

Responsibilities

The Directors of the Company are responsible for preparing the financial information in accordance with International Financial Reporting Standards as adopted by the European Union.

It is our responsibility to form an opinion on the financial information and to report our opinion to you.

Save for any responsibility which may arise under Prospectus Regulation Rule 5.3.2R(2)(f), we do not assume any responsibility and will not accept any liability to any other person for any loss suffered by any such other person as a result of, arising out of, or in connection with this report or our statement, required by and given solely for the purposes of complying with Annex 1 item 1.3 of the Prospectus Delegated Regulation, consenting to its inclusion in the Registration Document.

Basis of preparation

This financial information has been prepared for inclusion in the Registration Document on the basis of the accounting policies set out in Notes 2 and 3 of the financial information.

Basis of opinion

We conducted our work in accordance with Standards for Investment Reporting issued by the Financial Reporting Council ("FRC") in the United Kingdom. We are independent of the Subject Group in accordance with the FRC's Ethical Standard as applied to Investment Circular Reporting Engagements, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Our work included an assessment of evidence relevant to the amounts and disclosures in the financial information. It also included an assessment of significant estimates and judgments made by those responsible for the preparation of the financial information and whether the accounting policies are appropriate to the entity's circumstances, consistently applied and adequately disclosed.

We planned and performed our work so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial information is free from material misstatement whether caused by fraud or other irregularity or error.

Our work has not been carried out in accordance with auditing or other standards and practices generally accepted in jurisdictions outside the United Kingdom, including the United States of America, and accordingly should not be relied upon as if it had been carried out in accordance with those standards and practices.

Conclusions Relating to Going Concern

In performing this engagement on the financial information, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial information is appropriate.

Our evaluation of the directors' assessment of the Group's ability to continue to adopt the going concern basis of accounting included:

- Assessing the group's cash flow forecasts based on actual cash flow performance in 2020;
- Benchmarking the forecasted gold price assumption against external data and historical levels;
- Reviewing the group's financing facilities and confirming their committed nature, repayment terms and covenants;
- Checking the liquidity and covenant headroom within the model based on the cash flow forecasts and reviewing the model's mechanical accuracy;
- Assessing the sensitivities run by the directors. These sensitivities include a reduction in gold price and production volumes, as well as an increase in total cash cost; and
- Assessing the mitigating actions that could be taken by the directors to maximise liquidity headroom including not paying dividends and a reduction in uncommitted capital expenditure.

Based on the work we have performed, we have not identified any material uncertainties related to events or conditions that, individually or collectively, may cast significant doubt on the Group's ability to continue as a going concern for a period of at least twelve months from 3 June 2021.

Declaration

For the purposes of item 1.2 of Annex 1 of the Prospectus Delegated Regulation we are responsible for this report as part of the Registration Document and we declare that, to the best of our knowledge, the information contained in this report is in accordance with the facts and that the report makes no omission likely to affect its import. This declaration is included in the registration document in compliance with item 1.2 of Annex 1 of the Prospectus Delegated Regulation and for no other purpose.

Yours faithfully

Deloitte LLP

Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 1 New Street Square, London EC4A 3HQ, United Kingdom. Deloitte LLP is the United Kingdom affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients.

CONTENTS

NORD GOLD PLC.

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS
FOR THE YEARS ENDED 31 DECEMBER 2018, 2019 and 2020
(Amounts in thousands of US dollars, except as otherwise stated)

	Note	Year ended 31 December 2018	2019	2020
Revenue	6	1,143,214	1,448,281	1,861,410
Cost of sales		(806,261)	(1,022,795)	(1,093,662)
Gross profit		**336,953**	**425,486**	**767,748**
General and administrative expenses	7	(55,403)	(60,333)	(66,933)
Net impairment charge of non-current assets	9	(39,126)	(129,739)	(42,937)
Gain on disposal of associate	24	—	—	21,320
Loss on partial disposal of subsidiary	25	(35,731)	—	—
Other operating income/(expenses), net		(7,109)	(6,497)	2,159
Profit from operations		**199,584**	**228,917**	**681,357**
Share of post-tax result of associate	24	—	—	(2,209)
Finance income	10	4,284	28,152	881
Finance costs	10	(115,601)	(59,376)	(46,803)
Foreign exchange gain/(loss), net		38,040	(18,833)	24,706
Profit before income tax		**126,307**	**178,860**	**657,932**
Income tax expense	11	(34,412)	(25,022)	(79,763)
Profit for the year		**91,895**	**153,838**	**578,169**
Attributable to:				
Shareholders of the Company		87,663	161,030	568,669
Non-controlling interests		4,232	(7,192)	9,500
Weighted average number of shares outstanding during the year (thousands of shares) - basic and diluted	23	338,589	336,274	336,264
Earnings per share				
Basic and diluted earnings per share (US dollars)	23	0.26	0.48	1.69

NORD GOLD PLC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME/(LOSS)
FOR THE YEARS ENDED 31 DECEMBER 2018, 2019 and 2020
(Amounts in thousands of US dollars, except as otherwise stated)

	Year ended 31 December		
	2018	**2019**	**2020**
Profit for the year	**91,895**	**153,838**	**578,169**
Items that may be reclassified subsequently to profit or loss:			
Foreign exchange (loss)/gain on translation of foreign operations	(191,781)	85,126	(120,263)
Recycling of foreign exchange gain/(loss) on translation of foreign operations related to subsidiary disposal to profit or loss	17,576	(2,149)	1,117
Items that will not be reclassified to profit or loss			
Revaluation of equity investments designated as FVOCI, net of tax	(5,029)	(758)	32,652
Other comprehensive income/(loss) for the year, net of tax	**(179,234)**	**82,219**	**(86,494)**
Total comprehensive income/(loss) for the year	**(87,339)**	**236,057**	**491,675**
Attributable to:			
Shareholders of the Company	(83,751)	243,548	476,109
Non-controlling interests	(3,588)	(7,491)	15,566

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
AS AT 31 DECEMBER 2018, 2019 AND 2020
(Amounts in thousands of US dollars, except as otherwise stated)

	Note	31 December 2018	31 December 2019	31 December 2020
ASSETS				
Current assets				
Cash and cash equivalents	14	90,346	189,891	739,203
Accounts receivable	15	30,007	37,632	34,484
Inventories	16	196,545	219,756	225,731
VAT receivable		72,427	62,118	67,025
Income tax receivable		9,092	18,808	16,861
Total current assets		**398,417**	**528,205**	**1,083,304**
Non-current assets				
Property, plant and equipment	17	1,267,204	1,328,745	1,262,998
Intangible assets	18	671,946	675,464	646,479
Long-term financial investments		3,181	2,961	3,222
Restricted cash	14	16,395	18,993	20,936
Deferred tax assets	11	46,963	36,551	19,884
Inventories	16	88,952	87,419	110,471
VAT receivable		25,404	54,906	46,846
Other non-current assets		10,853	7,028	57
Total non-current assets		**2,130,898**	**2,212,067**	**2,110,893**
Assets held for sale	12	—	12,607	—
TOTAL ASSETS		**2,529,315**	**2,752,879**	**3,194,197**
LIABILITIES AND SHAREHOLDERS' EQUITY				
Current liabilities				
Short-term borrowings	19	381,369	50,063	141,120
Derivative financial instrument	19	58,402	—	—
Accounts payable	20	283,841	297,342	274,056
Income tax payable		9,996	12,072	17,910
Provisions	21	12,891	4,462	5,676
Total current liabilities		**746,499**	**363,939**	**438,762**
Non-current liabilities				
Long-term borrowings	19	567,800	931,710	849,874
Provisions	21	46,333	57,181	59,033
Deferred tax liabilities	11	97,807	83,482	100,680
Other non-current liabilities		8,122	12,825	14,287
Total non-current liabilities		**720,062**	**1,085,198**	**1,023,874**
Liabilities directly associated with assets held for sale	12	—	9,573	—
TOTAL LIABILITIES		**1,466,561**	**1,458,710**	**1,462,636**
Equity				
Share capital	22	464,605	464,577	4,646
Other reserves	22	9,790	10,540	—
Additional paid-in capital	22	761,003	760,957	760,957
Foreign exchange translation reserve		(632,114)	(548,838)	(674,050)
Retained earnings		342,927	499,657	1,507,289
Revaluation reserve		(3,724)	(4,482)	(4,162)
Total equity attributable to shareholders of the Company		**942,487**	**1,182,411**	**1,594,680**
Non-controlling interests		120,267	111,758	136,881
TOTAL EQUITY		**1,062,754**	**1,294,169**	**1,731,561**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**2,529,315**	**2,752,879**	**3,194,197**

NORD GOLD PLC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED 31 DECEMBER 2018, 2019 and 2020
(Amounts in thousands of US dollars, except as otherwise stated)

	Note	Year ended 31 December 2018	2019	2020
Operating activities				
Profit for the year		**91,895**	**153,838**	**578,169**
Adjustments				
Finance income	10	(4,284)	(28,152)	(881)
Finance costs	10	115,601	59,376	46,803
Foreign exchange (gain)/loss		(38,040)	18,833	(24,706)
Income tax expense	11	34,412	25,022	79,763
Depreciation and amortisation		193,403	296,743	323,717
Net impairment of non-current assets	9	39,126	129,739	42,937
Gain on disposal of associate	24	—	—	(21,320)
Loss on partial disposal of subsidiary	25	35,731	—	—
Share of post-tax result of associate	24	—	—	2,209
(Reversal of impairment)/Impairment of work-in-progress recognised in cost of sales		(3,297)	8,261	(7,194)
Net loss on disposal of property, plant and equipment		1,009	1,471	7,054
De-recognition of financial liabilities		—	—	(15,824)
Other adjustments		1,373	(1,196)	4,554
		466,929	**663,935**	**1,015,281**
Changes in operating assets and liabilities:				
Accounts receivable		8,774	26,532	17,832
Inventories		(24,923)	(16,350)	(18,243)
VAT recoverable		(16,220)	(8,187)	(1,869)
Accounts payable		5,455	(1,543)	(3,028)
Other changes in operating assets and liabilities, net		(5,594)	1,488	1,327
Purchases presented in financing activities		44,270	115,856	123,180
Cash flows from operations		**478,691**	**781,731**	**1,134,480**
Interest paid		(62,220)	(48,854)	(41,181)
Interest received		4,279	954	877
Net interest from cross currency swap	19	11,805	2,010	—
Income tax paid		(55,797)	(30,649)	(40,108)
Cash generated from operating activities		**376,758**	**705,192**	**1,054,068**
Investing activities				
Acquisition of property, plant and equipment		(447,023)	(367,130)	(332,882)
Acquisition of exploration and evaluation assets		(41,002)	(50,716)	(46,055)
Acquisition of associate	24	—	—	(62,218)
Proceeds from disposal of associate	24	—	—	120,016
Lefa mining convention renewal	25	(14,651)	—	—
Decrease in short-term deposits		70,000	—	—
Other movements		(7,913)	(4,699)	(1,595)
Cash used in investing activities		**(440,589)**	**(422,545)**	**(322,734)**
Financing activities				
Proceeds from borrowings	19	493,496	460,000	—
Transaction costs paid		(4,713)	(4,234)	—
Repayment of borrowings	19	(532,520)	(630,091)	(128,792)
Dividends paid	13	(48,270)	(5,322)	(54,182)
Acquisition of non-controlling interests		(956)	—	—
Ordinary shares and GDRs buyback	22	(10,659)	(70)	—
Other movements		(2,159)	(1,107)	(1,418)
Cash used in financing activities		**(105,781)**	**(180,824)**	**(184,392)**
Net increase/(decrease) in cash and cash equivalents		**(169,612)**	**101,823**	**546,942**
Cash and cash equivalents at beginning of the year	**14**	**270,402**	**90,346**	**189,891**
Effect of exchange rate fluctuations on cash and cash equivalents		(10,444)	(612)	704
Reclassification of cash and cash equivalents from/(to) assets classified as held for sale	12	—	(1,666)	1,666
Cash and cash equivalents at end of the year	**14**	**90,346**	**189,891**	**739,203**

NORD GOLD PLC.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
FOR THE YEARS ENDED 31 DECEMBER 2018, 2019 and 2020
(Amounts in thousands of US dollars, except as otherwise stated)

	Attributable to the shareholders of the Company									
	Share capital	Other reserves	Treasury shares	Additional paid-in capital	Foreign exchange translation reserve	Retained earnings	Revaluation reserve	Total	Non-controlling interests	Total
Balance at 31 December 2017	**468,873**	**(11,409)**	**—**	**767,995**	**(465,729)**	**302,732**	**1,305**	**1,063,767**	**116,325**	**1,180,092**
Adjustment related to IFRS 9 adoption	—	—	—	—	—	(372)	—	(372)	—	(372)
Balance at 1 January 2018	**468,873**	**(11,409)**	**—**	**767,995**	**(465,729)**	**302,360**	**1,305**	**1,063,395**	**116,325**	**1,179,720**
Profit for the year	—	—	—	—	—	87,663	—	87,663	4,232	91,895
Other comprehensive loss for the year, net of tax	—	—	—	—	(166,385)	—	(5,029)	(171,414)	(7,820)	(179,234)
Total comprehensive loss for the year								(83,751)	(3,588)	(87,339)
Acquisitions of non-controlling interest	—	—	—	—	—	(2,313)	—	(2,313)	(124)	(2,437)
Ordinary shares buyback (Note 22)	—	10,659	(10,659)	—	—	—	—	—	—	—
Treasury shares cancellation (Note 22)	(4,268)	—	10,659	(6,992)	—	601	—	—	—	—
Loss on partial disposal of subsidiary (Note 25)	—	10,540	—	—	—	—	—	10,540	10,540	21,080
Dividends declared and paid (Note 13)	—	—	—	—	—	(45,384)	—	(45,384)	(2,886)	(48,270)
Balance at 31 December 2018	**464,605**	**9,790**	**—**	**761,003**	**(632,114)**	**342,927**	**(3,724)**	**942,487**	**120,267**	**1,062,754**
Profit for the year	—	—	—	—	—	161,030	—	161,030	(7,192)	153,838
Other comprehensive income/(loss) for the period, net of tax	—	—	—	—	83,276	—	(758)	82,518	(299)	82,219
Total comprehensive income/(loss) for the year								243,548	(7,491)	236,057
Ordinary shares buyback (Note 22)	—	70	(70)	—	—	—	—	—	—	—
Treasury shares cancellation (Note 22)	(28)	—	70	(46)	—	4	—	—	—	—
Shares buyback provision reversal (Note 22)	—	680	—	—	—	—	—	680	—	680
Dividends declared and paid (Note 13)	—	—	—	—	—	(4,304)	—	(4,304)	(1,018)	(5,322)
Balance at 31 December 2019	**464,577**	**10,540**	**—**	**760,957**	**(548,838)**	**499,657**	**(4,482)**	**1,182,411**	**111,758**	**1,294,169**
Profit for the year	—	—	—	—	—	568,669	—	568,669	9,500	578,169
Other comprehensive income/(loss) for the period, net of tax	—	—	—	—	(125,212)	—	32,652	(92,560)	6,066	(86,494)
Total comprehensive income/(loss) for the year								476,109	15,566	491,675
Gain on partial disposal of subsidiary (Note 25)	—	(10,540)		—	—	—	—	(10,540)	10,540	—
Reclassification within reserves in equity on disposal of associate (Note 24)	—	—		—	—	32,332	(32,332)	—	—	—
Capital reduction (Note 22)	(459,931)	—	—	—	—	459,931	—	—	—	—
Dividends declared and paid (Note 13)	—	—		—	—	(53,300)	—	(53,300)	(983)	(54,283)
Balance at 31 December 2020	**4,646**	**—**	**—**	**760,957**	**(674,050)**	**1,507,289**	**(4,162)**	**1,594,680**	**136,881**	**1,731,561**

1. OPERATIONS

Nord Gold plc. (the "Company") is a Company incorporated and domiciled in the United Kingdom under the Companies Act 2006. The Company is a public company limited by shares and is registered in England and Wales. The address of the Company's registered office is Fourth Floor, 27 Dover Street, Mayfair, London, England, W1S 4LZ.

The company was previously known as Nord Gold SE, prior to conversion by operation of law to a plc. on 31 December 2020, following the end of the Brexit transition period.

As at 31 December 2020, 2019 and 2018, the immediate parent company of the Company was Ocean Management Ltd (the "Parent Company"), registered in Cyprus. As at 31 December 2020 and 2019 the ultimate parent companies are Severgroup LLS and KN-Holdings Limited, registered in the Russian Federation. As at 31 December 2018 the ultimate parent company was Severgroup, registered in Russian Federation. The controlling shareholders of the Company are Mr. Alexey A. Mordashov and his sons, Mr. Kirill A. Mordashov and Mr. Nikita A. Mordashov.

The principal activity of the Company and its subsidiaries (together referred to as the "Group") is the extraction, refining and sale of gold. Mining and processing facilities are located in Burkina Faso, Guinea, the Republics of Buryatia and Sakha (Yakutia) and the Amur and Transbaikal regions of the Russian Federation and in Kazakhstan. Detailed information about the Group's subsidiaries is presented in Note 25.

2. BASIS FOR PREPARATION OF THE HISTORICAL FINANCIAL INFORMATION

Statement of compliance

This Historical Financial Information has been prepared for the inclusion in the registration document of Nord Gold plc. solely to provide information about the issuer. This Historical Financial Information has been prepared in accordance with the UK version of commission delegated regulation (EU) 2019/980 of the European Parliament and of the Council which is part of the UK law by virtue of the European Union (Withdrawal) Act of 2018 and in accordance with this basis of preparation. All accounting policies have been applied consistently, unless otherwise stated.

The Historical Financial Information has been approved for issue by the Board of Nord Gold plc. on 3 June 2021.

Basis of measurement and presentation

The historical financial information is prepared under the historical cost convention except for financial investments classified as debt/equity investments assets designated as fair value through other comprehensive income ("FVOCI") and financial instruments, which are measured at revalued amounts or fair value at the end of each reporting period. Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

The presentation currency of these historical financial information is the US dollar. All figures are in $000's unless otherwise specified.

Going concern

The historical financial information have been prepared on the going concern basis as the Directors have, at the time of approving the financial statements, a reasonable expectation that the Company and the Group have adequate resources to continue in operational existence for at least the next 12 months.

In assessing its going concern status, the Group has taken account of its financial position, anticipated future trading performance, including the possible impact of Covid-19, its borrowings and other available credit

facilities, its forecast compliance with covenants on those borrowings and its capital expenditure and financial commitments and plans. As at 31 December 2020, the Group held US$ 739.2 million of cash and cash equivalents and had net debt of US$ 251.8 million.

The Board of Directors is satisfied that the Group's forecasts and projections, having taken account of reasonably possible changes in trading performance, show that the Group has adequate resources to continue in operational existence for at least the next twelve months from the date of this report without material uncertainty and that it is appropriate to adopt the going concern basis in preparing the historical financial information for the year ended 31 December 2020.

Adoption of new and revised accounting standards

Amendments to accounting standards that are mandatory effective for the 2018, 2019 and 2020

IFRS 9 Financial Instruments

The Group applied IFRS 9 from 1 January 2018. The new standard was applicable to financial assets and financial liabilities, and covered the classification, measurement, impairment and de-recognition of financial assets and financial liabilities together with a new hedge accounting model.

The Group undertook a detailed accounting impact analysis of the new standard based on the nature of the financial instruments it held and the way in which they were used. The changes for the Group following the adoption of IFRS 9 were as follows:

- Classification and measurement: IFRS 9 established a principles based approach to determining whether a financial asset should be measured at amortised cost or fair value, based on the cash flow characteristics of the asset and the business model in which the asset was held. The Group concluded that the classification and measurement basis for its existing financial assets and liabilities remained unchanged under the new IFRS 9 model.
- Impairment: Based on the Group's assessment, the introduction of an 'expected credit loss model' for the assessment of impairment for financial assets held at amortised cost did not have a material impact on the Group's statement of financial position or results, given the relatively low exposure to counterparty default risk as a result of the credit risk management processes that were in place for financial assets. The financial impact on initial adoption was to recognize a pre-tax impairment of US$0.4 million on the Group's consolidated receivables (principally trade receivables). The difference between the previous carrying amount and the impaired carrying amount at 1 January 2018 was recognised through opening retained earnings. Subsequently no significant impact on net income is expected from applying the new impairment model. As the simplified approach was applied, the Group does not track changes in credit risk, but recognises a loss allowance based on the financial asset's lifetime expected credit loss.
- Hedge accounting: On initial application of IFRS 9 an entity could choose, as its accounting policy, to continue to apply the hedge accounting requirements of IAS 39 instead of the hedge accounting requirements of IFRS 9. The adoption of the new standard did not impact the Group as at 1 January 2018 as it held no existing hedging arrangements, but could provide scope to apply hedge accounting to a broader range of transactions in the future.

IFRS 15 Revenue from Contracts with Customers

IFRS 15 established a single comprehensive model for entities to use when accounting for revenue arising from contracts with customers. IFRS 15 superseded the revenue recognition guidance including IAS 18 Revenue, IAS 11 Construction Contracts and the related Interpretations being effective for accounting periods beginning on or after 1 January 2018.

The core principle of IFRS 15 was that an entity should recognise revenue in a manner that depicts the pattern of when contractually agreed performance obligations are completed for customers. Performance obligations were

defined as "distinct" goods or services. The revenue amount recognised should reflect the consideration amount to which the entity expect to be entitled in exchange for those contractual performance obligations. The standard requires entities to apportion revenue earned from contracts to individual performance obligations on a relative standalone selling price basis, based on a five-step model. Under IFRS 15, an entity recognises revenue when (or as) a performance obligation is satisfied, i.e. when 'control' of the goods or services underlying the particular performance obligation is transferred to the customer.

Under IFRS 15, the revenue recognition model changed from one based on the transfer of risk and reward of ownership to the transfer of control. The Group's revenue is primarily derived from gold sales, for which the point of revenue recognition is dependent on the contractual sales terms. As the transfer of risks and rewards under IAS 18 coincided with the transfer of control at a point in time under IFRS 15 per the Group's existing gold sales contractual terms, the timing and amount of revenue recognised by the Group was not materially affected. The key judgements in reaching this conclusion were that the control of all goods and services (transferred to the customer under a gold sales contract) was satisfied at the point in time when gold delivery was made to the customer and there were no materially distinct performance obligations.

Adoption of IFRS 15 had no impact on the Group's net income, net assets or financial key performance indicators for 2018.

IFRS 16 Leases

The Group adopted IFRS 16 'Leases' from 1 January 2019. IFRS 16 introduced new or amended requirements with respect to lease accounting. It introduced significant changes to the lessee accounting by removing the distinction between operating and finance lease, requiring the recognition of a right-of-use asset and a lease liability at commencement for all leases, except for short-term leases and leases of low value assets.

The Group was not party to any leases where it acts as a lessor, but the Group did have a number of material property and equipment leases.

In accordance with the transition provisions of IFRS 16, for contracts entered into before 1 January 2019, the requirements of the standard were applied only to contracts previously identified as leases in accordance with IAS 17: 'Leases'. For contracts entered into or changed after that date the definition of a lease in IFRS 16 was applied.

On application of IFRS 16 comparative information was not restated.

Details of the Group's accounting policies under IFRS 16 are set out below, followed by a description of the impact of adopting IFRS 16.

Accounting policies under IFRS 16 Leases

The Group utilised the recognition exemptions for both short-term leases applicable to machinery, property and exploration and production assets that have a lease term of 12 months or less and for leases of low value assets. The lease payments associated with those leases were recognised as an expense on a straight-line basis over the lease term. The Group also applied wherever applicable the following transition allowances:

- application of a single discount rate to a portfolio of leases with reasonably similar characteristics;
- election not to apply the measurement requirements of the standard to leases where the term ends within 12 months of the date of initial application; and
- exclusion of initial direct costs from the measurement of the right of use asset at the date of initial application.

On transition, the Group measured lease liabilities for leases previously assessed as operating at the present value of the remaining lease payments and elected to measure the associated right-of-use assets at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

Application of IFRS 16, resulted in the recognition of US$ 10.1 million of total lease liabilities and right-of-use assets on 1 January 2019.

Right-of-use assets are presented in property, plant and equipment on the Statement of Financial Position. Lease liabilities are included in short-term and long-term borrowings.

A reconciliation of the operating lease commitment at 31 December 2018 to the opening IFRS 16 lease liability is shown below:

Operating lease commitments at 31 December 2018	**13,269**
Short-term and low value lease commitments straight-line expensed under IFRS 16	(1,158)
Effect of discounting	(2,053)
Lease liabilities recognised at 1 January 2019	**10,058**

In 2019 the weighted average incremental borrowing rate used by the Group for IFRS 16 is 4.8%. In 2020 the weighted average incremental borrowing rate used by the Group for IFRS 16 is 3.9%.

The Consolidated Statement of Profit and Loss and the Consolidated Statement of Financial Position for the year ended 31 December 2018 continues to be reported in accordance with IAS 17 and the accounting policies applicable for this year are included in the Group historical financial information for the year ended 31 December 2018.

Definition of a lease based on IFRS 16 requirements

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group assesses whether:

- the contract involves the use of an identified asset;
- the Group has the right to obtain substantially all the economic benefits from use of the asset throughout the period of use; and
- the Group has the right to direct the use of the asset.

As a lessee

The Group recognises a right of use asset and a lease liability at the lease commencement date. The right of use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The estimated useful lives of right-of-use assets are determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. The Group uses its incremental borrowing rate as the discount rate.

The lease liability is subsequently measured at amortised cost using the effective interest method. It is re-measured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, or if the Group changes its assessment of whether it will exercise a purchase, lease-term extension or termination option.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use of asset or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

For short-term leases (lease term of 12 months or less) and leases of low-value assets (such as personal computers and office furniture), the Group will opt to recognise a lease expense on a straight-line basis within Cost of sales as permitted by IFRS 16.

New and revised accounting standards and interpretations in issue but not yet effective

In 2020, the Group has adopted new and amended IFRSs and interpretations listed below. Adoption of these standards did not have any significant effect on the financial performance or position of the Group as at 31 December 2020.

- Amendments to IFRS 3: Definition of a business
- Amendments to IAS 1 and IAS 8 (Oct 2018): Definition of Material
- Amendments to IFRS 9, IAS 39 and IFRS 7: Interest Rate Benchmark Reform
- Amendments to IFRS 16: COVID-19-Related Rent Concessions
- Amendments to References to the Conceptual Framework in IFRS Standards

As at 31 December 2020, the following Standards and Interpretations which have not been applied in these historical financial information were in issue but not yet effective (and in some cases had not yet been adopted by the EU):

International Accounting Standards (IFRS / IAS)	IASB effective date - periods commencing on or after
New standards	
IFRS 17 Insurance Contracts	1 January 2023
Amended standards	
Amendments to IAS 16: Property, Plant and Equipment - Proceeds before Intended Use	1 January 2022
Annual Improvements to IFRS Standards 2018–2020 (May 2020)	1 January 2022
Amendments to IFRS 3 (May 2020): Reference to the Conceptual Framework	1 January 2022
Amendments to IAS 37 (May 2020): Onerous Contracts - Cost of Fulfilling a Contract	1 January 2022
Amendments to IAS 1: Classification of liabilities as current or non-current	1 January 2023

The Directors do not expect that the adoption of the Standards listed above will have a material impact on the financial statements of the Group in future periods.

3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

These accounting policies have been consistently applied throughout the Group for all periods presented in these historical financial information.

Basis of consolidation

Subsidiaries

Subsidiaries are entities controlled by the Group. The financial statements of subsidiaries are included in these historical financial information from the date that control commences until the date that control ceases.

The accounting policies of subsidiaries have been changed when necessary to align them with the policies adopted by the Group. Losses applicable to the non-controlling interests in a subsidiary are allocated to the non-controlling interests even if doing so causes the non-controlling interests to have a deficit balance.

Intra-group balances and transactions, and any unrealised gains arising from intra-group transactions, are eliminated in preparing these historical financial information; unrealised losses are also eliminated unless the transaction provides an evidence of impairment of the asset transferred.

Acquisition of additional interest in subsidiaries

No goodwill is recognised where the Group acquires additional interests in subsidiaries. The difference between the share of net assets acquired and the cost of investment is recognised directly in equity.

Investments in associates

Investments in associates are consolidated using equity method accounting when the investment is initially recognised at cost and adjusted thereafter for the post-acquisition change in the investor's share of the investee's net assets. The investor's profit or loss includes its share of the investee's profit or loss.

Foreign currencies

The functional currency of each of the Group`s entities is determined separately.

For all Russian Federation entities, the functional currency is the Russian Rouble, the functional currency of the Group's entities located in Kazakhstan is the Kazakh Tenge, the functional currency for Burkina Faso entities is the Communaute Financiere Africaine Franc and the functional currency for Guinea is the US Dollar.

The translation into the presentation currency is made as follows:

- All assets and liabilities, both monetary and non-monetary, are translated at the closing exchange rates at the dates of each statement of financial position presented;
- All income and expenses in each statement of profit or loss are translated at the average exchange rates for the periods presented; and
- All resulting exchange differences are recognised as a separate component in other comprehensive income.

Foreign exchange gains and losses arising on such translation are recognised in the consolidated statement of comprehensive income or loss.

Any conversion of amounts into US Dollars should not be interpreted as a representation that such amounts have been, could be, or will be in the future, convertible into US dollars at the exchange rates used, or any other exchange rate. Transactions in foreign currencies are translated to the functional currency of each entity at the foreign exchange rate ruling on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the reporting date are translated to the functional currency of each entity at the foreign exchange rate ruling at that date. Non-monetary assets and liabilities denominated in foreign currencies are translated to the functional currency of the entity at the foreign exchange rate ruling at the date of the transaction. Foreign exchange gains and losses arising on such translation are recognised in the consolidated statement of profit or loss.

Property, plant and equipment

Property, plant and equipment ("PP&E") are carried at cost less accumulated depreciation and accumulated impairment losses or at fair value when acquired as part of a business combination. Cost includes expenditure that is directly attributable to the acquisition of the asset and, for qualifying assets, borrowing costs capitalised in accordance with the Group's accounting policy. In the case of assets constructed by the Group, related works and direct project overheads are included in cost together with revenues received during the ramp-up stage for the

new mine construction. The cost of replacing part of an item of PP&E is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the part will flow to the Group and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. Repair and maintenance expenses are charged to the consolidated statement of profit or loss as incurred. Gains or losses on disposals of property, plant and equipment are recognised in the consolidated statement of profit or loss.

Assets previously being under construction are transferred from construction in progress to fixed assets and depreciated as soon as project production indicators are achieved. Particular production indicators are considered for each project separately depending on its technological specifics.

Capital expenditures for mine development works (pit opening, construction of capital mine workings and ore production stripping activity) are accounted for as buildings and construction.

Stripping activity related to pre-production phase is included in construction in progress. When the production phase begins it is transferred to Capital stripping assets group and depreciated using units-of-production. Production phase begins when the gold production volumes and other production parameters of a newly constructed mine are within the project expectations.

Depreciation is provided so as to write off property, plant and equipment over its expected useful life. Depreciation is calculated using the straight-line method for all the groups of PP&E, except for Capital stripping assets, where units-of-production method is used. The estimated useful lives of assets are reviewed regularly and revised.

The principal periods over which assets are depreciated are as follows:

Land, buildings and constructions	5 - 50 years
Plant and equipment	5 - 20 years
Other assets	1 - 20 years

For assets of the newly acquired entities the periods for depreciation are determined in accordance with the terms above taking into consideration the period of previous usage.

Impairment of property, plant and equipment and mineral rights

At each statement of financial position date, the Group reviews the carrying amounts of its property, plant and equipment and associated mineral rights to determine whether there is any indication that those assets are impaired. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of any impairment. Where the asset does not generate cash flows that are independent from other assets, the Group estimates the recoverable amount of the cash generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or cash generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (or cash generating unit) is reduced to its recoverable amount. An impairment loss is recognised immediately in the consolidated statement of profit or loss.

Where an impairment loss subsequently reverses, the carrying amount of the asset (or cash generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (or cash generating unit) in prior years. A reversal of an impairment loss is recognised immediately in the consolidated statement of profit or loss.

Intangible assets (excluding goodwill)

Recognition and amortisation

Intangible assets acquired by the Group are measured on initial recognition at cost or at fair value when acquired as part of a business combination. Following initial recognition, intangible assets are carried at cost less accumulated amortisation and accumulated impairment losses.

Intangible assets are amortised over the estimated useful lives using the straight-line basis and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The estimated useful life and amortisation method are reviewed at the end of each annual reporting period, with the effect of any changes in estimate being accounted for on a prospective basis.

Mineral rights

Mineral rights are recorded as intangible assets when acquired as part of a business combination or when reclassified from exploration and evaluation assets.

Mineral rights are amortised over their useful life. The useful life is assessed on the basis of terms set up by the mineral license (contract) and estimated mineral reserves and resources subject to such license (contract). The remaining useful life of each mineral right is reassessed annually on the basis of the latest life-of-mine models.

Based on current mineral licenses (contracts) terms and available estimations of mineral reserves and resources useful lives of the Group's mineral rights vary from 2 to 15 years.

Amortisation of mineral rights is charged to cost of sales for the period.

Exploration and evaluation assets

Recognition and measurement

Exploration and evaluation assets are generated during exploration and evaluation works aimed to search for new mineral deposits at new or existing license (contract) areas (for extension of the mineral basis) after the Group may obtain the right to extract these new deposits.

An exploration and evaluation asset is no longer treated as such when the technical feasibility and commercial viability of extracting a new mineral deposit are demonstrable and the Group may extract these resources according to the local governmental procedures. The carrying amount of such exploration and evaluation asset is reclassified into mineral rights. An exploration and evaluation asset is assessed for impairment and if any, an impairment loss is recognised before reclassification.

The Group measures exploration and evaluation assets on initial recognition at cost or at fair value when acquired as part of a business combination. Following initial recognition, they are carried at cost less accumulated impairment losses.

The following expenditures comprise the cost of exploration and evaluation assets:

- Obtaining the rights to explore and evaluate mineral reserves and resources including costs directly related to this acquisition;
- Researching and analysing existing exploration data;
- Conducting geological studies, exploratory drilling and sampling;
- Examining and testing extraction and treatment methods; and/or
- Compiling prefeasibility and feasibility studies.

Administration and other overhead costs are charged to the cost of exploration and evaluation assets only if directly related to an exploration and evaluation project.

Impairment of exploration and evaluation assets

Exploration and evaluation assets are assessed for impairment when facts and circumstances suggest that the carrying amount of an exploration and evaluation asset may exceed its recoverable amount. The following facts and circumstances, among others, indicate that exploration and evaluation assets must be tested for impairment:

- The exploration license in the specific area has expired during the reporting period or will expire in the near future, and is not expected to be renewed;
- Substantive expenditure on further exploration for and evaluation of gold resources in the specific area is neither budgeted nor planned;
- Exploration for and evaluation of gold resources in the specific area have not led to the discovery of commercially viable quantities of gold resources and the decision was made to discontinue such activities in the specific area;
- Sufficient data exists to indicate that, although a development in the specific area is likely to proceed, the carrying amount of the exploration and evaluation asset is unlikely to be recovered in full from successful development or by sale.

For the purpose of assessing exploration and evaluation assets for impairment, such assets are allocated to cash-generating units, being exploration license areas.

Any impairment loss is recognised as an expense in accordance with the policy on impairment of assets set out below.

Inventories

Inventories are stated at the lower of cost or net realisable value. Net realisable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The cost of inventories is calculated as per the principals set out below.

The cost of inventories is based on the weighted average principle and includes expenditures incurred in acquiring the inventories and bringing them to their existing location and condition.

Inventories include materials and consumables, work-in-progress and finished goods.

Materials and consumables are valued at cost less allowances for slow-moving and obsolete items.

Work-in-progress consists of ore stockpiles and gold-in-process (including dore alloy).

Stockpiles represent mined ore before processing and are measured based on each stockpile’s average cost per tonne.

Gold in ore involved in processing (crushing, milling, leaching and other operations for recovery of gold in the form of Dore alloy) is accounted for as gold-in-process. Gold-in-process and dore alloy are measured based on recoverable ounces of gold.

Work-in-progress is valued at production costs incurred at the relevant stage of the production process. Production costs include materials and consumables, labour costs, mining and other services, refining costs, amortisation and depreciation of operating assets, etc.

Refined gold represents the Group's finished goods, and is valued on the basis of total production cost.

Financial instruments

Financial assets and financial liabilities are recognised in the Group's statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognised immediately in profit or loss.

Derivative financial instruments

Derivatives are recognised initially at fair value at the date a derivative contract is entered into and are subsequently remeasured to their fair value at each reporting date. The resulting gain or loss is recognised in profit or loss immediately unless the derivative is designated and effective as a hedging instrument, in which event the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

A derivative with a positive fair value is recognised as a financial asset whereas a derivative with a negative fair value is recognised as a financial liability. Derivatives are not offset in the financial statements unless the Group has both legal right and intention to offset. A derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the instrument is more than 12 months and it is not expected to be realised or settled within 12 months. Other derivatives are presented as current assets or current liabilities.

Non-derivative financial instruments

Financial Assets

All financial assets are measured in their entirety at either amortised cost or fair value, depending on the classification of the financial assets.

Classification of financial assets

Debt instruments that meet the following conditions are measured subsequently at amortised cost:

- the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Debt instruments that meet certain conditions are measured subsequently at fair value through other comprehensive income (FVTOCI). By default, all other financial assets are measured subsequently at fair value through profit or loss (FVTPL).

Amortised cost and effective interest method

The effective interest method is a method of calculating the amortised cost of a debt instrument and of allocating interest income over the relevant period.

For financial assets other than purchased or originated credit-impaired financial assets (i.e. assets that are credit-impaired on initial recognition), the effective interest rate is the rate that exactly discounts estimated future cash receipts (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) excluding expected credit losses, through the expected life of

the debt instrument, or, where appropriate, a shorter period, to the gross carrying amount of the debt instrument on initial recognition. For purchased or originated credit-impaired financial assets, a credit-adjusted effective interest rate is calculated by discounting the estimated future cash flows, including expected credit losses, to the amortised cost of the debt instrument on initial recognition.

The amortised cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortised cost of a financial asset before adjusting for any loss allowance.

Interest income is recognised using the effective interest method for debt instruments measured subsequently at amortised cost and at FVTOCI. For financial assets other than purchased or originated credit-impaired financial assets, interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that have subsequently become credit-impaired (see below). For financial assets that have subsequently become credit-impaired, interest income is recognised by applying the effective interest rate to the amortised cost of the financial asset. If, in subsequent reporting periods, the credit risk on the credit-impaired financial instrument improves so that the financial asset is no longer credit-impaired, interest income is recognised by applying the effective interest rate to the gross carrying amount of the financial asset.

For purchased or originated credit-impaired financial assets, the Group recognises interest income by applying the credit-adjusted effective interest rate to the amortised cost of the financial asset from initial recognition. The calculation does not revert to the gross basis even if the credit risk of the financial asset subsequently improves so that the financial asset is no longer credit-impaired.

Interest income is recognised in profit or loss and is included in the "finance income" line item.

Financial assets at FVTOCI

Financial assets at fair value through other comprehensive income are equity instruments that the Group has elected to recognise the changes in fair value of in other comprehensive income. In 2018, these instruments were classified as available-for-sale. They are recognised initially at fair value in the Group Statement of Financial Position and are re-measured subsequently at fair value with gains and losses arising from changes in fair value recognised directly in equity and presented in the Group Statement of Comprehensive Income.

Cumulative gains and losses on equity instruments at fair value through other comprehensive income are not recycled to the Group Income Statement.

Foreign exchange gains and losses

The carrying amount of financial assets that are denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of each reporting period.

Impairment of financial assets

The Group recognises a loss allowance for expected credit losses ("ECL") on trade and other receivables. The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument.

The Group always recognises lifetime ECL for trade and other receivables. The expected credit losses on these financial assets are estimated using the average default risk attributable to the counterparties.

Derecognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

On derecognition of a financial asset measured at amortised cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognised in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

Financial liabilities

Financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs, and subsequently measured at amortised cost using the effective interest method, with interest expense recognised in the statement of profit or loss.

Foreign exchange gains and losses

For financial liabilities that are denominated in a foreign currency and are measured at amortised cost at the end of each reporting period, the foreign exchange gains and losses are determined based on the amortised cost of the instruments. These foreign exchange gains and losses are recognised in profit or loss.

Derecognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit or loss.

Factoring arrangements

The Group has entered into reverse factoring arrangements with certain suppliers and financial institutions, whereby financial institutions make direct payments to certain suppliers on the Group's behalf for inventory purchases. The Group then reimburses the financial institution and makes payments for any interest and other charges, where applicable, at a later date. The Group is able to extend payment terms for purchases for up to six months under these arrangements compared to up to approximately two months under the previous supplier credit terms. Any liabilities the Group holds under these arrangements are deemed to be financing in nature and are separately classified as 'factoring arrangements' within short term borrowings in the consolidated statement of financial position.

Where the credit period extension is obtained directly from the supplier, the economic substance of the transaction is determined to be operating in nature, and these liabilities are recognised as "trade and other payables" of the consolidated statement of financial position.

Consistent with the presentation in the consolidated statement of financial position, the Group presents cash payments made by the Group to financial institutions under reverse factoring arrangements within financing cash outflows in the consolidated statement of cash flows line "Repayment of borrowings", through a simultaneous reclassification from operating cash flow movements within line "Purchases presented in financing activities".

Income tax

Income tax comprises current and deferred tax and is recognised in the statement of profit or loss except to the extent that it relates to items recognised in other comprehensive income, in which case it is recognised in other comprehensive income.

Current tax is calculated for each entity by applying the relevant statutory tax rate to adjusted pre-tax profit which is calculated in accordance with the tax law of the country in which each entity is tax resident. Tax rates applied are those which are enacted, or substantively enacted, at each reporting date. Current tax is adjusted for tax payable or receivable in respect of previous periods.

Deferred tax is calculated using the balance sheet method, providing for temporary differences between the carrying amounts of assets and liabilities for financial reporting and taxation purposes. Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

Deferred tax assets are recognised to the extent that it is probable that there will be future taxable profits against which the tax losses and other temporary differences can be utilised. The Group reviews the carrying value at each balance sheet date by re-assessing whether sufficient future taxable profits will be generated in future periods such that these deferred tax assets can be recovered. The Group considers all available evidence including approved budgets, forecasts, and business plans, in evaluating whether or not it is probable that sufficient taxable profits will be generated in future periods.

Deferred tax is not recognised in respect of the following:

- Investments in subsidiaries where the Group is able to control the timing of the reversal of the temporary differences and it is probable that the temporary difference will not reverse in the foreseeable future;
- If it arises from the initial recognition of an asset or liability that is not a business combination and, at the time of the transaction, affects neither accounting profit nor taxable profit or loss;
- Initial recognition of goodwill.

No material uncertain tax positions are recognised at each balance sheet date on the basis that, having applied IFRIC 23, no “probable” tax exposures were identified for provisioning.

Provisions

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability.

Environmental provision

The Group has environmental obligations related to restoration of soil and other related works, which are due upon the closures of certain of its production sites.

Provision for each production site is estimated case-by-case based on available information, taking into account applicable local legal requirements. The estimation is made using existing technology, at current prices, and discounted using a real discount rate.

Future costs, discounted to net present value, are recognised in the period, in which the environmental disturbance occurs.

Costs are capitalised if environmental disturbance occurred during the construction of property, plant and equipment or charged to production costs for the period if the environmental disturbance occurred as part of the operating production process.

The unwinding of the environmental provisions is included in the consolidated statement of profit or loss as interest expense.

Share capital

Share capital comprises ordinary shares. Incremental costs directly attributable to the issue of ordinary shares and share options are recognised as a deduction from equity, net of tax effects.

Revenue

The Group recognises revenue principally from the sale of gold refined bullion. All the revenue is recognised from contracts with customers.

Revenue is measured based on the consideration to which the Group expects to be entitled in a contract with a customer and excludes amounts collected on behalf of third parties. The Group recognises revenue when it transfers control of the product to a customer.

All the Group sales are wholesale and the Group is not involved in retail trade. The product is sold to banks in Russian Federation and to refining plants in Kazakhstan and West Africa. No sales related warranties or rights of return are given.

Payment of the transaction price is done immediately after revenue and receivable recognition when the performance obligation is satisfied, i.e. when control of the goods or services underlying the particular performance obligation is transferred to the customer:

- In the Russian Federation revenue from gold sales is recognised at the time of shipment from the refining plant to a bank;
- In Kazakhstan sales revenue from gold sales is recognised at the time of arrival to the refining plant;
- In West Africa sale revenue from gold sales is usually recognised at the time of shipment from the mine sites.

The Group capitalises all proceeds from selling refined gold bullion produced during the pre-production phase of operations.

Other expenses

Social expenditure

To the extent that the Group's contributions to social programs benefit the community at large and are not restricted to the Group's employees, they are recognised in the statement of profit or loss as incurred.

Long-term incentive program

The form of the long-term incentive is a deferred 3-year bonus program, with a new cycle starting every year. Long-term incentive grants are based on the simulated share price and actual short-term incentive amounts approved for the Executives for the completed performance year. The granted awards vest in accordance with the vesting schedule and are paid out in cash based on the simulated share price calculated for the last operational year before the payout and dividends paid during the respective cycle provided all performance hurdles are satisfied

Finance income and costs

Finance income comprises interest income on funds invested, dividend income, and net foreign currency gains. Interest income is recognised as it accrues in the statement of profit or loss, using the effective interest method. Dividend income is recognised in the statement of profit or loss on the date that the Group's right to receive payment is established.

Finance costs comprise interest expense on borrowings, unwinding of the discount on provisions, net foreign currency losses and impairment losses recognised on financial assets. All borrowing costs are recognised in the statement of profit or loss using the effective interest method except borrowing costs capitalised as part of qualifying assets.

Foreign currency gains and losses are reported on a net basis.

Earnings per share

The Group's basic earnings per share is calculated by dividing the profit or loss attributable to shareholders of the Company by the weighted average number of ordinary shares outstanding during the period. No dilutive instruments were present during the period.

Segment reporting

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with any of the Group's other components. An operating segment may engage in business activities for which it has yet to earn revenues, for example, entities on the exploration and evaluation stage.

Operating segments are reported in a manner consistent with the internal reporting provided to the Group's chief operating decision maker ("CODM"), the Group's Chief Executive Officer ("CEO"). The chief operating decision maker is responsible for allocating resources and assessing performance of the operating segments.

4. CRITICAL ACCOUNTING JUDGEMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

Critical accounting judgements

In the application of the Group's accounting policies, which are described in Note 3, the Directors are required to make judgements, apart from those involving estimations, that have the most significant effect on the amounts recognised in the financial statements.

There are the following areas involving significant judgments:

Assessment of indicators of impairment or impairment reversal

The Group considers both external and internal sources of information in assessing whether there are any indications that its CGUs are impaired. External sources of information include changes in the market, economic and legal environment in which the Group operates that are not within its control. Internal sources of information include the manner in which mining properties and plant and equipment are being used or are expected to be used and indicators of economic performance of such assets. Judgement is therefore required to determine whether these updates represent significant changes in the service potential of an asset or CGU, and are therefore indicators of impairment or impairment reversal.

Assets (other than goodwill) that have previously been impaired must also be assessed for indicators of impairment reversal. Such assets are, by definition, carried on the balance sheet at a value at or close to their recoverable amount at the last assessment. Therefore in principle any change to operational plans, economic parameters, or the passage of time, could result in further impairment or impairment reversal if an indicator is

identified. Significant operating assets that the Group has previously impaired include Lefa, Taparko, Buryatzoloto, Berezitovy and Suzdal, with a combined carrying value of US$ 637.1 million within property, plant and equipment and intangible assets as at 31 December 2020, US$ 748.1 million as at 31 December 2019, US$ 780.3 million as at 31 December 2018.

Determination of significant influence in Cardinal Resources Limited

In 2020 the Company acquired shares in Cardinal Resources Limited ("Cardinal"). Acquisition details are presented in Note 24 "Investment in Cardinal".

Management considered IAS 28 "Investment in Associate" criteria to define whether the Company had a significant influence in Cardinal and whether the investment should be treated as an investment in associate or as an equity investment asset.

The initial recognition of the acquisition of 19.9 percent of the total share capital was recognized at its fair value on the basis that the directors did not consider that significant influence existed at this stage. The Company elected to present subsequent changes in the fair value within other comprehensive income.

The Director's judgment was based on the facts that the Company had no representation on the board of directors of Cardinal, didn't participate in policy-making processes, had no material transactions with Cardinal and had no any interchange of managerial personnel.

As a result of further acquisitions the Company share in Cardinal increased from 19.9 percent to 28.1 percent. As the Company's share increased to over 20 percent management considered that the Company had gained significant influence. IAS 28 "Investment in Associate" states that if an entity holds 20 percent or more of the voting power of the investee, it is presumed that the entity has significant influence, unless it can be clearly demonstrated that this is not the case. There was no evidence that the Company didn't get the significant influence after receiving more than 20 percent of the votes. Besides the shareholder base of Cardinal was diversified and the Company had the largest shareholding. As a result the investment in Cardinal was reclassified to Investment in associate at an initial value of US$ 102.1 million at 2 September 2020.

Functional currency

IAS 21 "The Effects of Changes in Foreign Exchange Rates" defines functional currency as the currency of the primary economic environment in which the entity operates. The Group therefore performs an analysis of the currencies in which each subsidiary primarily generates and expends cash and the currency of any financing facilities. This involves an assessment of the currency in which sales are generated and operational and capital expenditures are incurred, and currency in which external and internal borrowing costs are denominated. Management makes judgements in defining the functional currency of the Group's subsidiaries based on economic substance of the transactions relevant to these entities. For each of the Group's consolidated entities, management performed analysis of relevant factors that are indicators of functional currency and, based on the analysis performed, determined functional currency, accordingly. The Group concluded that the functional currency for each of the operating subsidiaries, except for Lefa, is the currency of their jurisdiction.

The functional currency of Lefa was concluded to be the United States Dollar reflecting a higher proportion of expenditure being denominated in US dollars and the use of US dollar financing arrangements.

Treatment of the Lefa mining convention

As disclosed in Note 25, during 2018 an amendment to the Lefa mining convention was passed by the Republic of Guinea requiring all mining companies, operating in Guinea, to transfer 15% of their shares to the Republic of Guinea in order to continue operating within the country for nil consideration. As part of the convention, in addition to receiving a right to operate, the future tax rate was fixed and the Group received the right of offset of future indirect tax liabilities against existing indirect tax receivables.

The fair value of the 15% interest was $21.1 million and this was recognised through the income statement during the year ended 31 December 2018, on the basis that the Directors concluded that i) no incremental asset had been secured by the Group notwithstanding the renewal of an existing right to continue operating and ii) the future tax impacts on the Group are not quantifiable.

Expenses relating to this extension, amounting to US$ 14.7 million, were also recognised in the consolidated statement of profit or loss, for the year ended 31 December 2018, within 'Loss on partial disposal of subsidiary'

Please see Note 25 for further details.

Key sources of estimation uncertainty

The preparation of financial statements requires the Directors to make the assumptions about the future, and other major sources of estimation uncertainty at the end of the reporting period, that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The key assumptions concerning the future, and other key sources of estimation uncertainty at the reporting period, that may have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are discussed below.

Estimating recoverable amounts

Calculation of the recoverable amounts of the Group's CGUs, for those assets with indicators of impairment and/or impairment reversals at the reporting date, requires management to make estimates with respect to future production levels, operational and capital costs, future gold prices, foreign exchange rates, discount rates and the renewal of any expiring mining licenses. Any changes in any of the estimates used in determining the recoverable amounts could impact the recoverable amount, and impairment and reversal analysis.

As at 31 December 2020, management performed impairment valuation tests for those CGUs where impairment and/or impairment reversal indicators were identified. The calculated recoverable amounts of the assets with indicators of impairments/reversals are as follows:

	Year ended 31 December		
	2018	2019	2020
Recoverable amounts based on value in use			
Berezitovy	132,225	113,691	72,620
Bissa-Bouly	no indicators	no indicators	764,927
Taparko	no indicators	31,905	no indicators
Lefa	533,397	no indicators	507,963
Buryatzoloto	68,830	44,201	no indicators

The valuations of recoverable amount are sensitive to changes in key assumptions. The key assumptions and estimates used by management in the value-in-use calculations are presented in Note 9 "Impairment of non-current assets", along with accompanying sensitivity analysis as to the impact of reasonably possible changes of these assumptions on the total impairment loss.

In 2020 as a result of the impairment review, an impairment loss was recognized against the PPE of Berezitovy of $29.7 million. In 2019, an impairment loss was recognized against the PPE of Berezitovy, Taparko and Buryatzoloto of $88.2 million. Impairments recognized in 2018 were immaterial. Further information can be found at Note 9.

Other sources of estimation uncertainty

Other sources of estimation uncertainty reflect those sources of estimation uncertainty of which management believe users should be aware, but which are not judged to have a significant risk of resulting in a material adjustment to the carrying amount of assets and liabilities within the next financial year. They include: mineral reserves assessment and life of mine plans ("LOMs"), environmental provision, recoverability of indirect taxes, valuation of gold stockpiles and gold-in-process.

5. SEGMENT REPORTING

The Group has nine reportable segments, as described below, representing the strategic business units. Each strategic business unit is managed separately with relevant results regularly reviewed by the Group's Chief Executive Officer ("CEO"). The following summary describes the operations of each reportable segment:

- *Gross.* An open pit gold mine Gross with the heap-leaching technology for gold processing located in the Republic of Sakha (Yakutia) of the Russian Federation.
- *Taborny.* An open pit gold mine Taborny with the heap-leaching technology for gold processing located in the Republic of Sakha (Yakutia) of the Russian Federation.
- *Suzdal and Balazhal.* Includes the Suzdal underground gold mine located in Kazakhstan with flotation, bio-oxidation and carbon-in-leach ("CIL") technology for gold processing and the Balazhal gold deposit in Kazakhstan. During 2018, the Group disposed of Balazhal through sale to a third party, of which the result was immaterial.
- *Buryatzoloto.* Includes two underground gold mines located in the Republic of Buryatia of the Russian Federation: Zun-Holba with gravity, flotation and carbon-in-pulp ("CIP") technology for gold processing and Irokinda with gravity and flotation technology for gold processing. During 2019 Zun-Holba was classified as asset held for sale and during 2020 was classified back to regular assets (Note 12).
- *Berezitovy.* An open-pit gold mine located in the Amur region of the Russian Federation with CIP technology for gold processing.
- *Taparko.* An open-pit gold mine located in Burkina Faso, West Africa with CIL technology for gold processing.
- *Lefa.* An open-pit gold mine located in Guinea, West Africa with CIP technology for gold processing.
- *Bissa and Bouly.* Open-pit gold mines located in Burkina Faso, West Africa with CIL and heap-leaching technologies for gold processing.
- *Greenfield and Development assets.* Include a number of gold deposits at the exploration and evaluation stages located in Burkina Faso, the Russian Federation, Canada and the Montagne d'Or gold development project in French Guiana.

Operations of the holding company (Nord Gold plc.) and its subsidiaries involved in non-core activities are disclosed as "All other segments", none of which meet the criteria for separate reporting to the Group's CEO.

The Group's CEO uses Adjusted EBITDA in assessing each segment's performance and allocating resources. Adjusted EBITDA is calculated as profit before income tax for the period adjusted for:

- gains on the disposal of available-for-sale investments
- finance income and finance costs
- foreign exchange losses / (gains)
- depreciation and amortisation
- impairment / (reversal of impairment) of non-current assets

- net losses on the disposal of property, plant and equipment
- work-in-progress impairment recognised in cost of sales
- provisions charged for previously recognised contingent liabilities
- de-recognition of financial liabilities
- social and charity expenses

Business segment assets and liabilities, depreciation and amortization and income tax expense are not reviewed by the CODM and therefore are not disclosed in these historical financial information.

Segment financial performance

The following is an analysis of the Group's Revenue and Adjusted EBITDA by segment:

	Year ended 31 December		
	2018	2019	2020
Revenue			
Gross	68,880	367,619	498,671
Taborny	124,507	108,546	139,298
Suzdal and Balazhal	104,980	107,060	134,629
Buryatzoloto	82,905	67,075	84,824
Berezitovy	62,307	85,069	122,676
Taparko	129,845	96,683	167,061
Lefa	238,964	263,532	312,483
Bissa and Bouly	330,826	352,697	401,768
Total	**1,143,214**	**1,448,281**	**1,861,410**

	Year ended 31 December		
	2018	2019	2020
Adjusted EBITDA by segment			
Gross	55,572	282,768	405,886
Taborny	78,858	65,391	90,839
Suzdal and Balazhal	54,681	59,044	82,269
Buryatzoloto	6,653	27,934	35,261
Berezitovy	29,369	40,813	72,195
Taparko	48,773	2,514	68,540
Lefa	87,406	84,349	142,710
Bissa and Bouly	136,808	138,420	157,910
Greenfield and development assets	(55)	(119)	(75)
Total adjusted EBITDA for reportable segments	**498,065**	**701,114**	**1,055,535**
Adjusted EBITDA for all other segments	(27,872)	(33,847)	(38,677)
Total	**470,193**	**667,267**	**1,016,858**

	Year ended 31 December		
	2018	2019	2020
Segment capital expenditures			
Gross	174,020	68,627	91,460
Taborny	16,924	49,058	33,761
Suzdal and Balazhal	12,843	17,644	20,225
Buryatzoloto	27,618	22,768	13,589
Berezitovy	48,518	39,129	26,301
Taparko	60,102	39,589	8,461
Lefa	74,622	89,927	77,168
Bissa and Bouly	85,567	86,852	95,239
Greenfield and development assets	13,868	10,005	14,491
Total capital expenditures for reportable segments	**514,082**	**423,599**	**380,695**
All other segments	581	5,388	1,556
Total segment capital expenditures	**514,663**	**428,987**	**382,251**
Depreciation capitalised	30,880	35,269	38,116
Other transfers	(2,052)	(5,647)	7,446
Additions to PP&E and Intangible assets	**543,491**	**458,609**	**427,813**

The reconciliation of profit before income tax to Adjusted EBITDA:

	Year ended 31 December		
	2018	2019	2020
Adjusted EBITDA	**470,193**	**667,267**	**1,016,858**
Finance income	4,284	28,152	881
Finance costs	(115,601)	(59,376)	(46,803)
Foreign exchange gain/(loss)	38,040	(18,833)	24,706
Depreciation and amortisation	(193,403)	(296,743)	(323,717)
Impairment charge of non-current assets	(39,126)	(129,739)	(42,937)
Gain on sale of associate	—	—	21,320
Loss on partial disposal of subsidiary	(35,731)	—	—
Share of post-tax result of associate	—	—	(2,209)
Reversal of impairment/(impairment) of work-in-progress recognised in cost of sales	3,297	(8,261)	7,194
Net loss on disposal of property, plant and equipment	(1,009)	(1,471)	(7,054)
Other income/(expenses)	(4,637)	(2,136)	9,693
Profit before income tax	**126,307**	**178,860**	**657,932**

Other expenses include social and charity expenses and provisions charged for previously recognised contingent liabilities and de-recognition of financial liabilities.

Geographical information

The following is a summary of the Group's non-current assets by location of asset, excluding financial instruments, restricted cash and deferred tax assets:

	31 December		
	2018	2019	2020
Russian Federation	723,785	838,043	776,286
Burkina Faso	648,132	604,660	589,286
Guinea	494,543	509,233	481,730
French Guiana	109,278	114,058	132,374
Kazakhstan	44,731	52,900	56,693
Canada	25,274	28,684	29,800
Other	486	5,984	679
Total	**2,046,229**	**2,153,562**	**2,066,848**

The following is a summary of the Group's sales by location of operations:

	Year ended 31 December		
	2018	2019	2020
Russian Federation	338,599	628,309	845,469
Burkina Faso	460,671	449,380	568,829
Guinea	238,964	263,532	312,483
Kazakhstan	104,980	107,060	134,629
Total	**1,143,214**	**1,448,281**	**1,861,410**

6. REVENUE

	Year ended 31 December		
	2018	2019	2020
By product			
Gold	1,138,558	1,441,149	1,849,822
Silver	4,656	7,132	11,588
Total	**1,143,214**	**1,448,281**	**1,861,410**

		Year ended 31 December		
		2018	2019	2020
By customer	**By segment**			
Switzerland: MKS Finance S.A.	Bissa and Bouly, Lefa, Taparko	690,883	712,912	881,312
Russian Federation: VTB	Gross, Taborny, Berezitovy, Buryatzoloto	321,857	449,843	626,709
Russian Federation: Otkrytie	Gross, Taborny, Berezitovy, Buryatzoloto	8,277	178,466	218,760
Kazakhstan: Tau-Ken Altyn	Suzdal and Balazhal	104,980	107,060	134,629
Switzerland: Metalor Technologies S.A.	Taparko	8,752	—	—
Russian Federation: Sberbank	Taborny	7,992	—	—
Russian Federation: Gazprombank	Taborny	473	—	—
Total		**1,143,214**	**1,448,281**	**1,861,410**

In 2020 and 2019 sales to MSK Finance S.A., VTB and Otkrytie were over 10% of total revenue. In 2018 sales to MSK Finance S.A. and VTB were over 10% of total revenue.

All revenues are derived from the contracts with customers.

7. GENERAL AND ADMINISTRATIVE EXPENSES

	Year ended 31 December		
	2018	2019	2020
Wages and salaries	31,418	34,209	41,897
Professional and other services	15,273	17,853	16,059
Depreciation and amortisation	6,721	5,830	6,672
Other	1,991	2,441	2,305
Total	**55,403**	**60,333**	**66,933**

8. STAFF COST

	Year ended 31 December		
	2018	2019	2020
Wages and salaries	176,816	177,213	189,248
Long-term incentive program	3,397	5,025	9,973
Social security costs	30,483	34,901	34,281
	210,696	**217,139**	**233,502**
Less capitalised amounts:			
Wages and salaries	(37,392)	(38,080)	(23,510)
Social security costs	(7,845)	(10,692)	(4,811)
Total	**165,459**	**168,367**	**205,181**

Key management personnel comprise executive and non-executive directors ("Directors"), as well as departmental directors.

Total remuneration of key management personnel in 2020 amounted to US$ 19.2 million. It included annual salaries of US$ 6.0 million, annual bonuses of US$ 4.1 million, and incentive programme accruals of US$ 9.1 million.

Total remuneration of key management personnel in 2019 amounted to US$ 13.2 million. It included annual salaries of US$ 5.8 million, annual bonuses of US$ 3.8 million, and incentive programme accruals of US$ 3.6 million.

Total remuneration of key management personnel in 2018 amounted to US$ 11.9 million. It included annual salaries of US$ 6.3 million, annual bonuses of US$ 2.7 million, and incentive programme accruals of US$ 2.9 million.

Remuneration of the highest paid Director in 2020 amounted to US$ 3.9 million including annual salary of US$ 1.0 million, annual bonus of US$ 1.35 million, incentive programme of US$1.4 million, and benefit allowance of US$ 0.1 million.

Remuneration of the highest paid Director in 2019 amounted to US$ 4.0 million including annual salary of US$ 1.0 million, annual bonus of US$ 1.2 million, incentive programme of US$1.7 million, and benefit allowance of US$ 0.1 million.

Remuneration of the highest paid Director in 2018 amounted to US$ 3.5 million including annual salary of US$ 1.1 million, annual bonus of US$ 1.5 million, incentive programme of US$0.8 million, and benefit allowance of US$ 0.1 million.

9. IMPAIRMENT OF NON-CURRENT ASSETS

As at 31 December 2018, 2019 and 2020 the Group's property, plant and equipment and mineral rights at certain business units with impairment indicators were assessed for impairment in accordance with IAS 36 and its exploration and evaluation assets were assessed for impairment in accordance with IFRS 6. Impairment charges/(reversals) were recognised in the Group's consolidated statement of profit or loss for 2018, 2019 and 2020 as follows:

	Year ended 31 December		
	2018	2019	2020
Property, plant and equipment (Note 17)			
Berezitovy cash generating unit	—	23,707	28,432
Taparko cash generating unit	—	23,652	—
Buryatzoloto cash generating unit	4,813	6,339	—
Berezitovy individual assets	—	34,522	—
	4,813	**88,220**	**28,432**
Intangible assets (Note 18)			
Berezitovy cash generating unit	—	4,134	1,258
Taparko cash generating unit	—	6,370	—
Buryatzoloto cash generating unit	37,154	3,024	—
Taparko individual assets	—	—	6,714
Buryatzoloto individual assets	—	7,522	—
Bissa individual assets	—	5,699	—
Other intangible assets	969	563	403
	38,123	**27,312**	**8,375**
Other assets			
Assets held for sale impairment (Note 12)	—	22,140	7,927
Long-term financial investments	—	—	3,009
Reversal of impairment	(3,810)	(7,933)	(4,806)
	(3,810)	**14,207**	**6,130**
Impairment of non-current assets	**39,126**	**129,739**	**42,937**

Cash-generating units impairment

Due to the presence of impairment indicators in 2020, management conducted impairment valuation reviews for the following CGUs: 2020: Buryatzoloto, Berezitovy, Bissa-Bouly; 2019: Buryatzoloto, Berezitovy and Taparko; 2018: Buryatzoloto, Berezitovy and Lefa.

As at 31 December 2020, due to the presence of impairment reversal indicators, management also prepared a value-in-use model for the Lefa CGU (historical impairment charges potentially available for reversal were approximately US$ 52.0 million as at 31 December 2018, 31 December 2019 and 31 December 2020).

For these CGUs the recoverable amounts were calculated based on the value in use, using discounted cash flow projections.

	Year ended 31 December		
	2018	2019	2020
Recoverable amounts based on value in use			
Berezitovy	132,225	113,691	72,620
Bissa-Bouly	no indicators	no indicators	764,927
Taparko	no indicators	31,905	no indicators
Lefa	533,397	no indicators	507,963
Buryatzoloto	68,830	44,201	67,479

As a result of the impairment review an impairment loss for Berezitovy was recognised. The loss was driven by reduction in forecast future gold production due to decrease of ore reserves. Berezitovy impairment loss reduced carrying value of property, plant and equipment and intangible assets by US$ 28.4 million and US$ 1.3 million respectively.

Impairment loss for Buryatzoloto, Berezitovy and Taparko was recognized 2019 and impairment loss for Buryatzoloto was recognised in 2018.

The valuations of recoverable amount are sensitive to changes in key assumptions, particularly future gold prices, production volumes and costs and discount rates, which are subject to a high level of estimation uncertainty. Key assumptions used by the Group in determining the value in use of reviewed CGUs were as follows:

2020:

- A 2021 gold price of US$ 1,857/oz, a 2022 and 2023 real gold prices are US$ 1,778/oz and 1,696/oz respectively and long-term gold price of US$ 1,537/oz, based on third party analysts' consensus data;
- Approved mine plans which include relevant production and cost assumptions;
- A pre-tax real discount rate for Bissa-Bouly of 11.4% (2019: no impairment test), Lefa of 14.2% (2019: no reversal/ impairment test), Berezitovy of 19.5% (2019: 10.1%) and Buryatzoloto 11.3% (2019: 12.3%), based on the Group's weighted average cost of capital and specific asset risk factors. The pre-tax discount rates were calculated by determining the rates that arrive at the same valuation, based on discounting the pre-tax cash flows only.

2019:

- A 2020 gold price of US$ 1,500/oz, a 2021 and 2022 real gold prices are US$ 1,437/oz and 1,394/oz respectively and long-term gold price of US$ 1,400/oz, based on third party analysts' consensus data;
- Approved mine plans which include relevant production and cost assumptions;
- A pre-tax real discount rate for Berezitovy of 10.1% (2018: 11.5%), Taparko 8.9% (2018: no impairment test) and Buryatzoloto 12.3% (2018: 10.7%), based on the Group's weighted average cost of capital and specific asset risk factors. The pre-tax discount rates were calculated by determining the rates that arrive at the same valuation, based on discounting the pre-tax cash flows only.

2018:

- A 2019 gold price of US$ 1,282/oz, a 2020-2021 real gold prices are US$ 1,333/oz, US$ 1,323/oz respectively and long-term gold price of US$ 1,300/oz, based on third party analysts' consensus data;
- Approved mine plans which include relevant production and cost assumptions;
- Pre-tax real discount rate for Berezitovy 11.5% (2017: no impairment test), Lefa 17.4% (2017: 15.3 %) and Buryatzoloto 10.7% (2017: 11.5%), based on the Group's weighted average cost of capital and specific asset risk factors. The pre-tax discount rates were calculated by determining the rates that arrive at the same valuation, based on discounting the pre-tax cash flows only.

Sensitivity analysis

Management performed an analysis as to whether a reasonably possible adverse change to any of the key assumptions used would lead to any additional impairment loss in all of impairment models for all of CGUs above with impairment indicators.

2020:

Sensitivity analysis on Berezitovy CGU

The following scenarios were considered as reasonably possible and were used for this sensitivity analysis:

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 300 per ounce	—
10% decrease in future production volume	13 937
10% increase in future cost of production	7 877
1pp increase in discount rate applied	687

All of the scenarios presented above assumed that the relevant assumptions move in isolation.

Sensitivity analysis on Bissa-Bouly CGU

Sensitivity analysis on Bissa-Bouly CGU did not result in an additional impairment loss.

Sensitivity analysis on Lefa CGU

The value-in-use model is sensitive to changes in these input assumptions, with the indicated headroom eliminating under a long-term gold price of US$ 1,460/oz, such that the carrying value is considered to be within the reasonable valuation range.

The following changes in assumption were considered as reasonably possible and if changed by the indicated amount with all other valuation assumptions remaining the same, would materially change the carrying value.

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 300 per ounce	82 225
10% decrease in future production volume	97 219

Accordingly, the valuation supported the carrying value of the Lefa CGU and no impairment reversal has been recognised as at 31 December 2020.

2019:

Sensitivity analysis on Berezitovy CGU

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 200 per ounce	1 867
Long-term gold price of US$ 1 150 per ounce	2 333
Long-term gold price of US$ 1 100 per ounce	2 800
10% decrease in future production volume	24 587
10% increase in future cost of production	13 176
1pp increase in discount rate applied	1 743

Sensitivity analysis on Buryatzoloto CGU

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 200 per ounce	—
Long-term gold price of US$ 1 150 per ounce	—
Long-term gold price of US$ 1 100 per ounce	—
10% decrease in future production volume	12 189
10% increase in future cost of production	5 861
1pp increase in discount rate applied	—

Sensitivity analysis on Taparko CGU

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 200 per ounce	—
Long-term gold price of US$ 1 150 per ounce	—
Long-term gold price of US$ 1 100 per ounce	—
10% decrease in future production volume	19 904
10% increase in future cost of production	14 311
1pp increase in discount rate applied	—

2018:

Sensitivity analysis on Buryatzoloto CGU

Scenarios	Additional impairment loss
Long-term gold price of US$ 1 200 per ounce	52 917
Long-term gold price of US$ 1 150 per ounce	78 854
Long-term gold price of US$ 1 100 per ounce	112 223
10% decrease in future production volume	161 468
10% increase in future cost of production	72 649
1pp increase in discount rate applied	44 371

Individual assets impairment

In 2020 the US$ 6.7 million pre-tax impairment charge for Taparko mineral rights related to certain projects which are no longer considered commercially viable for further development due to insufficient resources.

In 2019 the US$ 7.5 million pre-tax impairment charge for Buryatzoloto exploration and evaluation assets related to project Zhanok in Russian Federation which are no longer considered commercially viable. The US$ 5.7 million pre-tax impairment charge for Bissa mineral rights related to project Zinigma in West Africa which did not result in the discovery of commercially viable quantities of gold resources.

In 2019 the US$ 34.5 million impairment loss at Berezitovy related to the capital stripping asset, this individual asset was impaired due to a change of mining plan.

Long-term financial investments

Impairment of long-term financial investments in 2020 related mainly to Arakaka Gold Project. In June 2019, the Company entered into an Option Agreement with Alicanto Minerals Ltd for the exclusive right to acquire a 100% interest in the Arakaka Gold Project. Under the terms of the Agreement, Nordgold had an option to acquire a 100% interest in the Arakaka Project by sole funding US$3 million in exploration expenditure within a one year option period, and paying an additional US$5 million to Alicanto to exercise the option. Based on unsatisfactory results of the drilling campaign the Company has decided not to exercise its option to acquire Arakaka. As a result related investment value in amount of US$ 2.9 million was fully impaired as at 31 December 2020.

Assets held for sale impairment

Assets held for sale impairment recognized in 2020 and 2019 related to Zun-Holba assets. In 2019 proceeds from disposal were expected to be US$ 3.0 million whilst the carrying amount of the related net assets as at 31 December 2019 was US$ 25.1 million. An impairment loss of US$ 22.1 million was recognised accordingly in respect of assets held for sale.

In 2020 impairment was recognised upon reclassification from assets held for sale category to continuing operations assets. There was no material value is associated with this CGU on a value-in-use basis.

Reversal of impairment of other assets

Impairment reversal in 2020 of other non-current assets of US$ 4.8 million, in 2019 of US$ 7.9 million and in 2018 of US$ 3.8 million related to the indirect taxes in West Africa, Lefa segment, and arose due to a change of estimate in respect of their recoverability.

10. FINANCE INCOME AND FINANCE COSTS

	Year ended 31 December		
	2018	2019	2020
Finance income			
Interest income	4 284	822	881
Net gain per mark up of derivative instruments	—	27 330	—
Total	**4 284**	**28 152**	**881**
Finance costs			
Interest expense	(61 764)	(51 971)	(39 045)
Net loss from derivative	(44 762)	—	—
Royalties related to West African operations	(5 654)	(2 752)	(2 412)
Environmental provision discount unwinding	(1 484)	(1 898)	(2 213)
Other	(1 937)	(2 755)	(3 133)
Total	**(115 601)**	**(59 376)**	**(46 803)**

Derivative net income of US$ 27.3 million for 2019, 2018: net loss US$ 44.8 million, related to a cross currency swap and includes US$ 2.3 million of net interest and US$ 25.0 million derivative instrument fair value change. The swap provided an economic hedge of a Ruble denominated loan held by an entity with US dollar functional currency. The swap was closed out in 2019 and the loan redenominated into US dollar as set out in Note 19 with no gain or loss, or transfer of cash arising.

11. INCOME TAX

	Year ended 31 December		
	2018	2019	2020
Current tax charge	(38 809)	(29 190)	(45 459)
Prior period adjustment	(375)	4 104	—
Deferred tax expense	4 772	64	(34 304)
Income tax expense	**(34 412)**	**(25 022)**	**(79 763)**

In 2018, 2019 and 2020, the Group's profits were taxable at 19% in the United Kingdom, 20% in the Russian Federation and Kazakhstan, 17.5% and 27.5% in Burkina Faso, and 30% in Guinea.

At the Budget 2021 on 3 March 2021, the UK Government announced that the corporation tax rate in the UK will increase to 25% for companies with profits above £250,000 with effect from 1 April 2023, as well as announcing a number of other changes to allowances and treatment of losses. These changes are not yet substantively enacted, and the Group has not yet undertaken a full analysis of the impact of the changes.

The amount of income tax recorded in the consolidated statement of profit or loss differs from the theoretical amount that would arise by applying the weighted average tax rate to profit before tax and is reconciled as follows:

	Year ended 31 December					
	2018		2019		2020	
Profit before income tax expense	**126 307**		**178 860**		**657 932**	
Theoretical tax at rates applicable to the profits in the respective countries	(35 405)	28%	(30 751)	17%	(134 135)	20%
Effect of the regional investment project	—	—	46 033	(26%)	63 863	(10%)
Utilisation of previously unrecognised deferred tax assets	4 095	(3%)	—	—	4 885	(1%)
Prior period adjustments	(375)	0%	4 104	(2%)	—	—
Effect of intragroup dividends	(4 816)	4%	(2 317)	1%	(3 909)	1%
Current year losses not recognised	(1 430)	1%	(3 574)	2%	(5 009)	1%
Income/(expenses) that are non-deductible	(2 384)	2%	(2 297)	1%	(868)	0%
Deferred tax write-off/recognised	5 903	(5%)	(36 220)	20%	(4 590)	1%
Income tax expense	**(34 412)**	**27%**	**(25 022)**	**14%**	**(79 763)**	**12%**

Theoretical tax at rates applicable to the profits in the respective countries is 20% in 2020, 17% in 2019 and 28% in 2018. The change of theoretical tax rate from 28% in 2018 to 17% in 2019 mainly explained by the fact that Taparko generated profit in 2018 and loss in 2019.

Starting from 1 January 2019, LLC Nerungri-Metallik, a 100% subsidiary of the Group that owns the Gross mine, applies the following reduced rates on income tax because it entered into a regional investment project: 0% in 2019-2020, Jan 2021–Jun 2022 — 10%, and 20% in subsequent years.

Current year losses not recognised relates to losses that Management does not deem to be recoverable following the application of IAS 12. As previously mentioned, deferred tax assets are recognised to the extent that it is probable that there will be future taxable profits against which the tax losses and other temporary differences can be utilised.

In 2020, the Group has written off deferred tax assets in total amount US$ 4.6 million mainly related to Zun-Holba and HRG Exploration Burkina SARL which were deemed non-recoverable.

In 2019, the Group has written off deferred tax assets related to Lefa, Taparko, High River Gold Mines Ltd and Nordgold Management which were deemed non-recoverable.

Deferred tax recognised in 2018 related to the deferred tax asset on the tax losses arising in 2014 in Guinea which are deemed recoverable on the basis of sufficient future taxable income expected to be generated by Lefa.

In 2018, the Group has recognised US$ 4.1 million of tax losses as a result of transferring related expense from holding company to operating West African entity where those losses can be utilized against taxable profit.

The movement in the net deferred tax liabilities was as follows:

2018	Opening balance	Recognised in profit or loss	Adjustment in respect of prior years	Translation difference	Reclassified as held for sale	Closing balance
Deferred tax assets/(liabilities) related to:						
Property, plant and equipment	(10 524)	(29 159)	1 651	5 328	—	(32 704)
Intangible assets	(100 168)	13 896	—	4 560	—	(81 712)
Inventories	(6 233)	(555)	—	1 270	—	(5 518)
Financial investments	5 146	224	—	(365)	—	5 005
Provisions	10 263	(1 439)	—	(952)	—	7 872
Other	12 532	(6 261)	—	(1 577)	—	4 694
Tax losses carried forward	24 911	28 066	—	(1 458)	—	51 519
Total	**(64 073)**	**4 772**	**1 651**	**6 806**	**—**	**(50 844)**

2019	Opening balance	Recognised in profit or loss	Adjustment in respect of prior years	Translation difference	Reclassified as held for sale	Closing balance
Deferred tax assets/(liabilities) related to:						
Property, plant and equipment	(32 704)	16 707	—	(2 661)	2 877	(15 781)
Intangible assets	(81 712)	(10 084)	4 395	(1 093)	722	(87 772)
Inventories	(5 518)	2 079	—	(979)	—	(4 418)
Financial investments	5 005	(4 707)	—	(84)	—	214
Provisions	7 872	(752)	—	615	—	7 735
Other	4 694	3 985	(291)	379	(79)	8 688
Tax losses carried forward	51 519	(7 164)	—	48	—	44 403
Total	**(50 844)**	**64**	**4 104**	**(3 775)**	**3 520**	**(46 931)**

2020	Opening balance	Recognised in profit or loss	Recognized in other comprehensive income	Translation difference	Reclassified from held for sale	Closing balance
Deferred tax assets/(liabilities) related to:						
Property, plant and equipment	(15 781)	(15 887)		3 657	(2 877)	(30 888)
Intangible assets	(87 772)	(1 529)		730	(722)	(89 293)
Inventories	(4 418)	(3 059)		879		(6 598)
Financial investments	214	—	(7)	6		213
Provisions	7 735	1 687		(828)		8 594
Other	8 688	(2 272)	(158)	(1 130)	79	5 207
Tax losses carried forward	44 403	(13 244)		810		31 969
Total	**(46 931)**	**(34 304)**	**(165)**	**4 124**	**(3 520)**	**(80 796)**

Management concluded that recoverability of the recognised deferred tax asset of US$ 32.0 million at 31 December 2020, US$ 44.4 million at 31 December 2019 and US$ 51.5 million at 31 December 2018, on tax losses carried forward is probable based upon expectations of future taxable income and available tax planning strategies.

Taxable differences related to investments in subsidiaries where the Group is able to control the timing of the reversal and it is probable that the recurring temporary difference will not reverse in the foreseeable future,

amounted to US$ 983 million at 31 December 2020, US$ 632 million at 31 December 2019 and US$ 367 million at 31 December 2018 and have not been recognised in the historical financial information.

The Group has not recognised deferred tax assets on tax losses carried forward related to certain Group entities where it is not probable that deferred tax assets can be utilised.

Certain deferred tax assets and liabilities have been offset to the extent they relate to taxes levied in the same jurisdiction and on the Group's entities which can pay taxes on a consolidated basis. Deferred tax balances (after offset) presented in the consolidated statement of financial position were as follows:

	31 December		
	2018	2019	2020
Deferred tax liability	(97 807)	(83 482)	(100 680)
Deferred tax asset	46 963	36 551	19 884
Net deferred tax liability	**(50 844)**	**(46 931)**	**(80 796)**

The cumulative amounts of unrecognised tax losses with related expiry dates were the following:

	31 December		
	2018	2019	2020
Within one year	9	9	28
Between one and five years	2 107	13 577	872
Between five and ten years	2 519	5 485	14 375
Between ten and twenty years	1 800	7 154	2 496
No expiry date	66 633	47 461	22 371
Total	**73 068**	**73 686**	**40 142**

12. DISPOSAL GROUP CLASSIFIED AS HELD FOR SALE

During 2019 the Zun-Holba mine, a part of Buryatzoloto operations, was separated from OJSC Buryatzoloto into a separate legal entity LLC Zun-Holba. Assets related to Zun-Holba operations were transferred from OJSC Buryatzoloto to LLC Zun-Holba as a contribution to the share capital.

As a result of the separation, the Zun-Holba operations were ready for sale in their present condition and management assessed that it was highly probable that Zun-Holba would be disposed of during the next year, leading to the classification of the assets and liabilities of Zun-Holba as held for sale starting from 1 October 2019. Negotiations with several interested parties were continuing to take place as at 31 December 2019. The assets and liabilities of the Zun-Holba operations, which were expected to be disposed of within 12 months, were presented separately as assets and liabilities held for sale as at 31 December 2019.

Proceeds from disposal were expected to be US$ 3.0 million whilst the carrying amount of the related net assets as at 31 December 2019 was US$ 25.1 million. An impairment loss of US$ 22.1 million was recognised accordingly in respect of assets held for sale.

In 2020 the status of the negotiations with a potential buyer were such that the probability of Zun-Holba disposal within next 12 months was reassessed as low. As a result Zun-Holba assets and liabilities were no longer classified as held for sale starting from 30 June 2020.

As a result of impairment review performed on reclassification of respective assets from held for sale category as at 30 June 2020 Zun-Holba CGU was fully impaired, the carrying value of this CGU as at 31 December 2020 was nil (Note 9).

13. DIVIDENDS

	Cents per share	US$ thousand	Accrued and paid in
Final dividend 2017	5	15 261	2018
Interim dividend 2018 Q1	3	11 226	2018
Interim dividend 2018 Q2	3	9 635	2018
Interim dividend 2018 Q3	3	9 262	2018
Total dividends for the year ended 31 December 2018			**45 384**
Final dividend 2018	1	4 304	2019
Total dividends for the year ended 31 December 2019			**4 304**
Final dividend 2019	16	53 300	2020
Total dividends for the year ended 31 December 2020			**53 300**

The final 2019 dividend of US$ 53.3 million was paid in 2020, the final 2018 dividend of US$ 4.3 million was paid in 2019 and the final 2017 dividend of US$ 15.3 million was paid in 2018.

14. CASH AND CASH EQUIVALENTS

	31 December		
	2018	2019	2020
Cash at banks	72 840	140 999	721 608
Short-term bank deposits (maturing within 3 months)	17 370	48 715	17 466
Petty cash	136	177	129
Total	**90 346**	**189 891**	**739 203**
Restricted cash in non-current assets	16 395	18 993	20 936

Restricted cash comprises cash reserved in banks in accordance with the local legislation requirements in connection with the future site restoration costs in Burkina Faso, Guinea and Kazakhstan.

The carrying values of cash and cash equivalents and of restricted cash approximated their fair values because of the short maturities of these instruments.

The Group's exposure to risks associated with cash and cash equivalents is disclosed in Note 26.

15. ACCOUNTS RECEIVABLE

	31 December		
	2018	2019	2020
Advances paid and prepayments	15 827	20 881	15 614
Trade accounts receivable	1 497	2 062	1 550
Other receivables	13 763	15 879	18 521
Provision for credit losses			
Advances paid and prepayments	(143)	(151)	(272)
Trade accounts receivable	(246)	(248)	(225)
Other receivables	(691)	(791)	(704)
Total accounts receivable	**30 007**	**37 632**	**34 484**

Other receivables line mostly relates to different accounts receivables by mines, e.g. materials and consumables and services related charges to the suppliers for using mines sites facilities. As at 31 December 2020 other receivables include account receivable for Cardinal Resources Limited shares sale in amount of US$ 2.9 million, nil as at 31 December 2019 and 2018 (Note 24).

The carrying value of trade and other accounts receivable approximated their fair values because of the short maturities of these instruments. The Group's exposure to risks arising from accounts receivable are discussed in Note 26.

16. INVENTORIES

	31 December		
	2018	2019	2020
Current inventories			
Materials and consumables	107 170	124 006	115 316
Work-in-progress	85 252	91 503	106 970
Finished goods	4 123	4 247	3 445
Total current inventories	**196 545**	**219 756**	**225 731**
Non-current inventories			
Long-term ore stockpiles	42 432	44 277	67 562
Long-term materials and consumables	46 520	43 142	42 909
Total non-current inventories	**88 952**	**87 419**	**110 471**

In 2020 inventories recognised as an expense within cost of sales amounted to US$ 382.5 million, in 2019 US$ 345.0 million and in 2018 US$ 281.7 million.

As at 31 December 2020, the obsolescence and net realisable value provision amounted to US$ 45.0 million). The cost of sales for 2020 includes a provision of US$ 3.7 million for obsolescence and a reversal of net realisable value provision of US$ 7.2 million. The main reason for the reversal was gold price increase leading to the reduction of net realizable value provision.

As at 31 December 2019, the obsolescence and net realisable value provision amounted to US$ 47.3 million. The cost of sales for 2019 includes a provision of US$ 1.6 million for obsolescence and an accrual of net realisable value provision of US$ 8.3 million. The main reason for the accrual was cost increase at certain CGUs leading to additional net realizable value provision.

As at 31 December 2018, the obsolescence and net realisable value provision amounted to US$ 47.3 million. The cost of sales for 2018 includes a provision of US$ 0.3 million for obsolescence and an accrual of net realisable value provision of US$ 6.7 million. The main reason for the accrual was cost increase at certain CGUs leading to additional net realizable value provision.

17. PROPERTY, PLANT AND EQUIPMENT

	Land, buildings and constructions	Plant and equipment	Capital stripping	Other assets	Construction in progress	Total
Cost						
Balance at 1 January 2018	**496 842**	**748 605**	**287 888**	**33 216**	**505 505**	**2 072 056**
Reclassifications to inventories	—	—	—	—	(3 498)	(3 498)
Reclassifications	10 866	(10 866)	—	—	—	—
Additions	—	—	—	—	493 360	493 360
Change in environmental provision	574	—	—	—	—	574
Transfers	26 798	232 451	82 278	6 569	(348 096)	—
Disposals	(41)	(7 383)	(84 502)	(543)	(2 103)	(94 572)
Translation differences	(40 334)	(50 294)	(19 344)	(2 187)	(74 185)	(186 344)
Balance at 31 December 2018	**494 705**	**912 513**	**266 320**	**37 055**	**570 983**	**2 281 576**
Effect of IFRS 16 adoption	10 058	—	—	—	—	10 058
Balance at 1 January 2019	**504 763**	**912 513**	**266 320**	**37 055**	**570 983**	**2 291 634**
Reclassifications to inventories	—	—	—	—	(10 030)	(10 030)
Reclassifications between groups	31 746	(42 361)	—	10 615	—	—
Reclassified as held for sale	(36 259)	(9 809)	—	(80)	(7 522)	(53 670)
Additions	—	—	—	—	406 670	406 670
Change in environmental provision	11 357	—	—	—	—	11 357
Transfers	39 532	362 442	199 475	7 351	(608 800)	—
Disposals	(87)	(5 356)	(151 891)	(268)	(1 430)	(159 032)
Translation differences	9 411	35 106	4 176	1 030	23 942	73 665
Balance at 31 December 2019	**560 463**	**1 252 535**	**318 080**	**55 703**	**373 813**	**2 560 594**
Reclassifications to inventories	—	—	—	—	(7 275)	(7 275)
Reclassified from held for sale	32 609	10 094	—	110	4 508	47 321
Additions	—	—	—	—	377 794	377 794
Change in environmental provision	(4 343)	—	—	—	—	(4 343)
Transfers	27 976	109 303	236 044	36 361	(409 684)	—
Disposals	(812)	(131 649)	(68 239)	(4 482)	(2 127)	(207 309)
Translation differences	(1 663)	(40 772)	12 225	(3 378)	(21 533)	(55 121)
Balance at 31 December 2020	**614 230**	**1 199 511**	**498 110**	**84 314**	**315 496**	**2 711 661**
Depreciation and impairment						
Balance at 1 January 2018	**(291 470)**	**(487 591)**	**(176 778)**	**(19 574)**	**(11 130)**	**(986 543)**
Reclassifications between groups	(13)	13	—	—	—	—
Depreciation for the year	(29 546)	(76 338)	(71 588)	(4 656)	—	(182 128)
Impairment	(2 551)	(2 262)				(4 813)
Disposals	34	6 629	84 502	372	—	91 537
Translation differences	24 731	32 501	9 001	962	380	67 575

	Land, buildings and constructions	Plant and equipment	Capital stripping	Other assets	Construction in progress	Total
Balance at 31 December 2018	**(298 815)**	**(527 048)**	**(154 863)**	**(22 896)**	**(10 750)**	**(1 014 372)**
Reclassifications between groups	(2 266)	3 025	—	(759)	—	—
Reclassified as held for sale	18 411	8 111	—	80	—	26 602
Depreciation for the year	(48 517)	(120 836)	(123 612)	(3 257)	—	(296 222)
Impairment (Note 9)	(28 343)	(1 514)	(52 811)	(188)	(5 364)	(88 220)
Disposals	43	5 122	151 891	102	—	157 158
Translation differences	(5 565)	(11 501)	658	(116)	(271)	(16 795)
Balance at 31 December 2019	**(365 052)**	**(644 641)**	**(178 737)**	**(27 034)**	**(16 385)**	**(1 231 849)**
Reclassifications between groups	23 707	—	(23 707)	—	—	—
Reclassified from held for sale	(32 609)	(10 094)	—	(110)	(4 508)	(47 321))
Depreciation for the year	(50 087)	(143 919)	(125 131)	(8 494)	—	(327 631)
Impairment (Note 9)	(3 828)	(2 449)	(17 594)	(174)	(4 387)	(28 432)
Disposals	575	126 620	68 239	4 532	—	199 966
Translation differences	1 408	(3 054)	(11 989)	(302)	541	(13 396)
Balance at 31 December 2020	**(425 886)**	**(677 537)**	**(288 919)**	**(31 582)**	**(24 739)**	**(1 448 663)**
Net book value						
Balance at 31 December 2018	**195 890**	**385 465**	**111 457**	**14 159**	**560 233**	**1 267 204**
Balance at 31 December 2019	**195 411**	**607 894**	**139 343**	**28 669**	**357 428**	**1 328 745**
Balance at 31 December 2020	**188 344**	**521 974**	**209 191**	**52 732**	**290 757**	**1 262 998**

Transfers include movements of ready for use assets from Construction in progress to Fixed Assets groups. After such transfers the assets are put into operation and depreciation is started.

The most significant right of use assets balance as at 31 December 2020 of US$ 5.6 million, as at 31 December 2019 of US$ 7.1 million and as at 31 December 2018 nil relates to Land, buildings and constructions category.

18. INTANGIBLE ASSETS

	Mineral rights	Exploration and evaluation assets	Other intangible assets	Total
Cost				
Balance at 1 January 2018	**1 408 618**	**139 455**	**22 746**	**1 570 819**
Additions	—	49 066	1 065	50 131
Transfers	40 664	(40 664)	—	—
Disposals	—	(15)	(76)	(91)
Translation differences	(63 750)	(11 409)	(3 016)	(78 175)
Balance at 31 December 2018	**1 385 532**	**136 433**	**20 719**	**1 542 684**
Additions	—	49 642	2 297	51 939
Transfers	36 558	(36 349)	(209)	—
Reclassified as held for sale	(32 429)	—	—	(32 429)
Disposals	—	(19)	(88)	(107)
Translation differences	23 337	7 831	1 346	32 514

	Mineral rights	Exploration and evaluation assets	Other intangible assets	Total
Balance at 31 December 2019	**1 412 998**	**157 538**	**24 065**	**1 594 601**
Additions	—	47 028	2 991	50 019
Transfers	32 865	(32 865)	—	—
Reclassified from held for sale	32 429	—	—	32 429
Disposals	—	—	(693)	(693)
Translation differences	(21 026)	(9 298)	(1 367)	(31 691)
Balance at 31 December 2020	**1 457 266**	**162 403**	**24 996**	**1 644 665**
Amortisation and impairment				
Balance at 1 January 2018	**(724 362)**	**(67 567)**	**(13 230)**	**(805 159)**
Amortisation for the year	(47 211)	—	(3 638)	(50 849)
Impairment (Note 9)	(37 154)	(969)	—	(38 123)
Disposals	—	—	59	59
Translation differences	21 633	14	1 687	23 334
Balance at 31 December 2018	**(787 094)**	**(68 522)**	**(15 122)**	**(870 738)**
Amortisation for the year	(40 940)	—	(2 528)	(43 468)
Reclassified as held for sale	30 830	—	—	30 830
Impairment (Note 9)	(19 748)	(7 564)	—	(27 312)
Disposals	—	—	92	92
Translation differences	(7 286)	(588)	(667)	(8 541)
Balance at 31 December 2019	**(824 238)**	**(76 674)**	**(18 225)**	**(919 137)**
Amortisation for the year	(51 557)	—	(971)	(52 528)
Reclassified from held for sale	(32 429)	—	—	(32 429)
Impairment (Note 9)	(7 792)	(535)	(48)	(8 375)
Disposals	—	—	693	693
Translation differences	10 486	2 328	776	13 590
Balance at 31 December 2020	**(905 530)**	**(74 881)**	**(17 775)**	**(998 186)**
Net book value				
Balance at 31 December 2018	**598 438**	**67 911**	**5 597**	**671 946**
Balance at 31 December 2019	**588 760**	**80 864**	**5 840**	**675 464**
Balance at 31 December 2020	**551 736**	**87 522**	**7 221**	**646 479**

19. BORROWINGS

	31 December 2018	31 December 2019	31 December 2020
Short-term borrowings			
Bank loans	342 598	—	80 000
Factoring arrangements	34 275	38 038	49 865
Accrued interest	4 656	6 153	5 180
Lease liability	—	5 872	6 075
Unamortised balance of transaction costs	(160)	—	—
Total short-term borrowings	**381 369**	**50 063**	**141 120**

	31 December 2018	31 December 2019	31 December 2020
Long-term borrowings			
Bank loans	576 051	525 000	445 000
Bonds issued	—	400 000	400 000
Lease liability	—	16 259	11 469
Unamortised balance of transaction costs	(8 251)	(9 549)	(6 595)
Total long-term borrowings	**567 800**	**931 710**	**849 874**

Bank loans

In March 2017, the Group's wholly owned subsidiary Celtic Resources Holdings Limited, arranged an unsecured US$ 325 million loan from Sberbank of Russia JSC, maturing in March 2024 with a principal repayment grace period of 63 months and quarterly repayments commencing of the principal thereafter.

The loan is a hybrid instrument consisting of the following separate components:

- Facility A: RUB 18.6 billion (US$ 325 million equivalent) two-year loan denominated in Russian Roubles, effective from March 2017 until March 2019;
- Cross-Currency swap ("CCS"), under which Celtic Resources Holdings Limited will pay floating interest on US Dollars notional and receive fixed interest on RUB notional starting from March 2017 with the final notional amounts exchanged on maturity in March 2019;
- Facility B: US$325 million five year loan denominated in US dollar, effective from March 2019 until March 2024.

The CCS was conditional on the utilisation of both Facility A and B. Facility A resulted in a cash inflow of US$ 325 million in March 2017 and quarterly interest payments on an effective US$ 325 million denominated loan. Interest is variable.

In March 2019, the CCS was fully settled resulting in full de-recognition of the derivative financial instrument and Facility A from the statement of financial position and recognition of Facility B treated as a long term borrowing in the amount of US$ 325 million without any cash movements. Facility B related interest is variable and payable on quarterly basis.

In March 2018, the Group secured a new US$300 million, five-year debt facility with a group of banks. The syndicated loan was provided by the following mandated lead arrangers: ING (a branch of ING-DIBA AG), AO Raiffeisenbank, Raiffeisen Bank International AG, PJSC Rosbank, Societe Generale and AO UniCredit Bank. The facility is denominated in US dollars maturing in March 2023 with a grace period of 30 months and quarterly repayments thereafter. Interest is variable and payable on a quarterly basis. As at 31 December 2020 and 2019, the outstanding amount of the facility was US$ 200 million. As at 31 December 2018, the outstanding amount of the facility was US$ 300 million.

In June 2018, the Group entered into a US$50 million unsecured committed revolving credit facility with Citibank Europe plc denominated in US dollars maturing in June 2020. The amounts drawn down are repayable at different maturities to the final maturity date. Interest is variable and payable on a quarterly basis. In June 2020 the facility was prolonged for two more years till June 2022. As at 31 December 2020 and 2019 there was no outstanding amount related to this facility. As at 31 December 2018 the outstanding amount related to this facility was US$ 50 million.

In May 2019, the Group entered into a US$75 million unsecured committed revolving credit facility with HSBC Bank plc denominated in US dollars maturing in April 2021. The amounts drawn down are repayable at different maturities to the final maturity date. Interest is variable and payable on a quarterly basis. As at 31 December 2020 and 2019 there was no outstanding amount related to this facility.

The borrowings' average interest rate as at 31 December 2020 was 3.9%, 31 December 2019: 4.6%, 31 December 2018: 4.8%.

The fair value of the Group's debt instruments approximated their carrying values at 31 December 2018, 31 December 2019 and 31 December 2020 except for the fair value of bonds which had a market value of US$ 425.5 million, 31 December 2019: US$ 413.0 million, 31 December 2018: nil.

Unused credit facilities at 31 December 2020 and 2019 amounted to US$ 215 million, US$ 90 million relates to uncommitted credit facilities and US$ 125 million to committed one.

Unused credit facilities at 31 December 2018 amounted to US$ 90 million, the whole amount was uncommitted.

Notes and bonds issued

In May 2018, the Company repaid at maturity US$ 500 million unsecured notes issued in May 2013.

In October 2019, the Group raised US$ 400 million in Eurobond issuances. The notes are issued by Celtic Resources Holdings DAC, a wholly-owned subsidiary of Nord Gold plc, and are guaranteed by certain Group subsidiaries. The notes are denominated in US Dollars, mature in October 2024, and bear interest of 4.125% per annum payable semi-annually in arrears, on 9 April and 9 October, commencing on 9 April 2020. The notes were admitted to the Official List of Euronext Dublin and traded on the Global Exchange Market of Euronext Dublin from 9 October 2019. The notes were further used for full repayment of short term loans and for repayment of an HSBC loan classified as long term.

Factoring arrangements

As at 31 December 2020, the Group owed the amount of US$ 49.9 million, 31 December 2019: US$ 38.0 million, 31 December 2018: US$ 34.3 million to third party financial institutions arising from reverse factoring arrangements in respect of non-metal inventory purchases in West Africa. The liabilities for these purchases were legally transferred from the supplier providing the non-metal inventories to financial institutions during the period. In the prior year the Group presented two items in the cash flow statement related to liabilities transferred to financial institutions: an operating cash outflow and a financing cash inflow within the line "Proceeds from borrowings". The cash outflow on settlement of the liability was presented within the line "Repayment of borrowings". The IFRS Interpretation Committee in December 2020 stated that such non-cash movements occurring for an entity in a financing transaction should not be presented in the cash flow statement. Consequently, the Group continues to present cash payments to financial institutions within financing cash outflows but no longer reports any operating cash outflow or financing cash inflow on transfer of the liability to the financial institution. Payments to financial institutions for 2020 amounted to US$ 123.2 million, 2019: US$ 115.9 million, 2018: US$ 44.3 million. The invoices transferred to financial institutions for 2020 amounted to US$ 127.9 million, 2019: US$: 115.9 million, 2018: US$: 51.1 million.

Lease liability

Cash outflow for leases during 2020 amounted to US$ 5.1 million, 2019: US$ 5.8 million, 2018: nil.

20. ACCOUNTS PAYABLE

	31 December		
	2018	2019	2020
Trade accounts payable	181 794	182 908	174 012
Other taxes payable	44 032	59 965	64 164
Amounts payable to employees	28 124	29 412	30 862
Accrued expenses	2 104	2 073	2 198
Share buyback reserve	750	—	—
Advances received	226	521	176
Other payables	26 811	22 463	2 644
Total	**283 841**	**297 342**	**274 056**

At 31 December 2019 other payables balance included US$ 15.8 million of payables from Societe Miniere de Dinguiraye ("SMD") to PMC, a counterparty performing construction works at the Lefa mine. PMC was a contractor of SMD in 2007-2009 engaged in a variety of works that included construction, drilling works, etc. The major part of works was rendered with gross breach of the contractual terms resulting in unilateral termination of the contract on SMD's initiative. PMC filed lawsuits in different jurisdictions on wrongful termination, claiming losses. All suits were rejected. In 2020, following the expiry of limitation period, a US$ 15.8 million liability has extinguished and was written off through other income in the consolidated statement of profit and loss.

The carrying values of trade and other accounts payable approximated their fair values because of the short maturities of these instruments.

21. PROVISIONS

	Legal and tax claims	Environmental provision	Other	Total
Balance at 1 January 2018	**13 311**	**47 260**	**1 910**	**62 481**
Charge in the year	2 717	4 210	—	6 927
Change in estimate	—	(3 636)	—	(3 636)
Unwinding of discount	—	1 484	—	1 484
Provisions utilised	(2 908)	—	(248)	(3 156)
Translation differences	(1 884)	(2 985)	(7)	(4 876)
Balance at 31 December 2018	**11 236**	**46 333**	**1 655**	**59 224**
Reclassified as held for sale (Note 12)	—	(3 445)	—	(3 445)
Charge in the year	(4 027)	13 608	—	9 581
Change in estimate	—	(2 251)	—	(2 251)
Unwinding of discount	—	1 898	—	1 898
Provisions utilised	(5 187)	—	(69)	(5 256)
Translation differences	854	1 038	—	1 892
Balance at 31 December 2019	**2 876**	**57 181**	**1 586**	**61 643**
Reclassified from held for sale	—	3 445	—	3 445
Charge in the year	3 182	1 530	—	4 712
Change in estimate	—	(5 873)	—	(5 873)
Unwinding of discount	—	2 213	—	2 213
Provisions utilised	(1 657)	—	—	(1 657)
Translation differences	(319)	537	8	226
Balance at 31 December 2020	**4 082**	**59 033**	**1 594**	**64 709**

Provision for legal and tax claims and other provisions were classified as current liabilities based on the Group's forecast cash outflow timings.

The Group's environmental liabilities relate to the restoration of soil and other related mining works cash outflows, which are due upon the closures of mines and production facilities. These costs are expected to be incurred between 2022–2040, accordingly environmental provisions were classified within non-current liabilities. The present value of expected cash outflows were estimated using existing technology and discounted using the following real discount rates:

	Year ended 31 December		
	2018	2019	2020
Russian Federation	3.17 - 4.07%	1.92 - 2.71%	1.14 - 2.61%
Kazakhstan	3.77%	2.81%	2.2%
Burkina Faso	3.92 - 4.12%	4.19 - 4.52%	3.81 - 4.36%
Guinea	4.65%	4.5%	4.34%

Management performed an analysis of the reasonably possible change of discount rates used and its effect on the environmental provision as at 31 December 2020. The following scenarios were considered as reasonably possible and were used for this sensitivity analysis:

Scenarios	Environmental provision increase/ (decrease)
1% decrease in discount rate applied	4 072
1% increase in discount rate applied	(5 040)

22. CAPITAL AND RESERVES

Share capital

During 2018, the Company repurchased 3 089 545 ordinary shares for US$ 10.7 million, all of which were cancelled.

During 2019, the Company repurchased 20 297 ordinary shares for US$ 0.1 million, all of which were cancelled.

Following these transactions, the Company's issued share capital as at 31 December 2019 consisted of 336 263 929 ordinary shares with par value of 1 EUR per share amounting to US$ 464.6 million, 31 December 2018: 336 284 226 ordinary shares with par value of 1 EUR per share amounting to US$ 464.6 million.

In 2020 the Company has decided to reduce its share capital by reducing the nominal value of each of the Company's ordinary shares from 1 EUR to 0.01 EUR to create sufficient distributable reserves at a company only level to facilitate the payment of dividends in accordance with UK company law.

Following the Capital Reduction the Company's issued share capital as at 31 December 2020 consisted of 336 263 929 ordinary shares (authorised and fully paid) with par value of 0.01 EUR per share amounting to US$ 4.6 million.

No special rights, preferences and restrictions existed in respect of Company's ordinary shares as at December 2020, 2019 and 2018.

The Company's authorised shares number was unlimited as at December 2020, 2019 and 2018.

Additional paid-in capital

Additional paid-in capital includes the excess of consideration received over the par value of shares and GDRs issued by the Company, and the effects of transactions under common control in the course of the Group's formation. The 2018-2019 reduction of additional paid-in capital related to cancelations of treasury shares described above in the Share capital section is summarised in the table below. Additional paid-in capital amounted to US$ 761 million after the treasury shares cancelation in 2019. The table below set outs a summary of the treasury shares cancelled during 2018-2019 and the related movements in equity:

	Number of shares	Consideration paid during buyback	Share capital reduction	Additional paid-in capital reduction	Retained earnings effect
2 July 2018	184 338	636	255	417	(36)
5 October 2018	2 905 207	10 023	4 013	6 575	(565)
Total 2018	**3 089 545**	**10 659**	**4 268**	**6 992**	**(601)**
4 July 2019	20 297	70	28	46	(4)
Total 2019	**20 297**	**70**	**28**	**46**	**(4)**

Revaluation reserve

The revaluation reserve comprises the cumulative net change in the fair value of debt/equity investments assets designated as FVOCI, net of the related tax effects.

Other reserves

Other reserves in amount of US$ 11.4 million as at 31 December 2017 related to share buyback provision and were utilized during 2018 and 2019.

Other reserves in amount of US$ 10.5 million as at 31 December 2019 and its decrease to nil as at 31 December 2020 related to the provision for transfer of share in Societe Miniere de Denguiraye to the the Republic of Guinea and its utilization during 2020 (Note 25).

23. EARNINGS PER SHARE

Basic and diluted earnings per share for the year ended 31 December 2020 were based on the profit attributable to shareholders of the Company of US$ 568.7 million, for the year ended 31 December 2019: US$ 161.0 million, for the year ended 31 December 2018: US$ 87.7 million and a weighted average number of outstanding ordinary shares as at 31 December 2020 of 336 264 thousand, 31 December 2019: 336 274 and 31 December 2018: 338 589 thousand, calculated as per below (in thousands of shares):

	Issued shares	Weighted average number of shares
1 January 2018	**339 374**	**339 374**
Shares cancelled in July 2018	(185)	(92)
Shares cancelled in October 2018	(2 905)	(693)
31 December 2018	**336 284**	**338 589**
1 January 2019	**336 284**	**336 284**
Shares cancelled in July 2019	(20)	(10)
31 December 2019	**336 264**	**336 274**
1 January 2020	**336 264**	**336 264**
31 December 2020	**336 264**	**336 264**

24. INVESTMENT IN CARDINAL

In March 2020 the Company has acquired 98,443,593 shares in Cardinal Resources Limited ("Cardinal"), giving it voting power of approximately 19.9 percent of the total share capital outstanding for the total consideration of US$ 27.2 million. The directors did not consider that significant influence existed at initial recognition, and accordingly the investment in Cardinal was recognized at its fair value, with the Company electing to present subsequent changes in the fair value within other comprehensive income. Subsequent to 30 June 2020, the Group interest was diluted down to 18.7 percent. During July – September 2020, an additional 50,901,121 shares were acquired for the total consideration of US$ 33.8 million resulting in Group interest increasing to 27.8 percent. Legal expenses capitalized during 2020 amounted to US$ 1.2 million. As a result the investment in Cardinal was reclassified to Investment in associate at an initial value of US$ 102.1 million at 2 September 2020, when the Company obtained significant influence. The total revaluation amount recognised in other comprehensive income before reclassification to the Investment in associate was US$ 39.9 million.

In December 2020 the Company had sold its share in Cardinal for a total cash consideration in amount of US$ 122.9 million: US$ 120.0 million was paid in December 2020 and US$ 2.9 million was to be paid in January 2021 and recognized as accounts receivable as at 31 December 2020.

As at disposal date there was "equity method accounting" adjustment in amount of US$ 2.2 million of associate's loss according to publicly available Cardinal financial statements.

Net gain on disposal of Cardinal sale recognized in Consolidated statement of profit or loss amounted to US$ 21.3 million, and related gain in revaluation reserve in amount of US$ 32.3 million (net of tax, the amount of income tax relating to gain on revaluation was US$7.6 million) was transferred to retained earnings.

25. SUBSIDIARIES

The following is a list of the Group' subsidiaries and the effective ownership holdings therein:

Subsidiaries	31 December 2018	31 December 2019	31 December 2020	Location	Activity
Gross segment					
LLC Neryungri-Metallik (2)	100.0%	100.0%	100.0%	Republic of Sakha (Yakutia), Neryungri town. Hani pgt. 70 years of October, d. 3, kv. 55, 678976, Russian Federation	Gold mining
Taborny (former Neryungri) segment					
LLC Rudnik Taborny (2)	100.0%	100.0%	100.0%	Republic of Sakha (Yakutia), Olekminsky district, Olekminsk town, Brovina street, 4a, 678100, Russian Federation	Gold mining
Suzdal and Balazhal segment					
Celtic Resources Holdings DAC	100.0%	100.0%	100.0%	Fitzwilliam Hall, Fitzwilliam Place, Dublin 2, D02 T292, Ireland	Holding company
Celtic Resources (Central Asia)	100.0%	100.0%	100.0%	200 Strand, London, WC2R 1DJ, United Kingdom	Holding company
JSC FIC Alel	100.0%	100.0%	100.0%	122 Frunze street, Semey city, 071400, East-Kazakhstan region, the Republic of Kazakhstan	Gold mining
Zherek LLP	100.0%	100.0%	100.0%	122 Frunze street, Semey city, 071400, East-Kazakhstan region, the Republic of Kazakhstan	Gold mining
Opeloak Ltd	100.0%	100.0%	100.0%	200 Strand, London, WC2R 1DJ, United Kingdom	Gold sales
Buraytzoloto segment					
OJSC Buryatzoloto (1,4)	93.2%	93.2%	93.2%	Shalyapina street, 5V, Republic of Buryatia, Ulan-Ude,670045, Russian Federation	Holding
LLC Irokinda (1,4)	n/a	93.2%	93.2%	Shalyapina street, 5V, Republic of Buryatia, Ulan-Ude,670045, Russian Federation	Gold mining
LLC Zun-Holba (1,4)	n/a	93.2%	93.2%	Shalyapina street, 5V, Republic of Buryatia, Ulan-Ude,670045, Russian Federation	Gold mining
Berezitovy segment					
LLC Berezitovy Rudnik	100.0%	100.0%	100.0%	Centralnaya Str. 14, Amur Region, Tynda District, with. Pervomaiskoye, 676260, Russian Federation	Gold mining

Subsidiaries	31 December 2018	31 December 2019	31 December 2020	Location	Activity
Taparko segment					
Societe Des Mines de Taparko (1)	90.0%	90.0%	90.0%	01 B.P. 2509, Ouagadougou 01, Immeuble UPAK, Boulevard France — Afrique, Secteur 15, Ouaga 2000, Burkina Faso	Gold mining
Nordgold YEOU SA (1)	90.0%	90.0%	90.0%	Secteur 19, Quartier Kossodo, Rue 1749 Boulevard Tansoba Silzaedre, Section zz, lot 14, parcelle No8, arrodissement No4 de Ouagadougou, Burkina Faso	Gold mining
Lefa segment					
Crew Gold Corporation	100.0%	100.0%	100.0%	13-14 Espalande Street, St Heller, JE1 1BD,Jersey	Holding company
Crew Acquisition Corporation	100.0%	100.0%	100.0%	200-204 Lambert Street, Whitehorse, YT,Y1A 1Z4, Canada	Holding company
Guinor Gold Corporation	100.0%	100.0%	100.0%	3081,3rd ave.,Whitehorse, Yukon, Canada	Holding company
Kenor AS	100.0%	100.0%	100.0%	Arbins gate 4, 0253 Oslo, Norway	Holding company
Delta Gold Mining Ltd	100.0%	100.0%	100.0%	Registered office 28-30 The Parade, St Helier Jersey, JE1 1EQ	Holding company
Societe Miniere de Dinguiraye (3)	92.5%	92.5%	85.0%	4ème étage — Immeuble Moussoudougou — Résidence 2000,Corniche Coléah Sud — Commune de Matam BP 2162, Conakry, République de Guinée	Gold mining
Bissa and Bouly and Greenfields segments					
High River Gold Mines		100.0%	100.0%	Fourth Floor, One Capital Place, P.O. Box 847, Grand Cayman, KY1-1103, Cayman Islands	Holding company
(West Africa) Ltd (1)	100.0%				
Bissa Gold SA (1)	90.0%	90.0%	90.0%	11 B.P. 1229 CMS 11 OUAGA 11, 783 rue de la Chambre de Commerce 15 618 commune de Ouagadougou, Burkina Faso	Gold mining
High River Gold Exploration Burkina SARL (1)	100.0%	100.0%	100.0%	Secteur n°19 (Kossodo), Rue 1749 Boulevard Tânsoba Silzaèdre, section ZZ, Lot 14, parcelle 08, Burkina Faso	Gold exploration
Jilbey Burkina SARL (1)	100.0%	100.0%	100.0%	Secteur n°19 (Kossodo), Rue 1749 Boulevard Tânsoba Silzaèdre, section ZZ, Lot 14, parcelle 08, Burkina Faso	Gold exploration
Kaya Exploration SARL (1)	100.0%	100.0%	100.0%	Secteur n°19 (Kossodo), Rue 1749 Boulevard Tânsoba Silzaèdre, section ZZ, Lot 14, parcelle 08, Burkina Faso	Gold exploration
Prognoz Exploration Burkina SARL	100.0%	100.0%	100.0%	Secteur n°19 (Kossodo), Rue 1749 Boulevard Tânsoba Silzaèdre, section ZZ, Lot 14, parcelle 08, Burkina Faso	Gold exploration

Subsidiaries	31 December 2018	31 December 2019	31 December 2020	Location	Activity
Other companies					
Nordgold Management LLC	100.0%	100.0%	100.0%	Leningrad highway, 39, building 2,125212 Moscow, Russian Federation	Management services
Nordgold (UK) Ltd	100.0%	100.0%	100.0%	4th Floor, 27 Dover Street, Mayfair, London, W1S4LZ, United Kingdom	Other
Northquest Limited	100.0%	100.0%	100.0%	Suite 101 — 50 Richmond Street East, Toronto, Ontario M5C 1N7, Canada	Gold exploration
Compagnie Miniere Montagne d'Or SAS	55.1%	55.1%	55.1%	Immeuble Chopin — 1, rue de l'Indigoterie 97354 Rémire-Montjoly, Cayenne	Gold exploration
Nord Gold Guiana SAS	100.0%	100.0%	100.0%	1, Avenue Gustave Charlery, route de Montabo Imm Faic, 97300 Cayenne	Gold exploration
Nord Prognoz Ltd	100.0%	100.0%	100.0%	Ritter House Wickhams Cay II Road Town, Tortola, British Virgin Islands	Holding company
Nord Gold (Yukon) Inc.	100.0%	100.0%	100.0%	200-204 Lambert Street, Whitehorse, YT,Y1A 1Z4, Canada	Holding company
High River Gold Mines Ltd	100.0%	100.0%	100.0%	Suite 2100, Scotia Plaza, 40 King Street West Toronto, Ontario, M5H 3C2, Canada	Holding company
High River Gold Management Africa S.A. (1)	100.0%	100.0%	100.0%	11 BP 635 Ouagadougou, CMS 11, Immeuble UPAK Boulevard France — Afrique, secteur 15, Ouaga 2000, Burkina Faso	Other
High River Acquisition Corp. (1)	100.0%	100.0%	100.0%	200-204 Lambert Street, Whitehorse, Yukon Territory Y1A 1Z4, Canada	Other
Amur Gold Limited (1)	100.0%	100.0%	100.0%	Karaiskaki, 6 CITY HOUSE 3032, Limassol, Cyprus	Holding company
Centroferve Limited	100.0%	100.0%	100.0%	Karaiskaki,6, City House, P.C. 3032, Limassol, Cyprus	Holding company
Ken Kazgan LLP	100.0%	100.0%	100.0%	122 Frunze street, Semey city, 071400, East-Kazakhstan region, the Republic of Kazakhstan	Other
Eureka Mining Plc (5)	100.0%	n/a	n/a	200 Strand, London, WC2R 1DJ, United Kingdom	Holding company
Celtic Asian Gold LLP (6)	100.0%	100.0%	n/a	122 Frunze street, Semey city, 071400, East-Kazakhstan region, the Republic of Kazakhstan	Other
Kentau Exploration and Mining LLP	100.0%	100.0%	100.0%	122 Frunze street, Semey city, 071400, East-Kazakhstan region, the Republic of Kazakhstan	Other
Chelyabinsk Copper Co Ltd (5)	100.0%	n/a	n/a	200 Strand, London, WC2R 1DJ, United Kingdom	Holding company
Oldlove Ltd	100.0%	100.0%	100.0%	1, Costakis Pantelides Avenue, Nicosia, CY1010, CYPRUS	Other

(1) Subsidiary of High River Gold Mines Ltd.
(2) During 2018 LLC Rudnik Taborny owing Taborny gold deposit was separated from LLC Neryungri metallic owing Gross gold deposit in order to separate legal entities running different licenses.
(3) During 2018 7.5% of share in Societe Miniere de Dinguiraye was transferred to the government of Guinea according to the new mining convention terms.
(4) During 2019 LLC Irokinda and LLC Zun-Holba were separated from OJSC Buryatzoloto in order to separate legal entities running different licenses.
(5) During 2019 Eureka Mining Plc and Chelyabinsk Copper Co Ltd were liquidated.
(6) During 2020 Celtic Asian Gold LLP was sold to the third party, the result of the sale was immaterial.

During 2018, an amendment to the Lefa mining convention was passed by the Republic of Guinea which required all mining companies, operating in Guinea, transfer 15% of their shares to the Republic of Guinea in order to continue operating within the country. Accordingly, Societe Miniere de Dinguiraye ("SMD"), the owner of the Lefa mine, agreed to transfer 15% of shares to the Republic of Guinea. The transfer of 15% shares of SMD to the Republic of Guinea, does not result in the recognition of an incremental asset for SMD.

The Group received a revised Mining Permit and Mining Convention for a period of 15 years, effective from 21 March 2019. The Mining Convention determines the taxation and customs regimes under which SMD operates, as well as other provisions regulating the Company's activities in Guinea.

The transfer of shares was accounted for in accordance with IFRS 2 "Share based payments" with shares were transferred to the Republic of Guinea in two tranches and the related impact recognised in the consolidated statement of profit or loss. The value of the shares was determined based on the fair value of SMD's net assets as of the date of the transfer of first tranche. The first tranche of 7.5% was transferred in October 2018 after the Convention was ratified. The Company accordingly recognised additional non-controlling interest related to the first tranche amounting to US$10.5 million and a provision of US$ 10.5 million for the second tranche was recognised in the consolidated statement of changes in equity. The corresponding total impact of US$ 21.1 million was recognised in the consolidated statement of profit or loss within 'Loss on partial disposal of subsidiary'. Expenses relating to this extension, amounting to US$ 14.7 million, were also recognised in the consolidated statement of profit or loss, for the year ended 31 December 2018, within 'Loss on partial disposal of subsidiary'.

On 1 October 2020, the Company transferred the second tranche of 7.5% of its share in SMD to the Republic of Guinea and accordingly reclassified the provision, created earlier for the second tranche, to non-controlling interest within the consolidated statement of changes in equity. As a result, as at 31 December 2020, Republic of Guinea held 15% of the share capital of SMD.

26. RELATED PARTY TRANSACTIONS AND BALANCES

Transactions with entities under common control mainly included purchases of goods and services amounted to US$ 6.0 million in 2020, 2019: US$ 14.5 million, 2018: US$ 9.4 million. The services acquired are mostly relates to accounting and IT infrastructure maintenance. Entities under common control are Severstal Group subsidiaries controlled by the same ultimate shareholder. All the transactions were commenced on the market conditions according to tenders results.

As at 31 December 2020, balances with entities under common control included accounts payable of US$ 1.2 million, 31 December 2019: US$ 2.3 million, 31 December 2018: US$ 3.6 million, which are to be settled in cash.

27. FINANCIAL RISK MANAGEMENT

Capital management

The Group's policy is to maintain a strong capital base to ensure investor, creditor and market confidence and to sustain future development of the business. This policy includes compliance with certain externally imposed minimum capital requirements. According to UK legislation the Company has to maintain its share capital at a minimum of £50,000.

As at 31 December 2018 external credit ratings of the Group were as follows:
- Moody's: Ba2, stable outlook;
- Fitch: BB, stable outlook.

As at 31 December 2019, external credit ratings of the Group were as follows:
- Moody's: Ba2, stable outlook;
- Fitch: BB, stable outlook.

As at 31 December 2020, external credit ratings of the Group were as follows:
- Moody's: Ba2, stable outlook;
- Fitch: BB, positive outlook.

The Group's management constantly monitors profitability and leverage ratios and compliance with the minimum capital requirements. As per the tables below, the Group uses the return on assets ratio which is defined as profit from operations divided by total assets (averaged over the measurement period) and the leverage ratio calculated as net debt, comprising of long-term and short-term indebtedness, the related derivative instruments and lease liabilities less cash, cash equivalents and short-term bank deposits, divided by shareholder's equity.

Return on assets ratio:

	31 December 2018	31 December 2019	31 December 2020
Profit from operations	199 584	228 917	681 357
Total assets	2 529 315	2 739 834	3 194 197
Return on assets ratio	**8%**	**8%**	**21%**

Net debt reconciliation:

	31 December 2018	31 December 2019	31 December 2020
Non-current interest bearing loans and borrowings	567 800	931 710	849 874
Derivative financial instrument	58 402	—	—
Current interest bearing loans and borrowings	381 369	50 063	141 120
Less: cash and cash equivalents	(90 346)	(189 891)	(739 203)
Net debt	**917 225**	**791 882**	**251 791**

Leverage ratio:

	31 December 2018	31 December 2019	31 December 2020
Net debt	917 225	791 882	251 791
Shareholders' equity	942 487	1 182 411	1 594 680
Leverage ratio	**97%**	**66%**	**16%**

The leverage ratio during 2019 decrease mostly relates to an increase in the balance of cash and cash equivalents as at 31 December 2019. This resulted primarily from the completion of the construction of Gross mine in 2019 and the consequent absence of construction-related expenditure in 2019.

The leverage ratio decrease mostly relates to an increase in the balance of cash and cash equivalents as at 31 December 2020. This resulted primarily from net profit due to significant appreciation of gold prices.

Changes in liabilities arising from financing activities

The table below details changes in the Group's liabilities arising from financing activities, including both cash and non-cash changes. Liabilities arising from financing activities are those for which cash flows were, or future cash flows will be, classified in the Group's consolidated cash flow statement as cash flows from financing activities.

			Non-cash changes						
	31 December 2017	Cash flows	Foreign exchange movement	Transaction costs amortisation	Dividends declared	Transfers	Non-cash movements for supplier financing borrowing arrangements	Other changes	31 December 2018
Non-current borrowings	547 742	300 000	(54 096)	—	—	(217 595)	—	—	576 051
Current borrowings	448 000	(322 684)	(313)	—	—	217 595	—	—	342 598
Factoring arrangements	—	(44 270)	(496)	—	—	—	79 041	—	34 275
Transaction cost	(6 597)	(4 713)	—	2 899	—	—	—	—	(8 411)
Dividends payable	—	(45 385)	—	—	45 385	—	—	—	—
Other reserves	11 409	(10 659)	—	—	—	—	—	(10 540)	(9 790)
Other movements	—	(6 000)	—	—	—	—	—	6 000	—
Total financing activities	**1 000 554**	**(133 711)**	**(54 905)**	**2 899**	**45 385**	**—**	**79 041**	**(4 540)**	**934 723**

			Non-cash changes						
	31 December 2018	Cash flows	Foreign exchange movement	Transaction costs amortization	Dividends declared	Transfers	Non-cash movements for supplier financing borrowing arrangements	Other changes	31 December 2019
Non-current borrowings	576 051	300 000	—	—	—	48 949	—	—	925 000
Current borrowings	342 598	(348 413)	21 408	—	—	(48 949)	—	33 356	—
Factoring arrangements	34 275	(115 856)	(753)	—	—	—	120 372	—	38 038
Transaction cost	(8 411)	(4 234)	—	3 729	—	—	—	(633)	(9 549)
Lease liability	—	(5 822)	(515)	—	—	—	—	28 468	22 131
Dividends payable	—	(5 236)	—	—	4 304	—	—	932	—
Other reserves	(9 790)	(70)	—	—	—	—	—	(680)	(10 540)
Other movements	—	(1 193)	—	—	—	—	—	1 193	—
Total financing activities	**934 723**	**(180 824)**	**20 140**	**3 729**	**4 304**	**—**	**120 372**	**62 636**	**965 080**

			Non-cash changes						
	31 December 2019	Cash flows	Foreign exchange movement	Transaction costs amortization	Dividends declared	Transfers	Non-cash movements for supplier financing borrowing arrangements	Other changes	31 December 2020
Non-current borrowings	925 000	—	—	—	—	(80 000)	—	—	845 000
Current borrowings	—	—	—	—	—	80 000	—	—	80 000
Factoring arrangements	38 038	(123 180)	4 331	—	—	—	130 676	—	49 865
Transaction cost	(9 549)	(366)	—	2 736	—	—	—	583	(6 596)
Lease liability	22 131	(5 612)	1 025						17 544
Dividends payable	—	(54 182)	(101)	—	54 283	—	—	—	—
Other reserves	(10 540)	—	—	—	—	—	—	10 540	—
Other movements	—	(1 052)	—	—	—	—	—	1 052	—
Total financing activities	**965 080**	**(184 392)**	**5 255**	**2 736**	**54 283**	**—**	**130 676**	**12 175**	**985 813**

Major categories of financial instruments

The Group's principal financial liabilities and financial assets are presented as follows:

	31 December 2018	31 December 2019	31 December 2020
Financial assets			
Cash and cash equivalents	90 346	189 891	739 203
Trade and other receivables	10 861	13 891	16 739
Restricted cash	16 395	18 993	20 936
Long-term financial investments	3 181	2 961	3 222
Total financial assets	**120 783**	**225 736**	**780 100**
Financial liabilities			
Notes and bonds issued	—	403 760	403 720
Bank loans	923 070	527 397	526 463
Derivative financial instrument	58 402	—	—
Lease liabilities	—	22 131	17 544
Factoring arrangements	34 275	38 038	49 865
Trade and other payables	236 637	234 844	204 727
Total financial liabilities	**1 252 384**	**1 226 170**	**1 202 319**

The Group's activities expose it to the following risks:

- Credit risk;
- Liquidity risk;
- Market risk;
- Currency risk;
- Interest rate risk.

Presented below is information about the Group's exposure to each of the above risks, the Group's objectives, policies and processes for measuring and managing risk, and the Group's capital management. Quantitative disclosures are included throughout these historical financial information.

The Group has established comprehensive risk management policies to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities.

The Board of Directors monitors compliance with the Group's risk management policies and procedures and review the adequacy of the risk management framework in relation to the risks faced by the Group.

Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group's maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position.

To minimise Group's exposure to credit risk management undertakes the following:

- a substantial portion of gold sales are made to banks on immediate payment terms, therefore the credit risk related to trade receivables is minimal;
- the Group does not provide significant loans to third parties;
- the majority of the Group's cash and cash equivalents are placed in reputable banks that have credit ratings not lower than "B" from Moody's credit rating agency.

Concentration of credit risk

The credit risk on liquid funds is limited because the counterparties are banks with high credit-ratings assigned by international credit-rating agencies. As at 31 December 2020, the Group had a concentration of cash and cash equivalents and bank deposits with Sberbank in the amount of US$ 527.2 million, 31 December 2019: US$ 141.2 million, 31 December 2018: US$ 20.8 million.

As at 31 December 2020, the Group had a concentration of restricted cash with Banque Centrale des États de l'Afrique de l'Ouest in amount of US$ 15.8 million. As at 31 December 2019, the Group had a concentration of restricted cash with Société Générale Burkina Faso (for Bissa Gold SA) and Ecobank (for Societe Des Mines de Taparko) in amount of US$ 14.3 million, 31 December 2018: US$ 12.3 million.

Liquidity risk

The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and matching the maturity profiles of financial assets and liabilities. The following table details the contractual maturity of the Group's non-derivative financial liabilities, including both principal and interest cash flows on an undiscounted basis:

As at 31 December 2018:

	Carrying amount	Future contractual cash flows	Less than 1 year	1-2 years	2-5 years	More than 5 years
Non-derivative financial liabilities						
Factoring arrangements	34 275	34 892	34 892	—	—	—
Bank loans	923 070	1 115 943	120 202	341 616	613 107	41 018
Trade and other payables	236 637	236 637	236 637	—	—	—
Total	**1 193 982**	**1 387 472**	**391 731**	**341 616**	**613 107**	**41 018**

As at 31 December 2019:

	Carrying amount	Future contractual cash flows	Less than 1 year	1-2 years	2-5 years	More than 5 years
Non-derivative financial liabilities						
Factoring arrangements	38 038	38 722	38 722	—	—	—
Notes and bonds issued	403 760	483 281	20 535	16 729	446 017	—
Bank loans	527 397	598 389	27 032	102 273	469 084	—
Lease liabilities	22 131	25 807	6 634	6 333	12 840	—
Trade and other payables	234 844	234 844	234 844	—	—	—
Total	**1 226 170**	**1 381 043**	**327 767**	**125 335**	**927 940**	**—**

As at 31 December 2020:

	Carrying amount	Future contractual cash flows	Less than 1 year	1-2 years	2-5 years	More than 5 years
Non-derivative financial liabilities						
Factoring arrangements	49 865	50 738	50 738	—	—	—
Notes and bonds issued	403 720	466 466	20 449	16 729	429 288	—
Bank loans	526 463	559 226	97 066	214 000	248 160	—
Lease liabilities	17 544	20 433	7 120	5 984	7 329	—
Trade and other payables	204 727	204 727	204 727	—	—	—
Total	**1 202 319**	**1 301 590**	**380 100**	**236 713**	**684 777**	**—**

Market risk

The Group activities expose it primarily to the financial risks of changes in commodity prices, foreign exchange rates and interest rates. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimising returns.

Commodity price risk

The Group is exposed to a risk of changes in the gold price, which influence the Group's future profitability and the recoverability of assets. Management monitors gold price trends and regulates sales policy accordingly. The Group does not use derivatives to mitigate its exposure to commodity price risk.

Sensitivity analysis

Management believes 20 percent change in gold price can be reasonably expected considering gold price movements during 2020. A 20 percent decrease of gold price would have decreased profit after tax for the year ended 31 December 2020 by US$ 291.6 million , 2019: US$ 251.6 million, 2018: US$ 189.0 million.

Currency risk

Currency risk arises when a Group entity enters into transactions denominated in foreign currencies. The Group has monetary assets and liabilities denominated in several foreign currencies. Foreign currency risk arises when the actual or forecasted assets in a foreign currency are either greater or less than the liabilities in that currency.

The Group is mainly exposed to changes in the following currencies: US Dollar, Russian Rouble, Guinean Franc, Central African Franc, Euro, Australian Dollar.

The Group's exposure to Other foreign currency risk includes exposures to changes in the following currencies: Canadian Dollar, South African Rand, Kazakhstani Tenge, Norwegian Krone, British Pound.

The Group's exposure to foreign currency risk based on notional amounts of assets and liabilities was as follows:

31 December 2018	USD	RUB	GNF	CFA (XOF)	EUR	AUD	Other
Cash and cash equivalents	5 159	22	219	—	4 625	—	(25)
Trade and other receivables*	11 222	—	1 361	577	252	132	16
Financial investments*	25 081	32 393	—	46 874	396	—	1 749
Borrowings and bank financing*	(222 407)	(919)	—	—	(6 094)	—	(5 169)
Trade and other payables*	(42 480)	(5 897)	(20 209)	(44)	(10 096)	(38)	(1 566)
Net exposure	(223 425)	25 599	(18 629)	47 407	(10 917)	94	(4 995)

31 December 2019	USD	RUB	GNF	CFA (XOF)	EUR	AUD	Other
Cash and cash equivalents	8	14	631	—	128 907	—	(14)
Trade and other receivables*	6 768	—	2 378	568	2	314	133
Financial investments*	(4 885)	30 087	—	30 568	479	—	1 964
Borrowings and bank financing*	(48 515)	(919)	—	—	(43 808)	—	(5 724)
Trade and other payables*	(40 383)	(6 860)	(21 372)	(1 337)	(9 211)	(107)	(1 213)
Net exposure	(87 007)	22 322	(18 363)	29 799	76 369	207	(4 854)

31 December 2020	USD	RUB	GNF	CFA (XOF)	EUR	AUD	Other
Cash and cash equivalents	473 899	38	66	—	12 840	120 776	50
Trade and other receivables*	7 300	—	911	620	(3)	2 909	294
Financial investments*	(2 941)	46 596	—	292	49 699	—	(10)
Borrowings and bank financing*	(65 958)	(7 876)	—	—	(48 957)	—	(1 475)
Trade and other payables*	(39 531)	(7 907)	(25 905)	(1 865)	(16 371)	(608)	(1 746)
Net exposure	372 769	30 851	(24 928)	(953)	(2 792)	123 077	(2 887)

* Including Group's intercompany balances and interest

Sensitivity analysis

Management believes that a 20 percent change in foreign currencies can be reasonably expected considering currency rates movements during 2020. The sensitivity analysis was applied to monetary items at the reporting dates denominated in the foreign currencies and assumes that all variables other than foreign exchange rates remain constant.

A 20 percent weakening of the following currencies as at 31 December 2020, 2019 and 2018 would have increased/(decreased) profit and equity by the amounts shown below:

	31 December 2018	31 December 2019	31 December 2020
USD	35 915	13 806	(59 788)
RUB	(3 897)	(3 343)	(4 769)
GNF	2 608	2 571	3 490
CFA (XOF)	(9 484)	(6 040)	79
EUR	1 668	(12 931)	(851)
AUD	(16)	(34)	(19 939)
Other	788	771	456
Total	**27 582**	**(5 200)**	**(81 322)**

A 20 percent strengthening of the same currencies as at 31 December 2020, 2019 and 2018 would have an opposite increase/(decrease) impact on profit and equity. Also there would be an equity effect from weakening/ strengthening of Euro in relation to the net investment in foreign operations in amount of US$ 4.5 million as at 31 December 2020 and US$ 3.0 million as at 31 December 2019.

Interest rate risk

Interest rates on the Group's debt finance are either fixed or variable at a fixed spread over LIBOR for the duration of the contract. Changes in interest rates impact borrowings by changing their fair value (fixed rate debt) or future cash flows (variable rate debt). Management does not have a formal policy of determining how much of the Group's exposure should be to fixed or variable rates. When raising new financing, management uses its judgment to decide whether fixed or variable rate would be more favourable over the expected period until maturity.

The Group's interest-bearing financial instruments at variable rates:

	31 December 2018	31 December 2019	31 December 2020
Financial liabilities at interest with fixed spread over LIBOR	918 649	525 000	525 000
Net position	**918 649**	**525 000**	**525 000**

Cash flow sensitivity analysis for variable rate instruments

Management believes 100 basis points change in interest rates can be reasonably expected considering interest rates movements during 2020. A change of 100 basis points in variable interest rates would increase/(decrease) profit for the year ended 31 December 2020 by US$ 4.2 million, 2019: US$ 6.7 million, 2018: US$ 6.7 million.

This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

Fair value hierarchy

The table below analyses financial instruments carried at fair value, except for financial instruments measured at amortised cost, by valuation method. The different levels have been defined as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices);
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

	Level 1	Level 2
Balance at 31 December 2018		
Debt/equity investments assets designated as FVOCI	2 778	—
Derivative financial instrument	—	(58 402)
Balance at 31 December 2019		
Debt/equity investments assets designated as FVOCI	5 397	—
Derivative financial instrument	—	—
Balance at 31 December 2020		
Debt/equity investments assets designated as FVOCI	3 211	—
Derivative financial instrument	—	—

At 31 December 2018, 2019 and 2020 the Group did not have any Level 3 financial instruments.

28. COMMITMENTS AND CONTINGENCIES

Capital commitments

As at 31 December 2020, the Group had contractual capital commitments of US$ 29.2 million, 31 December 2019: US$ 37.9 million, 31 December 2018: US$ 76.4 million related to purchases of property, plant and equipment.

Operating environment

A significant portion of the Group's operations is based in the Russian Federation and is consequently exposed to the economic and political effects of the policies adopted by the Russian Federation government. Operations in the Russian Federation involve risks that typically do not exist in other markets. In addition, the contraction in the capital and credit markets and its impact on the Russian economy has further increase the level of economic uncertainty in the environment.

Starting from 2014, sanctions have been imposed in several packages by the U.S. and the E.U. on certain Russian officials, businessmen and companies. This led to reduced access of the Russian Federation businesses to international capital markets, economic recession and other negative consequences. The impact of further economic developments on future operations and financial position of the Group's Russian Federation subsidiaries is difficult to determine at this stage. No impact of these circumstances is expected on the Group's subsidiaries located in other countries.

The Group also conducts business in Kazakhstan, Burkina Faso and Guinea. Each of these countries are subject to significant economic, political and social risks. These risks include matters arising from the policies of the government, economic conditions, the imposition of, or changes to, taxes and regulations, foreign exchange fluctuations and the enforceability of contract rights.

The historical financial information reflect management's assessment of the impact of the Russian, Kazakhstan, Burkina Faso and Guinean business environment on the operations and the financial position of the Group. The future developments in political and economic environment in the countries where the Group operates may differ from management's assessment.

Starting from early 2020 a new coronavirus disease (COVID-19) has begun spreading rapidly all over the world resulting in the announcement of the pandemic status by the World Health Organization in March 2020. Responses put in place by many countries to contain the spread of COVID-19 are resulting in significant operational disruption for many companies and have significant impact on global financial markets. As the situation is rapidly evolving it may have a significant effect on business of many companies across a wide range of sectors, including, but not limited to such impacts as disruption of business operations as a result of interruption of production or closure of facilities, supply chain disruptions, quarantines of personnel, reduced demand and difficulties in raising financing.

Currently there is no significant effect of COVID-19 on the Group's operations but the effect largely depends on the duration and the incidence of the pandemic effects on the world economy, which cannot be reasonably predicted. The Company continues to monitor the situation. No impairments were recorded as of 31 December 2020, as no triggering events or changes in circumstances had occurred. The Company believes that there will be no significant effect of COVID-19 on its operations in the future.

Legal proceedings

The Group operates in various jurisdictions, and accordingly is exposed to numerous legal risks. The Group entities are currently and may be from time to time involved in a number of legal proceedings, including inquiries from and discussions with governmental authorities that are incidental to their operations. The material current proceedings related to taxation are discussed below. The outcome of currently pending and future proceedings cannot be predicted with certainty. An adverse decision in a lawsuit could result in additional costs and could significantly influence the business and results of operations.

At 31 December 2020, management estimated the total amount of potential non-tax legal proceedings at US$ 3.8 million, 31 December 2019: US$ 0.4 million, 31 December 2018: US$ 0.8 million. No provision has been recognised in these historical financial information as management does not consider that there is any probable loss.

Tax contingencies

The taxation system and regulatory environment of the Russian Federation, Kazakhstan, Burkina Faso and Guinea are relatively new and characterised by frequently changing legislation, which is often unclear, contradictory and subject to varying interpretations between the differing regulatory authorities and jurisdictions. Events during recent years suggest that the regulatory authorities within these countries are adopting a more assertive stance regarding the interpretation and enforcement of legislation. Management believes that it has provided adequately for tax liabilities based on its interpretations of tax legislation. Where uncertainty exists, the Group has accrued tax liabilities as management's best estimate of the probable outflow of resources which will be required to settle such liabilities. However, the relevant authorities may have differing interpretations, and the effects on the financial statements could be significant.

Management has identified the following tax risks where unfavorable outcome was assessed as possible:

Burkina Faso

Total amount of various tax risks of Group's entities located in Burkina Faso, which may lead to negative consequences as at 31 December 2020 was US$ 5.3 million, 31 December 2019: nil, 31 December 2018: US$ 9.3 million.

Guinea

Total amount of tax risks of Société Minière de Dinguiraye located in Guinea, which may lead to negative consequences, as at 31 December 2020 was estimated at US$ 42.6 million, 31 December 2019: US$ 34.0 million, 31 December 2018: US$ 31.5 million.

Other jurisdictions

Guinor, a subsidiary of the Group, which is a Canadian tax resident, is exposed to zero tax risks as at 31 December 2020, 31 December 2019: US$ 3.7 million, 31 December 2018: US$ 15.0 million.

29. EVENTS AFTER THE REPORTING PERIOD

In January 2021, the Group repaid full outstanding amount of US$ 200.0 million related to the syndicated loan provided by the following mandated lead arrangers: ING (a branch of ING-DIBA AG), AO Raiffeisenbank, Raiffeisen Bank International AG, PJSC Rosbank, Societe Generale and AO UniCredit Bank.

On 12 March 2021, the Board of Directors approved the following changes in the composition of the Board:

- Michael Nossal was appointed as Independent Non-Executive Chairman. Mr Nossal replaces Mr David Morgan, who was appointed Chairman in 2014.
- Mr Morgan was appointed as Deputy Chairman.
- Yulia Chekunaeva was appointed as new Independent Non-Executive Director of the Board.
- Brian Beamish, an Independent Non-Executive Director of the Company, was appointed as Senior Independent Director.
- Roman Vasilkov stepped down as a Non-Executive Director nominated by Nordgold's major shareholder Alexey Mordashov.

All changes will take effect on 19 March 2021.

On 18 March 2021, the Board of Directors approved a final dividend of 0.2 US cents per share in respect of 2020, representing a total pay-out of US$ 0.8 million.

On 25 March 2021 the Company's subsidiary Celtic Resources Holdings DAC has entered into a two-year US$100 million ESG-linked revolving credit facility with a group of international banks: ING Bank N.V., AO Raiffeisenbank, Deutsche Bank AG, Amsterdam Branch. The facility is denominated in US dollars, interest is variable.

In April 2021, PAO Buryatzoloto sold its investments in LLC «Zun-Holba», underground Zun-Holba gold mine, to Chesio Limited.

On 26 April 2021, the Company repaid in full the US$ 325 million seven-year debt facility provided to the Company by Sberbank.

PART XII

ADDITIONAL INFORMATION

1 Responsibility

The Directors (whose names appear on page 37 of this Registration Document) and the Company accept responsibility for the information contained in this Registration Document. To the best of the knowledge of the Company and the Directors, the information contained in this Registration Document is in accordance with the facts and this Registration Document makes no omission likely to affect its import.

2 Incorporation

2.1 The Company was incorporated in the Netherlands on 6 July 2005 as a private limited liability company under the laws of the Netherlands with the name Sakha Gold B.V.

2.2 On 30 July 2009, the Company was converted from a private limited liability company into a public limited liability company under the laws of the Netherlands and its name was changed into Severstal Gold N.V. On 29 September 2010, the Company changed its name to Nord Gold N.V. On 16 June 2016 the Company was converted to *Societas Europaea* and further on 24 June 2016, the Company transferred its registered office from the Netherlands to England and Wales under the Article 8 of the Council Regulation (EC) No. 2157/2001 of 8 October 2001 on the Statute for a European company (SE) (the "**SE Regulation**"). The Company is registered in the United Kingdom under company number 13287342.

2.3 On 31 December 2020, the Company was automatically converted into a United Kingdom Societas pursuant to the European Public Limited-Liability Company (Amendment etc.) (EU Exit) Regulations 2018 (the "**Brexit SI**").

2.4 On 23 March 2021, the Company was converted into a public limited company registered in England and Wales (PLC) in accordance with the Article 66 of the SE Regulation, as amended by regulation 135 of the Brexit SI.

2.5 The Company's registered office is at 4th Floor 27 Dover Street Mayfair London W1S 4LZ and its principal place of business is at 4th Floor 27 Dover Street Mayfair London W1S 4LZ. The Company's telephone number is +44 (0) 207 832 8914.

2.6 The principal laws and legislation under which the Company operates and the Shares have been created are the Companies Act and regulations made thereunder.

2.7 The business of the Company and its subsidiaries is to act as the ultimate holding company of the Group.

3 Share capital

3.1 As at the date of this Registration Document, the Company's issued share capital consists of 336,263,929 ordinary shares with par value of 0.01 EUR per share amounting to 3,362,639.29 EUR.

3.2 Certain key changes in the share capital of the Company are as follows:

3.2.1 The Company was incorporated with an issued and paid-up share capital of 18,000 EUR consisting of 360 ordinary shares of nominal value of 50 EUR each.

3.2.2 In 2009, the issued share capital of the Company was increased to 489,690,350 EUR consisting of 9,793,807 ordinary shares, each having a nominal value of 50 EUR.

3.2.3 In 2010, the nominal value of the ordinary shares was reduced from 50 EUR per to 1.25 EUR per ordinary share. As result thereof the authorised share capital of the Company was increased to 4,484,927,250 EUR divided into 3,587,941,800 ordinary shares, with a nominal value of 1.25 EUR each, and the issued share capital amounted to 396,995,450 EUR, divided into 717,588,360 ordinary shares, with a nominal value of 1.25 EUR each.

3.2.4 In 2011, the nominal value per ordinary share was amended and every two ordinary shares, with a nominal value of 1.25 EUR each, were converted into one ordinary share, with a nominal value of 2.50 EUR each. As a result thereof, the authorised share capital of the Company amounted to 4,484,927,250 EUR, divided into 1,793,970,900 ordinary shares, with a nominal value of 2.50 EUR each, and the issued share capital amounted to 896,985,450 EUR, divided into 358,794,180 ordinary shares, with a nominal value of 2.50 EUR each.

3.2.5 In 2012 and 2013, the issued share capital was increased to 945,304,887.50 EUR, divided into 378,052,959 ordinary shares, with a nominal value of 2.50 EUR each. In March 2013, the Company issued 68,996 ordinary shares with par value of 2.5 Euro for the purpose of funding the acquisition of the remaining outstanding shares of High River Gold Mines Ltd.

3.2.6 In 2014, the authorised share capital of the Company's increased to 952,495,725 EUR, divided into 380,998,290 divided into shares, with a nominal value of 2.50 EUR each.

3.2.7 In 2015, the Company approved a set of GDR and share buyback programs (the "**Buyback Programme**"), according to which the Company repurchased 10,602,061 GDRs from 2015 to 2016. In December 2016, the nominal value per ordinary share was reduced to 1 EUR, and the Company cancelled its share premium account. As a result thereof, the issued share capital of the Company amounted to 370,396,229 EUR, divided into 370,396,229 ordinary shares, with a nominal value of 1.00 each, as of 31 December 2016.

3.2.8 In February 2017, the Company announced its intention to cancel the listing of its GDRs from the official list and from trading on the LSE. The GDR tender offer closed on 16 March 2017 resulting in the cancellation of the listing of the Company's GDRs on the Official List of the Financial Conduct Authority. The Company completed the repurchase of ordinary shares which remained after the termination of the GDR programme. As a result thereof, the Company's issued share capital amounted to 339,373,771 EUR, divided into 339,373,771 ordinary shares, with a nominal value of of 1 EUR each.

3.2.9 In 2018, the authorised share capital of the Company was decreased to 336,284,226 EUR consisting of 336,284,226 ordinary shares, each having a nominal value of 1 EUR, as a result of cancellation of 184,338 ordinary shares.

3.2.10 In July 2019, the Company cancelled 20,297 ordinary shares that resulted in reducing its issued share capital to 336,263,929 EUR consisting of 336,263,929 ordinary shares of nominal value of 1 EUR each.

3.2.11 In April 2020, the Company reduced the issued share capital to 3,362,639.29 EUR consisting of 336,263,929 ordinary shares of nominal value of 1 EUR each by reducing the nominal value of each of the ordinary shares from 1 EUR to 0.01 EUR to create sufficient distributable reserves at a company only level to facilitate the payment of dividends in accordance with UK company law.

3.3 As at the date of the Registration Document, the Company does not hold any shares in treasury.

3.4 The Company has no convertible securities, exchangeable securities or securities with warrants in issue.

3.5 The Company is now considering undertaking an initial public offering of all of the ordinary shares of the Company to certain institutional and professional investors, and applying for admission of the Shares to the premium listing segment of the Official List of the FCA and to trading on the London Stock Exchange's main market for listed securities.

4 Articles of Association

The Company's objects are not restricted by its Articles. Accordingly, pursuant to Section 31(1) of the Companies Act, the Company's objects are unrested. The liability of the members is limited to the amount, if any, unpaid on the shares in the Company respectively held by them.

The Articles contain, among others, provisions to the following effect:

4.1 Shares

4.1.1 Rights attached to shares

The rights conferred on the holders of any other shares, any share may be issued with or have attached to it such rights and restrictions as the Company may by ordinary resolution decide or, if no such resolution is in effect or so far as the resolution does not make specific provision, as the Directors may decide. Any share may be issued on terms that it is to be redeemed or is liable to be redeemed at the option of the Company or the holder.

4.1.2 Voting rights

On a vote on a resolution on a show of hands at a general meeting, every proxy present who has been duly appointed by one or more members entitled to vote on the resolution has one vote for each such member for whom he or she has been so appointed.

On a vote on a resolution on a show of hands at a general meeting, a proxy has one vote for and one vote against the resolution if:

(a) the proxy has been duly appointed by more than one member entitled to vote on the resolution; and

(b) the proxy has been instructed by, or exercises his discretion given by, one or more of those members to vote for the resolution and has been instructed by, or exercises his discretion given by, one or more other of those members to vote against it.

Any corporation which is a member of the Company may, by resolution of its board or other governing body, authorise any person or persons to act as its representative or representatives at any general meeting of the Company.

If more than one of the joint holders of a share tenders a vote on the same resolution, whether in person or by proxy, the vote of the senior who tenders a vote shall be accepted to the exclusion of the vote(s) of the other joint holder(s); and for this purpose seniority shall be determined by the order in which the names stand in the register in respect of the relevant share.

A member in respect of whom an order has been made by any court having jurisdiction (whether in the United Kingdom or elsewhere) in matters concerning mental disorder may vote, whether on a show of hands or on a poll, by his receiver, curator bonis or other person in the nature of a receiver or curator bonis appointed by that court, and the receiver, curator bonis or other person may, on a poll, vote by proxy.

Unless the Directors otherwise decide, a member shall not be entitled to vote, either in person or by proxy, at any general meeting of the Company in respect of any share held by him unless all calls and other sums presently payable by him in respect of that share have been paid.

4.1.3 Variation of rights

Whenever the share capital of the Company is divided into different classes of shares, all or any of the rights for the time being attached to any class of shares in issue may from time to time (whether or not the Company is being wound up) be varied in such manner as those rights may provide or (if no such provision is made) either with the consent in writing of the holders of three-fourths in nominal value of the issued shares of that class or with the authority of a special resolution passed at a separate general

meeting of the holders of those shares. Unless otherwise expressly provided by the rights attached to any class of shares those rights shall not be deemed to be varied by the creation or issue of further shares ranking *pari passu* with them or by the purchase or redemption by the Company of any of its own shares.

4.1.4 **Transfer of shares**

An instrument of transfer of a certificated share may be in any usual form or in any other form which the Directors may approve and shall be signed by or on behalf of the transferor and (except in the case of a fully paid share) by or on behalf of the transferee.

The Directors may, in its absolute discretion refuse to register any instrument of transfer of a certificated share:

(a) which is not fully paid up but, in the case of a class of shares which has been admitted to the Official List by the Financial Conduct Authority, not so as to prevent dealings in those shares from taking place on an open and proper basis; or

(b) on which the Company has a lien.

The Directors may also refuse to register any instrument of transfer of a certificated share unless it is:

(a) left at the office, or at such other place as the Directors may decide, for registration;

(b) accompanied by the certificate for the shares to be transferred and such other evidence (if any) as the Directors may reasonably require to prove the title of the intending transferor or his right to transfer the shares; and

(c) in respect of only one class of shares; and

(d) duly stamped or duly certificated or otherwise shown to the satisfaction of the Directors to be exempt from stamp duty (if this is required).

If the Directors refuse to register a transfer of a certificated share it shall, as soon as practicable and in any event within two months after the date on which the instrument of transfer was lodged, give to the transferee notice of the refusal together with its reasons for refusal. The Directors shall provide the transferee with such further information about the reasons for the refusal as the transferee may reasonably request.

Unless otherwise agreed by the Directors in any particular case, the maximum number of persons who may be entered on the register as joint holders of a share is four.

Transfers of uncertificated shares shall be effected in the manner prescribed or permitted by the Companies Act, the Uncertificated Securities Regulations 2001.

4.1.5 **Disclosure of interests in shares**

If the holder of, or any person appearing to be interested in, any share has been given a notice requiring any of the information mentioned in section 793 of the Companies Act (a **section 793** notice) and, in respect of that share (a default share), has been in default for a period of 14 days after the section 793 notice has been given in supplying to the Company the information required by the section 793 notice, the following restrictions shall apply:

(a) if the default shares in which any one person is interested or appears to the Company to be interested represent less than 0.25% of the issued shares of the class, the holders of the default shares shall not be entitled, in respect of those shares, to attend or to vote, either personally or by proxy, at any general meeting of the Company; or

(b) if the default shares in which any one person is interested or appears to the Company to be interested represent at least 0.25% of the issued shares of the

class, the holders of the default shares shall not be entitled, in respect of those shares:

(I) to attend or to vote, either personally or by proxy, at any general meeting of the Company; or

(II) to receive any dividend or other distribution; or

(III) to transfer or agree to transfer any of those shares or any rights in them.

If any dividend or other distribution is withheld under paragraph (b) above, the member shall be entitled to receive it as soon as practicable after the restriction ceases to apply.

The restrictions in paragraphs (a) and (b) above shall not prejudice the right of either the member holding the default shares or, if different, any person having a power of sale over those shares to sell or agree to sell those shares under an exempt transfer.

4.1.6 **Forfeiture and Lien**

The Company shall have a first and paramount lien on every share (not being a fully paid share) for all amounts payable (whether or not due) in respect of that share. The lien shall extend to every amount payable in respect of that share.

If the whole or any part of any call or instalment remains unpaid on any share after the due date for payment, the Directors may give a notice to the holder requiring him to pay so much of the call or instalment as remains unpaid, together with any accrued interest. The notice shall state a further day, being not less than 14 clear days from the date of the notice, on or before which, and the place where, payment is to be made and shall state that, in the event of non-payment on or before the day and at the place appointed, the share in respect of which the call was made or instalment is payable will be liable to be forfeited.

The Company shall have a first and paramount lien on every share (not being a fully paid share) for all amounts payable (whether or not due) in respect of that share. The lien shall extend to every amount payable in respect of that share.

If the requirements of a notice given under the Article are not complied with, any share in respect of which it was given may (before the payment required by the notice is made) be forfeited by the Directors' resolution. The forfeiture shall include all dividends declared and other moneys payable in respect of the forfeited share and not actually paid before the forfeiture.

If a share is forfeited, notice of the forfeiture shall be given to the person who was the holder of the share or (as the case may be) the person entitled to the share by transmission, and an entry that notice of the forfeiture has been given, with the relevant date, shall be made in the register; but no forfeiture shall be invalidated by any omission to give such notice or to make such entry.

The Directors may, at any time before the forfeited or surrendered share has been sold, re-allotted or otherwise disposed of, annul the forfeiture or surrender upon payment of all calls and interest due on or incurred in respect of the share and on such further conditions (if any) as they think fit.

Every share which is forfeited or surrendered shall become the property of the Company and (subject to the Companies Act) may be sold, re-allotted or otherwise disposed of, upon such terms and in such manner as the Directors shall decide either to the person who was before the forfeiture the holder of the share or to any other person and whether with or without all or any part of the amount previously paid up on the share being credited as so paid up. The Directors may for the purposes of a disposal authorise some person to transfer the forfeited or surrendered share to, or in accordance with the directions of, any person to whom the same has been disposed of.

A statutory declaration by a director or the secretary that a share has been forfeited or surrendered on a specified date shall, as against all persons claiming to be entitled to the share, be conclusive evidence of the facts stated in it and shall (subject to the execution of any necessary transfer) constitute a good title to the share.

A person any of whose shares have been forfeited or surrendered shall cease to be a member in respect of the forfeited or surrendered share and shall, in the case of shares held in certificated form, surrender to the Company for cancellation any certificate for the share forfeited or surrendered, but shall remain liable (unless payment is waived in whole or in part by the Directors) to pay to the Company all moneys payable by him on or in respect of that share at the time of forfeiture or surrender, together with interest from the time of forfeiture or surrender until payment at such rate as the Directors shall decide, in the same manner as if the share had not been forfeited or surrendered. He shall also be liable to satisfy all the claims and demands (if any) which the Company might have enforced in respect of the share at the time of forfeiture or surrender. No deduction or allowance shall be made for the value of the share at the time of forfeiture or surrender or for any consideration received on its disposal.

4.2 **General meetings**

4.2.1 **Annual general meeting**

The Directors shall convene and the Company shall hold an annual general meeting within 6 months of the day following its accounting reference date. Such meetings shall be convened by the Directors at such time and place as they think fit.

4.2.2 **Convening of general meetings other than annual general meetings**

A general meeting shall also be convened by the Directors on the requisition of members under the Companies Act and the Uncertificated Securities Regulations 2001 or, in default, may be convened by such requisitionists. Any request that a general meeting be convened shall state the items to be put on the agenda.

The Directors shall comply with the Companies Act and the Uncertificated Securities Regulations 2001 regarding the giving and the circulation, on the requisition of members, of notices of resolutions and of statements with respect to matters relating to any resolution to be proposed or business to be dealt with at any general meeting of the Company.

The Directors may resolve to enable persons entitled to attend and participate in a general meeting to do so partly (but not wholly) by simultaneous attendance and participation by means of electronic facility or facilities, and may determine the means, or all different means, of attendance and participation used in relation to the general meeting.

4.2.3 **Separate general meetings**

Subject to the Articles and to any rights for the time being attached to any class of shares in the Company, the provisions of the Articles relating to general meetings of the Company (including, for the avoidance of doubt, provisions relating to the proceedings at general meetings or to the rights of any person to attend or vote or be represented at general meetings or to any restrictions on these rights) shall apply, *mutatis mutandis*, in relation to every separate general meeting of the holders of any class of shares in the Company.

4.2.4 **Notice of general meetings etc.**

An annual general meeting shall be called by not less than 21 clear days' notice and all other general meetings shall be called by not less than 14 clear days' notice or by not less than such minimum notice period as is permitted by the Companies Act.

The notice (including any notice given by means of a website) shall comply with all applicable requirements and shall specify whether the meeting will be an annual general meeting. Notice of every general meeting shall be given to all members other than any who, under the Articles or the terms of issue of the shares they hold, are not entitled to receive such notices from the Company, and also to the auditors (or, if more than one, each of them) and to each director.

4.2.5 **Quorum**

No business shall be transacted at any general meeting unless the requisite quorum is present when the meeting proceeds to business. Two qualifying persons entitled to vote shall be a quorum, unless:

(a) each is a qualifying person only because he is authorised to act as the representative of a corporation in relation to the meeting, and they are representatives of the same corporation; or

(b) each is a qualifying person only because he is appointed as proxy of a member in relation to the meeting, and they are proxies of the same member.

A **qualifying person** means:

(a) an individual who is a member of the Company;

(b) a person authorised to act as the representative of a corporation in relation to the meeting; or

(c) a person appointed as proxy of a member in relation to the meeting.

4.2.6 **Conditions of admission**

The Directors may make any security arrangements which it considers appropriate relating to the holding of a general meeting of the Company including, without limitation, arranging for any person attending a meeting to be searched and for items of personal property which may be taken into a meeting to be restricted. A director or the secretary may:

(a) refuse entry to a meeting to any person who refuses to comply with any such arrangements; and

(b) eject from a meeting any person who causes the proceedings to become disorderly.

4.3 **Directors**

4.3.1 **General powers**

The business of the Company shall be managed by the Directors which may exercise all the powers of the Company, subject to the Companies Act, the Articles and any special resolution of the Company. No special resolution or alteration of the Articles shall invalidate any prior act of the Directors which would have been valid if the resolution had not been passed or the alteration had not been made.

4.3.2 **Number of directors**

The directors (other than alternate directors) shall not, unless otherwise determined by an ordinary resolution of the Company, be less than three.

4.3.3 Directors need not be members A director need not be a member of the Company.

4.3.4 **Directors' fees**

The remuneration of a director appointed to any executive office shall be fixed by the Directors and may be by way of salary, commission, participation in profits or otherwise and either in addition to or inclusive of his remuneration as a director.

The Directors may grant special remuneration to any director who holds any executive office and performs any special or extra services to or at the request of the Company.

Such special remuneration may be paid by way of lump sum, salary, commission, participation in profits or otherwise as the Directors may decide in addition to any remuneration payable under or pursuant to any other of the Articles.

4.3.5 **Executive directors**

The Directors may appoint one or more directors to hold any executive office under the Company (including that of chairman, chief executive or managing director) for such period (subject to the Companies Act) and on such other terms as it may decide and may revoke or terminate any appointment so made without prejudice to any claim for damages for breach of any contract of service between the director and the Company.

4.3.6 **Directors' retirement**

At each annual general meeting every director shall retire from office.

A retiring director shall be eligible for re-election, and a director who is re-elected will be treated as continuing in office without a break. A retiring director who is not re-elected shall retain office until the close of the meeting at which he retires.

If the Company, at any meeting at which a director retires in accordance with the Articles, does not fill the office vacated by such director, the retiring director, if willing to act, shall be deemed to be re-elected, unless at the meeting a resolution is passed not to fill the vacancy or to elect another person in his place or unless the resolution to re-elect him is put to the meeting and lost.

4.3.7 **Removal of a director by resolution of Company**

The Company may, by special resolution, or by ordinary resolution of which special notice is given in accordance with the Companies Act, remove any director before his period of office has expired notwithstanding anything in the Articles or in any agreement between him and the Company. A director may also be removed from office by giving him notice to that effect signed by not less than three quarters of the other directors (or their alternates), being not less than three in number.

Any removal of a director under this Article shall be without prejudice to any claim which such director may have for damages for breach of any agreement between him and the Company.

4.3.8 Proceedings of Directors

The Directors may meet for the despatch of business, adjourn and otherwise regulate its meetings as they think fit. A director at any time may, and the secretary at the request of a director at any time shall, summon a board meeting.

Notwithstanding paragraph above, the Directors shall meet at least once every three months, at such intervals as the Directors think fit, to discuss the progress and foreseeable development of the Company's business.

The quorum necessary for the transaction of the business of the Directors shall be at least half of the members of the Directors. The Directors shall appoint a chairman and may appoint one or more deputy chairman or chairmen and may at any time revoke any such appointment. Questions arising at any meeting of the Directors shall be determined by a majority of votes of the members present or represented. In the case of an equality of votes, the chairman of the meeting shall not have a second or casting vote.

4.3.9 **Directors' interests**

If a situation arises (a Relevant Situation) in which a director has, or can have, a direct or indirect interest that conflicts, or possibly may conflict, with the interests of the Company (including, without limitation, in relation to the exploitation of any property, information or opportunity, whether or not the Company could take advantage of it but excluding any situation which cannot reasonably be regarded as likely to give rise to a conflict of interest) the following provisions shall apply if the conflict of interest does not arise in relation to a transaction or arrangement with the Company:

(a) if the Relevant Situation arises from the appointment or proposed appointment of a person as a director of the Company, the directors (other than the director,

and any other director with a similar interest, who shall not be counted in the quorum at the meeting and shall not vote on the resolution) may resolve to authorise the appointment of the director and the Relevant Situation on such terms as they may determine;

(b) if the Relevant Situation arises in circumstances other than in paragraph (a) above, the directors (other than the director and any other director with a similar interest who shall not be counted in the quorum at the meeting and shall not vote on the resolution) may resolve to authorise the Relevant Situation and the continuing performance by the director of his duties on such terms as they may determine.

4.3.10 **Restrictions on voting**

A director shall not vote (or be counted in the quorum at a meeting) in respect of any resolution concerning his own appointment (including fixing or varying its terms), or the termination of his own appointment, as the holder of any office or place of profit with the Company or any other company in which the Company is interested but, where proposals are under consideration concerning the appointment (including fixing or varying its terms), or the termination of the appointment, of two or more directors to offices or places of profit with the Company or any other company in which the Company is interested, those proposals may be divided and a separate resolution may be put in relation to each director and in that case each of the directors concerned (if not otherwise debarred from voting under this Article) shall be entitled to vote (and be counted in the quorum) in respect of each resolution unless it concerns his own appointment or the termination of his own appointment.

A director shall also not vote (or be counted in the quorum at a meeting) in relation to any resolution relating to any transaction or arrangement with the Company in which he has an interest which may reasonably be regarded as likely to give rise to a conflict of interest and, if he purports to do so, his vote shall not be counted, but this prohibition shall not apply and a director may vote (and be counted in the quorum) in respect of any resolution concerning any one or more of the following matters:

(a) any transaction or arrangement in which he is interested by virtue of an interest in shares, debentures or other securities of the Company or otherwise in or through the Company;

(b) the giving of any guarantee, security or indemnity in respect of:

(I) money lent or obligations incurred by him or by any other person at the request of, or for the benefit of, the Company or any of its subsidiary undertakings; or

(II) a debt or obligation of the Company or any of its subsidiary undertakings for which he himself has assumed responsibility in whole or in part (either alone or jointly with others) under a guarantee or indemnity or by the giving of security;

(c) indemnification (including loans made in connection with it) by the Company in relation to the performance of his duties on behalf of the Company or of any of its subsidiary undertakings;

(d) any issue or offer of shares, debentures or other securities of the Company or any of its subsidiary undertakings in respect of which he is or may be entitled to participate in his capacity as a holder of any such securities or as an underwriter or sub-underwriter;

(e) any transaction or arrangement concerning any other company in which he does not hold, directly or indirectly as shareholder, or through his direct or indirect holdings of financial instruments (within the meaning of Chapter 5 of the Disclosure and Transparency Rules) voting rights representing 1% or more of any class of shares in the capital of that company;

(f) any arrangement for the benefit of employees of the Company or any of its subsidiary undertakings which does not accord to him any privilege or benefit not generally accorded to the employees to whom the arrangement relates; and

(g) the purchase or maintenance of insurance for the benefit of directors or for the benefit of persons including directors.

4.3.11 **Confidential information**

A director shall be under a duty, even after he has ceased to hold office, to not divulge any information which he has concerning the Company the disclosure of which might be prejudicial to the Company's interests, except where such disclosure is required or permitted under law or is in the public interest.

4.3.12 **Borrowing powers**

The Directors may exercise all the powers of the Company to borrow money and to mortgage or charge all or any part of its undertaking, property and assets (both present and future) and uncalled capital and to issue debentures and other securities, whether outright or as collateral security for any debt, liability or obligation of the Company or of any third party.

4.3.13 **Delegation of powers of the directors**

The Directors may delegate any of its powers, authorities and discretions (with power to sub-delegate) to any committee consisting of such person or persons (whether directors or not) as they think fit, provided that the majority of the members of the committee are directors and that no meeting of the committee shall be quorate for the purpose of exercising any of its powers, authorities or discretions unless a majority of those present are directors. The Directors may make any such delegation on such terms and conditions as they think fit and may revoke or vary any such delegation and discharge any committee wholly or in part, but no person dealing in good faith shall be affected by any revocation or variation. Any committee so formed shall, in the exercise of the powers, authorities and discretions so delegated, conform to any regulations that may be imposed on it by the Directors. The Directors may establish any local or divisional board or agency for managing any of the affairs of the Company whether in the United Kingdom or elsewhere and may appoint any persons to be members of a local or divisional board, or to be managers or agents, and may fix their remuneration. The Directors may delegate to any local or divisional board, manager or agent any of its powers, authorities and discretions (with power to sub-delegate) and may authorise the members of any local or divisional board or any of them to fill any vacancies and to act notwithstanding vacancies. Any appointment or delegation under the Article may be made on such terms and subject to such conditions as the Directors think fit and the Directors may remove any person so appointed, and may revoke or vary any delegation, but no person dealing in good faith shall be affected by the revocation or variation.

The Directors may by power of attorney or otherwise appoint any person to be the agent of the Company on such terms (including terms as to remuneration) as it may decide and may delegate to any person so appointed any of its powers, authorities and discretions (with power to sub-delegate).

Each Director (other than an alternate director) may appoint another director or any other person who is willing to act as his alternate and may remove him from that office. The appointment as an alternate director of any person who is not himself a director shall be subject to the approval of a majority of the directors or a resolution of the Directors.

4.4 **Director's Liabilities**

As far as the Companies Act allows, the Company may:

(a) indemnify any director of the Company (or of an associated body corporate) against any liability;

(b) indemnify a director of a company that is a trustee of an occupational pension scheme for employees (or former employees) of the Company (or of an associated body corporate) against liability incurred in connection with the company's activities as trustee of the scheme;

(c) purchase and maintain insurance against any liability for any director referred to in paragraphs (a) or (b) above; and

(d) provide any director referred to in paragraphs (a) or (b) above with funds (whether by loan or otherwise) to meet expenditure incurred or to be incurred by him in defending any criminal, regulatory or civil proceedings or in connection with an application for relief (or to enable any such director to avoid incurring such expenditure).

The Company may grant indemnities, purchase and maintain insurance or provide funds (whether by way of loan or otherwise) to any person in connection with any legal or regulatory proceedings or applications for relief.

4.5 **Dividends**

The Company may, by ordinary resolution, declare a dividend to be paid to the members, according to their respective rights and interests in the profits, and may fix the time for payment of such dividend, but no dividend shall exceed the amount recommended by the Directors.

The Directors may pay such interim dividends as appear to the Directors to be justified by the financial position of the Company and may also pay any dividend payable at a fixed rate at intervals settled by the Directors whenever the financial position of the Company, in the opinion of the Directors, justifies its payment. If the Directors act in good faith, none of the directors shall incur any liability to the holders of shares conferring preferred rights for any loss such holders may suffer in consequence of the payment of an interim dividend on any shares having non-preferred or deferred rights.

No dividend or other moneys payable by the Company on or in respect of any share shall bear interest as against the Company unless otherwise provided by the rights attached to the share.

The Directors may deduct from any dividend or other moneys payable to any person (either alone or jointly with another) on or in respect of a share all such sums as may be due from him (either alone or jointly with another) to the Company on account of calls or otherwise in relation to shares of the Company.

All unclaimed dividends, interest or other sums payable may be invested or otherwise made use of by the Directors for the benefit of the Company until claimed. All dividends unclaimed for a period of 12 years after having been declared shall be forfeited and cease to remain owing by the Company.

If (a) a payment for a dividend or other sum payable in respect of a share sent by the Company to the person entitled to it left uncashed or is returned to the Company and, after reasonable enquiries, the Company is unable to establish any new address or, with respect to a payment to be made by a funds transfer system, a new account, for that person; or (b) such a payment is left uncashed or returned to the Company on two consecutive occasions, the Company shall not be obliged to send any dividends or other sums payable in respect of that share to that person until he notifies the Company of an address or, where the payment is to be made by a funds transfer system, details of the account, to be used for the purpose.

With the authority of an ordinary resolution of the Company and on the recommendation of the Directors, payment of any dividend may be satisfied wholly or in part by the distribution of specific assets and in particular of paid up shares or debentures of any other company.

The Directors may, with the authority of an ordinary resolution of the Company, offer any holders of ordinary shares the right to elect to receive further ordinary shares, credited as fully paid, instead of cash in respect of all (or some part) of any dividend specified by the ordinary resolution (a scrip dividend).

4.6 **Failure to supply an address**

A member whose registered address is not within the United Kingdom shall not be entitled to receive any notice from the Company unless he gives the Company a postal address within the United Kingdom at which notices may be given to him.

5 Directors and Senior Managers

5.1 The Directors and Senior Managers, their functions within the Company and brief biographies are set out in Part VII: *"Directors, Senior Management and Corporate Governance"*.

5.2 The companies and partnerships of which the Directors and Senior Managers are, or have been, within the past five years, members of the administrative, management or supervisory bodies or partners (excluding the Company and its subsidiaries and also excluding the subsidiaries of the companies listed below) are as follows:

Name	Current directorships/partnership	Former directorships/partnerships
Michael Nossal	IGO Limited MN Consult Pty Ltd MPJN Nominees Pty Ltd Ellery Close Pty Ltd Mabelville Pty Ltd	Newcrest Mining Limited Lundin Gold Inc
David Morgan	AMTE Power plc Maidstone and Tunbridge Wells NHS Trust	The Royal Mint Limited SFC Energy AG Econic Technologies Limited Hargreaves Services plc Phosphonics Limited
Nikolai Zelenski	—	—
Brian Beamish	Sappi Limited	Lonmin plc Sita Capital Partners LLP
Alexey Mordashov	TUI AG PAO Severstal JSC Severstal Management IPJSC Lenta JSC Power Machines LLC Severgroup LLC Algorithm LLC Holding Mining Company LLC NordEnergoGroup "Russian Union of Industrialists and Entrepreneurs (RSPP) World Steel Association Russian Steel Association	Non-commercial partnership "Russian Steel"
Gregor Mowat	Nooli UK Limited LOQBOX Savings Limited LOQBOX Technology UK Limited Credit Improver Limited DDC Financial Solutions Limited LOQBOX US INC LOQBOX Savings LLC LOQBOX Finance LLC PJSC Ak Bars Bank PJSC Magnit PJSC PIK Group Fix Price Group Ltd.	British Chamber of Commerce in Kazakhstan Caldera Capital Limited

Name	Current directorships/partnership	Former directorships/partnerships
John Munro	Cupric Canyon Capital Group Manuli Rubber Industries Brookhouse Resource Advisors Limited	Gold Fields Ghana Ltd Abosso Goldfields Ltd Arctic Platinum Oy. Gold Fields La Cima SA Rand Uranium Ltd Eldorado Gold Corporation Ltd
Yulia Chekunaeva	EN+ Group IPJSC Haystack Analytics And Advisory Ltd	—
Louw Smith	—	—
Evgeny Tulubensky	International Bar Association World Association of Mining Lawyers Africa Business Initiative UNION	Union of Gold Producers of Russia
Oleg Pelevin	Orea Mining Corp.	—
Yulia Sklar	—	—
Yury Bogdanov	—	—
Arnand van Heerden	—	Gold Fields' Exploration Group
Igor Klimanov	—	—
Ekaterina Nowak	—	—
Evgeny Galiullin		
Dmitry Markeev		
Igor Kleev		
Chris Colbourne	—	BBI Group Rio Tinto Ltd
Philip Engelbrecht	—	—
Georgy Smirnov	—	—
Gregory Edmonds	—	—

5.3 Save as set out above, none of the Directors, any Senior Manager or the Company Secretary has any business interests, or performs any activities, outside the Group which are significant with respect to the Group.

5.4 There are no family relationships between any Directors, between any Senior Managers or between any Directors and Senior Managers.

5.5 As at the date of this Registration Document, none of the Directors or any Senior Manager has, at any time within the last five years:

5.5.1 had any prior convictions in relation to fraudulent offences;

5.5.2 been declared bankrupt or been the subject of any individual voluntary arrangement;

5.5.3 been associated with any bankruptcies, receiverships or liquidations when acting in the capacity of a member of the administrative, management or supervisory body or of a senior manager;

5.5.4 been subject to any official public incrimination and/or sanction by any statutory or regulatory authority (including designated professional bodies);

5.5.5 been disqualified by a court from acting in the management or conduct of the affairs of any issuer;

5.5.6 been disqualified by a court from acting as a member of the administrative, management or supervisory bodies of any issuer;

5.5.7 been a partner or senior manager in a partnership which, while he was a partner or within 12 months of his ceasing to be a partner, was put into compulsory liquidation or administration or which entered into any partnership voluntary arrangement;

5.5.8 owned any assets which have been subject to a receivership or been a partner in a partnership subject to a receivership where he was a partner at the time or within the 12 months preceding such event; or

5.5.9 been an executive director or senior manager of a company which has been placed in receivership, compulsory liquidation, creditors' voluntary liquidation or administration or which entered into any company voluntary arrangement or any composition or arrangement with its creditors generally or any class of creditors, at any time during which he was an executive director or senior manager of that company or within 12 months of his ceasing to be an executive director or senior manager.

5.6 The aggregate remuneration paid and benefits in kind granted to the Directors and Senior Managers by the Company and its subsidiaries during the financial year ended 31 December 2020 for services in all capacities was U.S.$ 19.2 million.

5.7 Save as set out in paragraph 13.2 (*Related Party Transactions and Other Arrangements*) of this Part XII, there are no actual or potential conflicts of interest between the duties owed by the Directors, the Senior Managers, or members of any administrative, management or supervisory body of the Company or the Group, and the private interests and/or other duties that they may also have.

6 Directors' terms of employment and other matters

6.1 Executive Directors' letters of appointment

Nikolay Zelenski

6.1.1 On 25 January 2011, the Company executed an appointment letter with Nikolay Zelenski. The new appointment letter took effect from 11 October 2010.

6.1.2 Nikolay Zelenski was appointed as a chief executive director for a term until the first annual general meeting of the Company in the next year. At the end of this initial term, the appointment may be renewed for a further term subject to satisfactory performance and re-election at future annual general meetings.

6.1.3 Nikolay Zelenski is entitled to a base salary of U.S.$ 24,000 per annum, which is subject to an annual review. In addition, he is entitled to participate in the long-term incentive plan as per the Company's policy and if decided by the Directors, he may receive other additional benefits.

Evgeny Tulubensky

6.1.4 On 31 August 2020, the Board of Directors of the Company approved the appointment of Evgeny Tulubensky as a Chief Legal Officer and Director of ESG for an unlimited term.

6.2 Non-executive Directors' letters of appointment

6.2.1 The Company has appointed seven Non-executive Directors: the independent Chair; four independent Non-executive Directors; and two Non-executive Directors who are not determined to be independent. The Non-executive Directors are appointed by letters of appointment with the Company and do not have service agreements.

6.2.2 The appointment of each of the Non-executive Directors is for an initial term of three years from the date of appointment, unless terminated earlier, and is subject to annual re-election at the general meeting of the Company. At the end of this initial term, each appointment may be renewed for a further term subject to satisfactory performance and re-election at future annual general meetings. The fees and benefits payable to the Non-executive Directors are as set out in paragraph 6.3 *(Directors' remuneration for the financial year ended 31 December 2020)* of this Part XII.

6.3 **Directors' remuneration for the financial year ended 31 December 2020**

The total remuneration paid and benefits in kind granted to each of the Directors by the Company and its subsidiaries during the financial year ended 31 December 2020 for services in all capacities is set out below:

Name	Annual Salary (U.S.$[3])	Pension and benefits (U.S.$[3])	
Michael Nossal[1]	—	—	
David Morgan	230,200	—	
Nikolay Zelenski	1,136,094	96,010	
Brian Beamish	149,600	—	
Alexey Mordashov	—	—	
Gregor Mowat	149,600	—	
John Munro	149,600	—	
Evgeny Tulubensky	523,176		59,402
Yulia Chekunaeva[1]	—	—	
Roman Vasilkov[2]	—	—	

Note:

(1) Michael Nossal and Yulia Chekunaeva were appointed as directors in March 2021.

(2) Roman Vasilkov stepped down as a director in March 2021.

(3) The annual salary, pension and benefits were paid in RUB or GPB and converted to USD at the following exchange rates as of December 31, 2020: Ruble / U.S. dollar amounted to RUB0.01 per U.S.$1.00 and GBP / U.S. dollar amounted to GBP1.36 per U.S.$1.00.

The other Directors had not been appointed and did not serve the Group during 2020.

7 Interests of the Directors and Senior Managers

7.1 The table below set out the interests of the Directors in the share capital of the Company (all of which, unless otherwise stated, are beneficial and include the interest of persons connected with them) as at the date of this Registration Document.

	Number of Shares	Percentage of issued share capital
Name of Director		
Michael Nossal	—	—
Nikolai Zelenski	—	—
Brian Beamish	—	—
Alexey Mordashov[1]	117,625,122	34.98
Gregor Mowat	—	—
John Munro		
Evgeny Tulubensky	—	—
David Morgan	50,000	0.01
Yulia Chekunaeva	—	—

Note:

(1) Mr. Alexey Mordashov indirectly through Rayglow Limited owns a 35% interest in the share capital of Unifirm Limited, which is the immediate parent company of Ocean Management Limited, which in turn owns directly and indirectly 99.94% shares in the Company.

7.2 As at the date of this Registration Document, none of the Senior Managers have interests in the share capital of the Company.

7.3 Save as set out in this paragraph, none of the Directors has any interests in the share or loan capital of the Company or any of its subsidiaries.

7.4 Save as set out in this paragraph 13 (*Related party transactions and other arrangements*) of this Part XII, no Director has or has had any interest in any transaction which is or was unusual in its nature or conditions or is or was significant to the business of the Group and was effected by the Company in the current or immediately preceding financial year or was effected during an earlier financial year and remains in any respect outstanding or unperformed.

7.5 As of 2 June 2021 (being the latest practicable date prior to the date of this Registration Document), there were no outstanding loans granted by any member of the Group to any

Director or any Senior Manager, nor by any Director or Senior Manager to any member of the Group, nor was any guarantee which had been provided by any member of the Group for the benefit of any Director or Senior Manager, or by any Director or Senior Manager for the benefit of any member of the Group, outstanding.

8 Interests of significant shareholders

In so far as is known to the Company as of the date of this Registration Document, the following persons are interested in 3 per cent. or more of the issued share capital of the Company:

	Number of Shares	Percentage of issued share capital
Shareholders		
Ocean Management Limited[(1)]	319,059,925	94.88%
Aurora Nominees Limited[(2)]	17,010,641	5.06%
Total	**336,263,929**	**100%**

Notes:

(1) The immediate parent company of Ocean Management Limited is Unifirm Limited, in which Mr. Alexey Mordashov indirectly owns 35% through Rayglow Limited, and Mr. Kirill Mordashov Mr. and Mr. Nikita Mordashov, together, indirectly own 65% through KN-Holding LLC, in which each of Mr. Kirill Mordashov and Mr. Nikita Mordashov owns 50%.

(2) Aurora Nominees Limited holds 17,006,851 shares of the Company as a nominee for the benefit of Ocean Management Limited. The remaining 3,790 shares of the Company are held by Aurora Nominees Limited as nominee for the benefit of certain unknown minority shareholders.

Save as disclosed above, in so far as is known to the Company, there is no other person who is, directly or indirectly, interested in 3% or more of the issued share capital of the Company, or of any other person who can, will or could, directly or indirectly, jointly or severally, exercise control over the Company. The Directors have no knowledge of any arrangements the operation of which may at a subsequent date result in a change of control of the Company.

9 Share-based incentive arrangements

Long Term Incentive Plan

9.1 The long term incentive plan ("**LTIP**") was established by the Group on 25 August 2017. LTIP gives its participants the right to receive phantom shares subject to certain conditions and continued employment.

9.2 LTIP participants are nominated among the executive directors and senior managers by CEO and agreed by the Remuneration Committee. Non-Executives Directors are not eligible to participate in the LTIP. LTIP grants are awarded in the form of phantom shares and authorised by the Remuneration Committee, based on the calculation of the Company's EBITDA and net debt, and the conditions that the eligible LTIP participant continues its employment and has met the minimum performance threshold of 75% of the targets for individual performance results. If the performance conditions are not met, the Remuneration Committee may determine to reduce the payout or pay no deferred award. Thus, the final percentage of vested phantom shares grant is determined for each LTIP participant by the Remuneration Committee.

9.3 The phantom shares may be paid out upon their vesting. The price of phantom shares reflects the share price for reinvesting dividends. The final payout of phantom shares may not exceed 200% of the annual bonus amount approved as a payout for a LTIP participant for the performance year preceding the LTIP grant for the respective three year cycle.

10 Pensions

The Group does not operate a defined benefit pension scheme for the benefit of its Directors or Senior Managers.

11 Subsidiaries, investments and principal establishments

The Company is the principal holding company of the Group. The principal subsidiaries and subsidiary undertakings of the Company are as follows:

Name	Country of Incorporation	% of ownership interest
Neryungri-Metallik LLC	Russia	100.0
Rudnik Taborny LLC	Russia	100.0
Celtic Resources Holdings DAC	Ireland	100.0
Celtic Resources (Central Asia) Ltd	UK	100.0
JSC FIC Alel	Kazakhstan	100.0
OJSC Buryatzoloto	Russia	92.53
Irokinda LLC	Russia	92.53
Berezitovy Rudnik LLC	Russia	100.0
Tokko LLC	Russia	100.0
Uryakh LLC	Russia	100.0
Societe Des Mines de Taparko SA	Burkina Faso	90.0
Nordgold YEOU SA	Burkina Faso	90.0
Nordgold SAMTENGA SA	Burkina Faso	90.0
Crew Gold Corporation Limited	Jersey	100.0
Crew Acquisition Corporation	Canada	100.0
Guinor Gold Corporation	Canada	100.0
Kenor AS	Norway	100.0
Delta Gold Mining Ltd.	Jersey	100.0
Societe Miniere de Dinguiraye S.A.	Guinea	85.0
High River Gold Mines (West Africa) Ltd	Cayman Islands	100.0
Bissa Gold SA	Burkina Faso	90.0
High River Gold Exploration Burkina SARL	Burkina Faso	100.0
Jilbey Burkina SARL	Burkina Faso	100.0
Kaya Exploration SARL	Burkina Faso	100.0
Prognoz Exploration Burkina SARL	Burkina Faso	100.0
Nordgold Management LLC	Russia	100.0
Northquest Limited	Canada	100.0
Compagnie Miniere Montagne d'Or SAS	Cayenne	55.01
Nord Gold Guiana SAS	Cayenne	100.0
Nord Prognoz Ltd	BVI	100.0
Nord Gold (Yukon) Inc.	Canada	100.0
High River Gold Mines Ltd	Canada	100.0
High River Acquisition Corp.	Canada	100.0
Amur Gold Limited	Cyprus	100.0
Centroferve Limited	Cyprus	100.0
Ken Kazgan LLP	Kazakhstan	100.0
Kentau Exploration and Mining LLP	Kazakhstan	100.0

12 Material contracts

The following contracts (not being contracts entered into in the ordinary course of business) have been entered into by the Company or another member of the Group within the two years immediately preceding the date of this Reigstration Document and are or may be material:

12.1 Group Financing Arrangements

he Group's principal financing arrangements consist of:

HSBC Revolving Facility Agreement

12.1.1 On 24 April 2019, Celtic Resources Holdings Limited as a borrower entered into an up to US$75,000,000 revolving facility agreement with HSBC Bank PLC ("**HSBC Bank**") as a lender and LLC Neryngri-Metallic, LLC Berezitovy Rudnik, LLC Mine

Taborny and High River Gold Mines (West Africa) Ltd. as guarantors (the "**HSBC Revolving Facility Agreement**"), which matures in April 2021.

12.1.2 The HSBC Revolving Facility Agreement contains customary representations and warranties and customary affirmative and negative covenants, including without limitation debt incurrence, negative pledge, mergers and acquisitions and change of business covenants.

12.1.3 The HSBC Revolving Facility Agreement restricts the Company's ability to declare and pay dividends at any time following the continuing occurrence of an event of non-payment, cross-default or non-compliance by Celtic Resources Holdings Limited with the financial covenants (subject to certain carve-outs).

12.1.4 In the event of a change of control over Celtic Resources Holdings Limited, HSBC may demand early repayment of all outstanding amounts due under the HSBC Revolving Facility Agreement.

12.1.5 As at 31 December 2020, the Group had no outstanding debt under HSBC Revolving Facility Agreement.

Citibank Revolving Facility Agreement

12.1.6 On 19 June 2018, Celtic Resources Holdings Limited entered into an up to US$50,000,000 revolving facilities agreement, among others, with Citibank Europe plc ("**Citibank**" and the "**Citibank Revolving Facility Agreement**", respectively) guaranteed by High River Gold Mines Ltd., Société Minière de Dinguiraye S.A., JSC FIC Alel, LLC Berezitovy Rudnik, LLC Neryungri-Metallic and LLC Mine Taborny (together, the "**Guarantors**") with final maturity in June 2020. The Citibank Revolving Facility Agreement has been extended for two years until June 2022.

12.1.7 The Citibank Revolving Facility Agreement contains customary representations and warranties and customary affirmative and negative covenants including without limitation debt incurrence, negative pledge, mergers and acquisitions and change of business covenants.

12.1.8 The Citibank Revolving Facility Agreement restricts the ability of the Company to declare and pay dividends, charge or distribute shares at any time following the continuing occurrence of an event of non-payment, cross-default or non-compliance by Celtic Resources Holdings Limited with the financial covenants.

12.1.9 In the event of a change of control over Celtic Resources Holdings Limited, Citibank may demand early repayment of all outstanding amounts due under the Citibank Revolving Facility Agreement (subject to certain carve-outs).

12.1.10 As at 31 December 2020, the Group had no outstanding debt under the Citibank Revolving Facility Agreement.

Sberbank Facilities Agreement

12.1.11 On 21 March 2017, Celtic Resources Holdings Limited as a borrower, Sberbank of Russia ("**Sberbank**") as an arranger, original lender and agent, Sberbank (Switzerland) AG as a swap counterparty entered into a facilities agreement (the "**Sberbank Facilities Agreement**"), guaranteed by High River Gold Mines Ltd., JSC FIC Alel, LLC Neryngri-Metallic, LLC Berezitovy Rudnik, Societe Miniere de Dinguiraye S.A. (together, the "**Guarantors**") as guarantors. The Sberbank Facilities Agreement matures in March 2024.

12.1.12 The loan under this agreement is a hybrid instrument consisting of separate components such as (i) a RUB18.6 billion loan effective from March 2017 until March 2019 (the "**Facility A**"), (ii) a U.S.$325 million loan, effective from March 2019 until March 2024 (the "**Facility B**") and (iii) a cross-currency swap, under which Celtic Resources Holdings Limited agreed to pay floating interest on U.S. dollars denominated portion of the loan and receive fixed interest on the Russian rouble denominated portion of the loan, starting from March 2017 with the final notional amounts exchanged on maturity in March 2019.

12.1.13 The Sberbank Facilities Agreement contains customary representations and warranties and customary affirmative and negative covenants including without limitation debt incurrence, negative pledge, mergers and change of business covenants.

12.1.14 In the event of a change of control over Celtic Resources Holdings Limited, the Company or the Guarantors, Sberbank may demand early repayment of all outstanding amounts due under the Sberbank Facilities Agreement (subject to certain carve-outs).

12.1.15 The Sberbank Facilities Agreement also restricts the ability of Celtic Resources Holdings Limited, the Company and the Guarantors, to declare and pay dividends at any time following the continuing occurrence of an event of default (subject to certain carve-outs).

12.1.16 As of the date of this Registration Document, the outstanding debt under the Sberbank Facilities Agreement has been fully repaid.

Syndicated Facility Agreement

12.1.17 On 14 March 2018, Celtic Resources Holdings Limited as a borrower entered into the up to US$300,000,000 facility agreement (the "**Syndicated Facility Agreement**") with, among others, ING, AO Raiffeisenbank, Raiffeisen Bank International AG, PJSC Rosbank, Societe Generale and AO UniCredit Bank (together, the "**Mandated Lead Arrangers**") as mandated lead arrangers and original lenders, and High River Gold Mines Ltd., JSC FIC Alel, LLC Neryngri-Metallic, LLC Berezitovy Rudnik, Societe Miniere de Dinguiraye S.A., LLC Mine Taborny as guarantors.

12.1.18 On 13 April 2018, the Group received a tranche in the principal amount of US$300 million maturing in March 2023 under the Syndicated Facility Agreement.

12.1.19 The Syndicated Facility Agreement contains customary representations and warranties and customary affirmative and negative covenants including without limitation debt incurrence, negative pledge, mergers and acquisitions and change of business covenants.

12.1.20 The Syndicated Facility Agreement restricts the ability of the Company to declare and pay dividends at any time following the continuing occurrence of a continuing non-payment, continuing cross-default or continuing non-compliance by Celtic Resources Holdings Limited with financial covenants.

12.1.21 Upon the occurrence of a change of control over the Company the Mandated Lead Arrangers may require to repay the loan under the Syndicated Facility Agreement.

12.1.22 As of the date of this Registration Document, the Syndicated Facility has been repaid in full.

ESG Revolving Facility Agreement

12.1.23 On 25 March 2021, Celtic Resources Holdings DAC as a borrower entered into an up to US$100,000,000 ESG revolving facility agreement with ING Bank N.V. as sustainability coordinator, ING Bank N.V., Deutsche Bank AG, Amsterdam branch and AO Raiffeisenbank as mandated lead arrangers and bookrunners, LLC NM, LLC Berezitovy Rudnik, LLC Mine Taborny, JSC FIC Alel and High River Gold Mines Ltd. as original guarantors, ING Bank, a branch of ING-DIBA AG, Deutsche Bank AG, Amsterdam branch and AO Raiffeisenbank as original lenders and Deutsche Bank AG as an agent (the "**ESG Revolving Facility Agreement**"). The ESG Revolving Facility Agreement matures in 24 months after its effective date.

12.1.24 The ESG Revolving Facility Agreement contains customary representations and warranties and customary affirmative and negative covenants, including without limitation, negative pledge, mergers and acquisitions and change of business covenants.

12.1.25 The ESG Revolving Facility Agreement restricts the Company's ability to declare and pay dividends at any time following the occurrence of a default which is continuing such as an event of non-payment, a breach of financial covenants and a cross-default.

12.1.26 In the event of a change of control over the Company, ING may demand early repayment of all outstanding amounts due under the ESG Revolving Facility Agreement.

12.1.27 The ESG Revolving Facility Agreement establishes the margin adjustment mechanism pursuant to which the increase in ESG rates established by the ESG rating agency results in a decrease in applicable margins to the ESG Revolving Facility Agreement. Under the ESG Revolving Facility Agreement, Celtic Resources Holdings DAC is obliged to provide the agent with an updated ESG report together with ESG compliance certificate signed by the Company confirming the ESG score assigned to the Group in the latest ESG report. Any failure to provide the ESG report and/or the ESG compliance certificate results in an increase in the applicable margin.

12.1.28 As of the date of this Registration Document, the Group has no outstanding debt under the ESG Revolving Facility Agreement.

12.2 Notes

12.2.1 In October 2019, Celtic Resources Holdings DAC, a wholly-owned subsidiary of the Company, issued U.S.$400 million in principal amount of 4.125 per cent. guaranteed notes due 2024 (the "Notes"). Interest is payable on the Notes on 9 April and 9 October of each year, beginning on 9 April 2020. The Notes mature on 9 October 2024.

The Notes are guaranteed unconditionally and irrevocably, on a joint and several basis, by Neryungri-Metallik LLC, Rudnik Taborny LLC, Berezitovy Rudnik LLC, JSC FIC Alel, Societe Miniere de Dinguiraye S.A. and High River Gold Mines Ltd.

12.2.2 The terms and conditions of the Notes contain customary affirmative and negative covenants including without limitation debt incurrence, negative pledge, mergers and acquisitions, asset sales, transactions with affiliates and change of business covenants

12.3 Factoring Arrangement

12.3.1 On 23 December 2020, Bissa Gold SA entered into the paying agency agreement with Societe Generale Burkina Faso JSC ("**Societe Generale**"), pursuant to which, at the request of Societe Generale, agreed to finance liabilities of Bissa Gold SA arising from its non-metal inventory purchases for the factoring fee (the "***Agreement between Bissa Gold SA and Societe Generale***"). The factoring facility under the Agreement with Societe Generale allows Bissa Gold SA to finance additional deferred payment up to 180 days with suppliers. The maximum aggregate amount that may be outstanding under the factoring facility is 21,000,000,000 CFA francs. Bissa Gold SA indemnifies Societe Generale against damage arising from the agreement.

Agreement between SOMITA SA and Societe Generale

12.3.2 On 23 December 2020, SOMITA SA entered into the paying agency agreement with Societe Generale, according to which, at the request of SOMITA SA, Societe Generale agreed to finance liabilities of SOMITA SA arising from its non-metal inventory purchases for the factoring fee. The factoring facility under the Agreement with Societe Generale allows SOMITA SA to finance additional deferred payment up to 180 days with suppliers. The maximum aggregate amount that may be outstanding under the factoring facility is 8,000,000,000 CFA francs. Bissa Gold SA indemnifies Societe Generale against damage arising from the agreement.

12.4 Mining Concessions

12.4.1 The Group has entered into (i) mining investment agreements with the government of Burkina Faso in respect of Bissa and Bouly, Samtenga and each of Taparko and Bouroum mines (see Part VI*: "Regulatory Overview — Burkina Faso — Mining Concessions*") and (ii) SMD/DGM Convention de Base and a shareholders agreement with the government of the Republic of Guinea in respect of Lefa mine (see Part VI: "*Regulatory Overview — Republic of Guinea — Mining Concessions*" and Part VI: "*Regulatory Overview — Republic of Guinea — Shareholders Agreement*").

13 Related party transactions and other arrangements

13.1 Save as described in Note 26, of Part XI: *"Historical Financial Information"* and as described below, the Group did not enter into any related party transactions during the period covered by the historical financial information or during the period from 31 December 2020 to 2 June 2021 (the latest practicable date prior to the publication of this Registration Document).

13.2 Certain members of the Group have entered into related party transactions with entities under the control of Mr. Alexey Mordashov, being a member of the Board of Directors and one of the ultimate beneficial owners of the Company, including:

13.2.1 service agreements with LLC Severstal–Center Edinogo Servisa for the provision of certain support services relating to existing procurement functions, human resource functions and accounting and treasury functions;

13.2.2 service agreements with JSC Severstal-Infocom for the provision of IT support services, including IT security services and services relating to the maintenance and monitoring of IT systems;

13.2.3 sub-licence agreements with Severstal, pursuant to which Severstal sub-licences the right to use certain Microsoft and SAP software to such Group members;

13.2.4 agreements with Severstal for the provision of certain IT cloud and data storage support services;

13.2.5 agreements with LLC SPb-Giproshact from the provision of services to assist the preparation of mining project design documentation;

13.2.6 supply contracts with JSC "Severstal Distributsia", LLC "Severstal Podyemnye Technologii" and Severstal for the supply of certain metal products and other related products; and

13.2.7 contracts with JSC "Severstal Management" for consultation support services relating to business security.

In 2020, the Group's transactions with entities under common control amounted to U.S.$6 million, compared to U.S.$14.5 million in 2019 and U.S.$9.4 million in 2018.

13.3 In addition, certain members of the Group have contractual arrangements with the governments of Burkina Faso and Guinea, which own interest in their share capital, including:

13.3.1 various agreements in respect of the Group's operations at the Lefa mine in Guinea with the government of Guinea, which owns 15% in Lefa mine through its interest in the share capital of SMD, (see "*Regulatory Overview — Republic of Guinea — Mining Concessions*" and "*Regulatory Overview — Republic of Guinea — Shareholders Agreement*"); and

13.3.2 various agreements in respect of the Group's operations at the Taparko mine, the Samtenga and the Bissa and Bouly mines in Burkina Faso entered into between members of the Group and the government of Burkina Faso, which owns 10% in the Bissa and Bouly and Taparko mines through its interest in the share capital of certain of the members of the Group (see "*Regulatory Overview — Burkina Faso — Mining Concessions*").

14 Litigation

There are no governmental, legal or arbitration proceedings (including any such proceedings which are pending or threatened of which the Company is aware) during the 12 months preceding the date of this Registration Document which may have, or have had in the recent past, significant effects on the Company's or the Group's financial position or profitability.

15 Dividends and dividend policy

16 Under its dividend policy, the Group intends to pay a minimum dividend of U.S.$400 million in two equal instalments following the release of the Group's financial results for the six months ended 30 June 2021 and the year ended 31 December 2021. Starting from 2022, the Group intends to pay minimum

dividends equivalent to 50% of the Group's free cash flow pre-growth capital expenditure, subject to a Net Debt / EBITDA threshold of 1.5x. In any reporting period that the Net Debt / EBITDA ratio increases above 1.5x, the Board will exercise its discretion and may reduce the dividend below the minimum 50% of the Group's free cash flow pre-growth capital expenditure. The Group intends to pay dividends twice a year on a semi-annual basis. In applying this policy, the Board will have regard for a range of factors including the macroeconomic outlook, business performance, balance sheet position and growth outlook of the Company and may exercise its discretion and revise the calculated pay-out either up or down, to the extent these factors substantially impact the Company.

17 No significant change

There has been no significant change in the financial position or financial performance of the Group since 31 December 2020, the date to which the Group's historical financial information set out in Part XI: *"Historical Financial Information"* was prepared.

The Company confirms that, between the date of publication of the Competent Person's Report in Part XIV: *"Competent Person's Report*" of this Registration Document and the date of this Registration Document, no material changes have occurred, the omission of which would make the Competent Person's Report misleading.

18 Consents

18.1 Deloitte LLP is registered to carry on audit work in the UK and Ireland by the Institute of Chartered Accountants in England and Wales and has given and not withdrawn its written consent to the inclusion of the report set out in Section A of Part XI: "*Historical Financial Information*" of this Registration Document and has authorised the contents of this report as part of the Registration Document for the purposes of item 1.3 of Annex 1 of the UK version of Commission Delegated Regulation (EU) 2019/980 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

18.2 SRK Consulting (UK) Limited has given and not withdrawn its written consent to the inclusion of the Competent Person's Report in Part XIV: *"Competent Person's Report*" of this Registration Document and has authorised the contents of this report as part of this Registration Document for the purposes of item 1.3 of Annex 1 of the UK version of Commission Delegated Regulation (EU) 2019/980 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

18.3 A written consent under the Prospectus Regulation Rules is different from a consent filed with the U.S. Securities and Exchange Commission under section 7 of the U.S. Securities Act. Deloitte LLP has not filed and will not be required to file a consent under section 7 of the U.S. Securities Act.

19 General

The financial information contained in this Registration Document does not amount to statutory accounts within the meaning of section 434(3) of the Companies Act 2006. Full audited accounts will be delivered to the Registrar of Companies for the Company for the period from 1 January to 31 December 2020.

20 Documents available for inspection

Copies of the following documents are available on the Group's website at www.nordgold.com for a period of 12 months following the date of this Registration Document:

(a) the Articles;

(b) the Reporting Accountant's report on the Historical Financial Information, as set forth in Section A of Part XI: "*Historical Financial Information*" of this Registration Document;

(c) the consent letters referred to in section 18 *"Consents"* of this Part XII: "*Additional Information*"; and

(d) a copy of this Registration Document.

Dated: 3 June 2021

PART XIII

DEFINITIONS AND GLOSSARY

The following definitions apply throughout this Registration Document unless the context requires otherwise:

"**Adjusted EBITDA**" is calculated as profit before income tax for the period, adjusted for gains on the disposal of available-for-sale investments, finance income and finance costs, foreign exchange gains / (losses), depreciation and amortisation, impairment / (reversal of impairment) of non-current assets, net losses on the disposal of property, plant and equipment, work-in-progress impairment recognised in cost of sales, provisions charged for previously recognised contingent liabilities.

"**Adjusted EBITDA Margin**" is Adjusted EBITDA as a percentage of sales.

"**AISC**" means all-in sustaining cost.

"**Articles**" means the articles of association of the Company.

"**Board**" means the board of directors of the Company.

"**CAATSA**" means the Countering America's Adversaries Through Sanctions Act.

"**CAGR**" means compound annual growth rate.

"**CEO**" means chief executive officer.

"**CGU**" means cash generating unit.

"**CIL**" means carbon-in-leach technology for gold processing.

"**CIP**" means carbon-in-pulp technology for gold processing.

"**CMMO**" means Compagnie Miniere Montagne d'Or SAS.

"**CMPD**" means Government Centre of Mining Promotion and Development, in Guinea.

"**Companies Act**" means the Companies Act 2006, as amended.

"**Company**" means Nord Gold plc.

"**CREST**" means the UK based system for the paperless settlement of trades in listed securities, of which Euroclear UK and Ireland Limited is the operator.

"**Crew Gold**" means Crew Gold Corporation.

"**DASKA**" means the sanctions bill Defending American Security from Kremlin Aggression Act.

"**Directors**" means the Executive Directors and the Non-executive Directors.

"**Disclosure Guidance and Transparency Rules**" means the disclosure guidance and transparency rules produced by the FCA and forming part of the handbook of the FCA through which a manager derives its status as an authorised person under the FSMA rules and guidance, as, from time to time, amended.

"**DGM**" means Delta Gold Mining Ltd.

"**EU**" means the European Union.

"**EU Market Abuse Regulation**" means the Market Abuse Regulation (EU) 596/2014.

"**Exchange Act**" means United States Securities Exchange Act of 1934, as amended.

"**Executive Directors**" means the executive Directors of the Company named in Part VII: "*Directors, Senior Management and Corporate Governance*".

"**FAS**" means the Federal Antimonopoly Service of the Russian Federation.

"**FCA**" means the Financial Conduct Authority.

"**FSMA**" means the Financial Services and Markets Act 2000, as amended.

"**GBP**" means pound sterling, the lawful currency of the United Kingdom.

"**Group**" means the Company and its subsidiaries.

"High River" means High River Gold Mines Ltd.

"**Historical Financial Information**" means the audited consolidated financial information for the Group as at and for each of the three years ended 31 December 2020.

"**HMRC**" means Her Majesty's Revenue and Customs.

"**IFRS**" means the International Financial Reporting Standards, as adopted by the European Union.

"**Investment Company Act**" means the U.S. Investment Company Act of 1940, as amended.

"**JORC Code**" means the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.

"**LIBOR**" means London Interbank Offered Rate.

"**Listing Rules**" means the listing rules of the FCA made under section 74(4) of the FSMA.

"**LOM**" means life of mine.

"**London Stock Exchange**"or"**LSE**" means London Stock Exchange plc.

"**LTIFR**" means Lost Time Injury Frequency Rate, the number of lost time injuries occurring in a workplace per 200,000 hours worked.

"**National Environment Council**" means Guinean Conseil National de l'Environment.

"**Non-executive Directors**" means the non-executive Directors of the Company named in Part VII: "*Directors, Senior Management and Corporate Governance*".

"**Non-IFRS Measures**" financial measures that are not defined or recognised under IFRS.

"**Official List**" means the Official List of the FCA.

"**Panel**" means the Panel on Takeovers and Mergers.

"**PFIC**" means a passive foreign investment company.

"**PRA**" means the Prudential Regulation Authority.

"**Prospectus Regulation Rules**" means the prospectus regulation rules of the FCA made under section 73A of FSMA.

"**QIBs**" has the meaning given by Rule 144A.

"**Regulation S**" means Regulation S under the U.S. Securities Act.

"**Rostekhnadzor**" means the Federal Service for Environmental, Technological and Nuclear Supervision.

"**Rule 144A**" means Rule 144A under the U.S. Securities Act.

"**SEC**" means the United States Securities and Exchange Commission.

"**Senior Independent Director**" means Brian Beamish.

"**Senior Managers**" means those individuals identified as such in Part VII: "*Directors, Senior Management and Corporate Governance*".

"**Severstal Group**" means PAO Severstal and its subsidiaries.

"**Severstal**" means PAO Severstal.

"**Shares**" means the ordinary shares of the Company.

"**SMD/DGM Convention de Base**" means the Convention de Base between SMD, DGM and the government of Guineain dated 1989, as amended.

"**SMD**" means Société Minière de Dinguiraye.

"**Sterling**" or "**pounds sterling**" or "**GBP**" or "**£**" or "**pence**" means pound sterling, the lawful currency of the United Kingdom.

"**TCC**" means total cash cost.

"**U.S. Person**" has the meaning ascribed thereto in Regulation S under the US Securities Act.

"**U.S. Securities Act**" means United States Securities Act of 1933, as amended.

"**UK**" means the United Kingdom of Great Britain and Northern Ireland.

"**UK Corporate Governance Code**" means the UK Corporate Governance Code published by the Financial Reporting Council, as amended from time to time.

"**UK Market Abuse Regulation**" means Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018.

"**UK Prospectus Regulation**" means the UK version of Regulation (EU) 2017/1129, as amended by The Prospectus (Amendment etc.) (EU Exit) Regulations 2019, which is part of UK law by virtue of the European Union (Withdrawal) Act 2018.

"**United States**" or "**U.S.**" means the United States of America, its territories and possessions, any State of the United States of America, and the District of Columbia.

"**US dollar**" or "**US$**" or "**USD**" or "**$**" means the lawful currency of the U.S.

"**VAT**" means value added tax.

PART XIV

COMPETENT PERSONS' REPORT

A COMPETENT PERSONS' REPORT ON THE MINERAL ASSETS OF NORDGOLD

Prepared For

Nord Gold plc

Report Prepared by

SRK Consulting (UK) Limited
UK31102

SRK Legal Entity:		SRK Consulting (UK) Limited
SRK Address:		5th Floor Churchill House 17 Churchill Way Cardiff, CF10 2HH Wales, United Kingdom.
Date:		03 June 2021
Project Number:		UK31102
SRK Project Director:	Iestyn Humphreys	Corporate Consultant (Due Diligence)
SRK Project Manager:	Richard Oldcorn	Corporate Consultant (Due Diligence)
Client Legal Entity:		Nord Gold plc
Client Address:		4th Floor, 27 Dover Street, Mayfair London W1S 4LZ United Kingdom

Table of Contents

List of Tables

List of Figures

SRK Consulting (UK) Limited
5th Floor Churchill House
17 Churchill Way
Cardiff CF10 2HH
Wales, United Kingdom
E-mail: enquiries@srk.co.uk
URL: www.srk.com
Tel: + 44 (0) 2920 348 150

A COMPETENT PERSONS' REPORT ON THE MINERAL ASSETS OF NORDGOLD

1 INTRODUCTION

1.1 Background, Reporting Standard and Requirements

Nord Gold plc ("Nordgold" or the "Company") engaged SRK Consulting (UK) Limited ("SRK") to prepare a Competent Persons' Report ("CPR"), pursuant to the Requirements (as defined below), on the Mineral Assets currently owned and operated by the Company ("the Mineral Assets"), which are located in the Russian Federation, the Republic of Kazakhstan, the Republic of Guinea, Burkina Faso, Canada and French Guiana.

This CPR will be included in the registration document to be published by the Company on 03 June 2021 (the "Registration Document") (the "Publication Date").

This CPR is structured on a Mineral Asset basis and for each of the Mineral Assets presents information on geology, Mineral Resources and Ore Reserves, mining engineering/design, mineral processing, tailings management, infrastructure and environmental and social management as well as a forecast production, revenue, and estimated capital and operating costs and also a cash flow forecast for each Asset, and also the potential for further Mineral Resources and Ore Reserves to be proved up following ongoing exploration and evaluation. The CPR also contains sections commenting upon Mining Licences held by Nordgold, as well as the risks and opportunities associated with the projected cash flows.

The Mineral Resource and Ore Reserve statements included in this CPR have been derived by the Company and audited by SRK and are reported using the terms and definitions given in "The 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (the "JORC Code"). The JORC Code is a reporting code which is aligned with the Committee for Mineral Reserves International Reporting Standards ("CRIRSCO") reporting template.

1.2 Requirement

This CPR will be included in the Registration Document to be published on the Publication Date. This CPR has been prepared in compliance with the following requirements which together comprise the "Requirements":

- The "Prospectus Regulation Rules" and the "Listing Rules" published by the Financial Conduct Authority from time to time and under Part VI of the Financial Services and Markets Act 2000 of the United Kingdom (the "FSMA");

- The UK version of Regulation EU (2017/1129) as amended by The Prospectus (Amendment etc.) (EU Exit) Regulations 2019, which is part of UK law by virtue of the European Union (Withdrawal) Act 2018 (the "UK Prospectus Regulation"); and
- The "ESMA update of the CESR recommendations: The consistent implementation of Commission Regulation (EC) No 809/2004 implementing the Prospectus Directive", published on 20 March 2013: specifically paragraphs 131 to 133, section 1b – mineral companies, Appendix I – Acceptable Internationally Recognised Mining Standards, and Appendix II – Mining Competent Persons' Report – recommended content, hereinafter and collectively referred to as the "*CESR Recommendations*".

With respect of paragraphs 132(a)-(e) of the CESR Recommendations SRK notes the following:

- For compliance with Paragraph 132 (a) details relating to Mineral Resources and Ore Reserves reported in accordance with the JORC Code are included in Section 3.7 "Mineral Resources and Ore Reserves Summary" and in the relevant sub-sections on "Mineral Resources" and "Mining and Ore Reserves" in the individual Mineral Asset sections 4 to 15;
- For compliance with Paragraph 132 (b) details relating to the anticipated mine life see the relevant sub-sections on "Mining and Ore Reserves" and "Economic Assessment" in the individual Mineral Asset sections 4 to 11 and section 14; and exploration potential see Section 16 "Exploration";
- For compliance with Paragraph 132 (c) details relating to the duration and main terms of licences or concessions and legal, economic and environmental conditions see the relevant sub-sections on "Mineral Rights and Primary Approvals" and "Environmental and Social Matters" in the individual Mineral Asset sections 4 to 15;
- For compliance with Paragraph 132 (d) details relating to current and anticipated progress of mineral exploration, extraction and processing including a discussion on the accessibility of the deposits are included in Section 16 "Exploration" and the relevant sub-sections on "Mining and Ore Reserves" and "Mineral Processing" in the individual Mineral Asset sections 4 to 15; and
- For compliance with Paragraph 132 (e) details relating to exceptional factors see Section 3.4 "Relevant Legislation", Section 3.5 "Safety and Sustainable Development", Section 3.6 "Corporate Security", and the relevant sub-sections on "Environmental and Social Matters" in the individual Mineral Asset sections 4 to 15.

In respect of compliance with Appendix II of the CESR Recommendations, specifically the recommended content for the Mining Competent Persons' Report, SRK respectfully highlights the following:

- Scope of the CPR: The primary focus of the CPR is with respect to the provision of independently audited and current: Mineral Resources and Ore Reserves; the Company's Ore Reserve Case and Base Case Life of Mine plans; Environmental and Social Liabilities; and Exploration Programmes for the Mineral Assets as reported herein.
- Compliance Cross Reference:
    - Item (i) Legal and Geological Overview of the Mineral Assets including (1) and (2) as referenced in Section 3.4 "Relevant Legislation" and the relevant sub-sections on

"Mineral Rights and Primary Approvals" in the individual Mineral Asset sections 4 to 15.

- Item (ii) Geological Overview as referenced in the relevant sub-sections on "Geology", "Geotechnical Considerations" and "Mine Water Management" in the individual Mineral Asset sections 4 to 15.
- Item (iii) Mineral Resources and Ore Reserves, including: (1) covered in Section 3.7 "Mineral Resources and Ore Reserves Summary"; (2) covered in the relevant sub-sections on "Mineral Resources" and "Mining and Ore Reserves" in the individual Mineral Asset sections 4 to 15; (3, 4 and 5) covered in Section 3.7 "Mineral Resources and Ore Reserves Summary" and in the relevant sub-sections on "Mineral Resources" and "Mining and Ore Reserves" in the individual Mineral Asset sections 4 to 15; (6) covered in Section 3.7 "Mineral Resources and Ore Reserves Summary"; (7) see Section 1.4 "Verification, Validation and Reliance"; (8 a-d) covered in the relevant sub-sections on "Mining and Ore Reserves", "Mineral Processing" and "Economic Assessment" in the individual Mineral Asset sections 4 to 15.
- Item (iv) Valuation of Ore Reserves. This CPR does not include a Valuation of Ore Reserves, and for the avoidance of doubt does neither does it include a valuation of the Mineral Assets. Notwithstanding this statement, the CPR provides sufficient information as reported in the relevant sub-sections on "Economic Assessment" in the individual Mineral Asset sections 4 to 11 to derive a valuation of the Ore Reserves as reported herein.
- Item (v) Environmental, Social and Facilities: (1) covered in in the relevant sub-sections on "Environmental and Social Matters" in the individual Mineral Asset sections 4 to 15; (2) covered in in the relevant sub-sections on "Mineral Rights and Primary Approvals" in the individual Mineral Asset sections 4 to 15; (3) covered in the relevant sub-sections on "Heap Leach Facility", "Tailings Storage Facility" and "Infrastructure" in the individual Mineral Asset sections 4 to 15.
- Item (vi) Historical Production/Expenditures covered in covered in the relevant sub-sections on "Mining and Ore Reserves", "Mineral Processing" and "Economic Assessment" in the individual Mineral Asset sections 4 to 15
- Item (vii) Infrastructure covered in the relevant sub-sections on "Heap Leach Facility", "Tailings Storage Facility", "Human Resources", "Occupational Health and Safety" and "Infrastructure" in the individual Mineral Asset sections 4 to 15.
- Item (viii) Maps etc covered in Section 3.3 "The Mineral Assets" and the relevant sub-sections in the individual Mineral Asset sections 4 to 15
- Item (ix) Special Factors covered in Section 3.4 "Relevant Legislation", Section 3.5 "Safety and Sustainable Development", Section 3.6 "Corporate Security", and the relevant sub-sections on "Environmental and Social Matters" in the individual Mineral Asset sections 4 to 15.

1.3 Reliance

The CPR is addressed to the Directors of the Company, the management team of the Company, and the Company. SRK has confirmed in writing in a letter dated on the Publication Date (the "Consent Letter") that it:

- Authorises and consents to the inclusion of the CPR in the Registration Document; and
- Takes responsibility for the CPR as part of the Registration Document and declares that the information contained in the CPR is, to the best of its knowledge, in accordance with

the facts and makes no omission likely to affect its import.

1.4 Effective Date, Base Technical Information Date and Publication Date

The effective date of the CPR is 31 December 2020 (the "Effective Date"). The CPR summarises SRK's review of:

- the Company's 31 December 2020 Resource and Reserves estimates reported in accordance with the terms and definitions of the JORC Code ("the 2020 Statements");
- the detailed schedules of activities and expenditures relating to the derivation and support of the technical and economic parameters as included in the Life-of-Mine plans for the Mineral Assets;
- the mine closure costs for all historical, current and planned infrastructure relating to the Mineral Assets and inclusive retrenchment costs comprising the Environmental and Social Liabilities reported herein; and
- the supporting details for the Company's exploration programme including activities and expenditures to support the planned forecasts as reported herein.

The Base Technical Information Date is defined as 31 December 2020 which is co-incident with the reporting date for the 2020 Statements. The Publication Date of the Registration Document and the CPR included therein will be 03 June 2021. As advised by the Company, as at the Publication Date of the Registration Document no material change has occurred as of the Effective Date of the CPR inclusive of: the 2020 Statements; the LoMp and accompanying TEPs; the Environmental and Social Liabilities; and the exploration work programme as outlined herein.

1.5 Verification, Validation and Reliance

This CPR is dependent upon technical, financial and legal input from the Company. Notably, the technical information as provided to, and taken in good faith by, SRK, has not been independently verified by means of re-calculation. SRK has, however, conducted a review and assessment of all material technical issues likely to influence the future performance of the Mineral Assets, and therefore the stated Mineral Resources and Ore Reserves.

SRK has not undertaken a site visit to the Mineral Assets as part of this commission due to the travel restrictions imposed by the COVID-19 Pandemic, and the analysis and resulting opinions have rather been based on a review of information supplied by the Company and discussions with Company personnel.

SRK considers that with respect to all material technical-economic matters, it has undertaken all necessary investigations to ensure compliance with the JORC Code.

1.6 Scope of Work

SRK has undertaken a technical due diligence review of the Mineral Assets, as described in the following sections of this CPR. For the operating mines, this included reviews of the following technical elements: geology and Mineral Resources; mining and Ore Reserves; mineral processing and metallurgy; geotechnical engineering and site water management; tailings storage and heap leach facilities; environmental, social and governance aspects. For the exploration projects the reviews were limited to the geology and Mineral Resource

estimates, as well as a brief review of any additional technical studies undertaken in parallel and a review of any current environmental and social issues that may affect ongoing work. For one development project, Montagne d'Or, SRK has summarised the Feasibility Study undertaken by SRK North America in 2017, with updates to the current environmental and social situation at the Project.

The majority of the Mineral Resource and Ore Reserve estimates were authored by Nordgold or other third party consultants, and then reviewed by SRK and signed off for this CPR. The exceptions to this are as follows: the Taparko 35 Underground MRE, mine design and Ore Reserves; the Montagne d'Or MRE and Ore Reserves and Feasibility Study; and the Pistol Bay MRE. In addition to these, SRK prepared the underground mine design for the Lefa Lero-Karta extension, and the mine design and schedule for the Gross 26 Mtpa expansion study, neither of which are in the Company's Ore Reserve Case but which are described in the Base Case Life of Mine plan ("LoMp").

Due to COVID-19 restrictions, it was not possible to visit any of the mine sites for this review.

1.7 Limitations, Responsibility Statement, Reliance on SRK, Declarations, Consent and Copyright

1.7.1 Limitations

The Company has agreed that, to the extent permitted by law, it will indemnify SRK and its employees and officers in respect of any liability suffered or incurred as a result of or in connection with the preparation of this report albeit that this indemnity will not apply in respect of any material negligence, wilful misconduct or breach of law. The Company has also agreed to indemnify SRK and its employees and officers for time incurred and any costs in relation to any inquiry or proceeding initiated by any person except to the extent SRK or its employees and officers have been materially negligent or acted with wilful misconduct or in breach of law in which case SRK shall bear such costs.

The Company has confirmed in writing to SRK that to its knowledge the information it has provided to SRK was complete and not incorrect or misleading in any material aspect. SRK has no reason to believe that any material facts have been withheld and the Company has confirmed to SRK that it believes it has provided all material information. The achievability of the budgets and forecasts presented here are neither warranted nor guaranteed by SRK. The forecasts as presented and discussed herein have been proposed by Nordgold management and adjusted where appropriate by SRK to reflect its opinion but cannot be assured. Notably, for example, they are necessarily based on economic and market assumptions, many of which are beyond the control of the Company and SRK.

1.7.2 Responsibility Statement

For the purposes of Rule 5.3.2R(2)(f) of the Prospectus Regulation Rules and item 1.2 of Annex 1 the UK version of Commission Delegated Regulation (EU) 2019/980 supplementing the UK Prospectus Regulation, which is part of UK law by virtue of the European Union (Withdrawal) Act 2018 (the "Prospectus Delegated Regulation"), we are responsible for the CPR as part of the Registration Document and declare that to the best of our knowledge the information contained in this report is in accordance with the facts and contains no omission likely to affect its import. This declaration is included in the Registration Document in compliance with item 1.2 of Annex 1 of the Prospectus Delegated Regulation.

1.7.3 Reliance on Information

SRK's opinions given in this document are effective as at 31 December 2020 and are based on information provided by the Company throughout the course of SRK's investigations, which in turn reflects various technical-economic conditions prevailing at the date of this report and the Company's expectations regarding the commodity markets and exchange rates as at the date of this report. These and the underlying Technical Economic Parameters ("TEPs") can change significantly over relatively short periods of time.

Notably SRK has not reviewed the rights of Nordgold to mine from a legal perspective. Consequently, SRK has relied on advice by Nordgold to the effect that it will be entitled to mine all material reported here and that all necessary statutory mining authorisations and permits are being put in place. SRK's review has rather been restricted to confirming that the Mineral Resources and Ore Reserves as stated in this CPR are within the currently valid licence boundaries.

1.7.4 Declarations

SRK will receive a fee for the preparation of this CPR in accordance with normal professional consulting practice. This fee is not contingent on the outcome of any transaction and SRK will receive no other benefit for the preparation of this report. SRK does not have any pecuniary or other interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the Mineral Resources and Ore Reserves.

SRK does not have, at the date of this report, and has not ever had, any shareholding in or other relationship with the Company and consequently considers itself to be independent of the Company.

1.7.5 Consent and Copyright

SRK has given and not withdrawn its written consent to the inclusion of the Competent Persons' Report in Part XIV of the Registration Document and has authorised the contents of this report as part of the Registration Document for the purposes of Rule 5.3.2R(2)(f) of the Prospectus Regulation Rules and item 1.3 of Annex 1 of the Prospectus Delegated Regulation.

Neither the whole nor any part of this report nor any reference thereto may be included in any other document without the prior written consent of SRK regarding the form and context in which it appears.

1.8 Qualifications of Consultants

SRK is part of an international group (the SRK Group), which comprises approximately 1,400 professional staff offering expertise in a wide range of resource and engineering disciplines. The SRK Group's independence is ensured by the fact that it holds no equity in any project. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgment issues. The SRK Group has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, CPR and independent feasibility studies on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs.

This CPR has been prepared by a team of consultants sourced from the SRK Group's office in the UK, Russia, Canada, South Africa, USA and Kazakhstan over a four-month period. These consultants are specialists in the fields of geology, resource and reserve estimation and reporting, open pit and underground mining, mine geotechnical engineering, mine water management, mineral processing, tailings facility management, infrastructure, environmental social and governance matters, and mineral economics.

The technical specialists that supervised the production of this CPR are tabulated in Table 1-1. They all have significant experience in the mining industry and have all been responsible for the reporting of Mineral Resources and Ore Reserves on various properties internationally. They have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

The Competent Person who has overall responsibility for the CPR, LoMps and Ore Reserves as reported herein is Richard Oldcorn, C.Geol, FGS. He is a Chartered Geologist which is a Recognised Professional Organisation ("RPO") included in a list promulgated by the Australian Securities Exchange ("ASX") from time to time. He is a full time employee of SRK, a corporate consultant and has 30 years' experience in the mining and metals industry and also has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code. Richard Oldcorn has been responsible for the reporting of Mineral Resources and Ore Reserves on various properties internationally during the past 10 years.

The Competent Person who has overall responsibility for the Mineral Resources as reported herein is Dr. Timothy Lucks, MAusIMM (CP). He is a Chartered Professional within the Australasian Institute of Mining and Metallurgy, which is a Recognised Professional Organisation ("RPO") included in a list promulgated by the Australian Securities Exchange ("ASX") from time to time. He is a full time employee of SRK, a principal consultant and has 20 years' experience in the mining and metals industry and also has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code. Timothy Lucks has been responsible for the reporting of Mineral Resources on various properties internationally during the past 10 years.

Table 1-1: SRK Team: Responsibilities and Professional Details Summary

Area of Responsibility	Name	Designation	Registration, Membership	SRK Office	Asset
Project Manager	Richard Oldcorn	Corporate	CGeol, FGS	UK	All
Project Director and Overall Review	Dr. Iestyn Humphreys	Corporate	FIMMM, AIME	UK	All
Coordinator -Geology and Resources	Dr. Tim Lucks	Principal	MAusIMM (CP)	UK	All
Geology and Resources Reviewers:	Robin Simpson	Principal	MAusIMM (CP)	RU	Gross, Taborny, Berezitovy, Irokinda, Tokko
	Robert Goddard	Senior	CGeol, FGS	UK	Taparko
	Dr. Lucy Roberts	Principal	MAusIMM (CP)	UK	Lefa, Bouly, Bissa
	James Williams	Consultant	FGS	UK	Lefa
	Alexander Batalov	Consultant		RU	Lefa
	James Haythornthwaite	Senior	CGeol, FGS	UK	Bissa
	Ilkay Cevik	Consultant		CA	Suzdal
	Bart Stryhas	Principal	AIPG	US	Uryakh, Montagne d'Or
	Alexander Mitrofanov	Senior	PGeo	CA	Pistol Bay
Coordinator - Mining and Reserves	Francois Taljaard	Senior	Pr.Eng, SAIMM	UK	All
Mining and Reserves Reviewers:	David Pearce	Corporate	FAusIMM, CPMin	RU	CIS sites
	Peter Myers	Principal	FAusIMM(CP)	RU	Berezitovy, Irokinda, Suzdal
	Hanno Buys	Senior	Pr.Eng, SAIMM,	UK	Gross, Taborny
	Yerko Martinez	Senior	MAusIMM	UK	Lefa UG
	Jurgen Fuykschot	Principal	MAusIMM (CP)	UK	Taparko UG
	Filip Orzechowski	Senior	CEng FIMMM	UK	Taparko OP
	Jaco Van Graan	Principal	Pr.Eng, ECSA	ZA	Lefa OP, Bissa
	Colleen MacDougall	Senior	P.Eng	CA	Bouly, Uryakh
Coordinator – Geotechnical	Max Brown	Principal	CEng MIMMM	UK	All
Geotechnical Reviewers:	Trevor Silverton	Principal	CEng FIMMM	UK	Berezitovy, Irokinda, Suzdal
	Ivan Livinsky	Senior		RU	Gross, Taborny, Berezitovy, Suzdal
Water Management Review	James Bellin	Principal	CGeol, FGS	UK	All
Mineral Processing	Dr John Willis	Principal	MAusIMM(CP), Member AIME	UK	All
Tailings	Jamie Spiers	Senior	CEng MIMMM	UK	All
Coordinator - ESG	Jane Joughin	Corporate	Pr.Sci.Nat (South Africa)	UK	All
ESG Reviewers:	Ekaterina Marakanova	Senior		RU	Russian assets
	Ksenia Dyachkova	Senior		RU	Russian assets
	John Merry	Principal		UK	West African assets
	Sandugash Abdizhalelova	Consultant		KZ	Suzdal
Mineral Economics	Inge Moors	Principal	MIMMM	UK	All

UK = SRK Consulting UK; ZA = SRK Consulting South Africa; RU = SRK Consulting Russia; KZ = SRK Consulting Kazakhstan; CA = SRK Consulting Canada; US = SRK Consulting US

2 REPORTING STANDARDS

2.1 Introduction

The Reporting Standard adopted for reporting of the Mineral Resource and Ore Reserve Statements for the Mineral Assets in this CPR is that defined by the terms and definitions given in *"The 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia"* (the "JORC Code (2012)"). SRK confirms that the JORC Code (2012) has been aligned with the Committee for Mineral Reserves International Reporting Standards ("CRIRSCO") reporting template.

2.1.1 Mineral Resource

The JORC Code defines a Mineral Resource as a "concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories." Specifically:

- An Inferred Mineral Resource is that part of a Mineral Resource for which for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes which may be limited or of uncertain quality and reliability.
- An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
- An Indicated Mineral Resource is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.
- An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.
- A Measured Mineral Resource is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. The locations are spaced closely enough to confirm geological and grade continuity.

- A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Ore Reserve or to a Probable Ore Reserve.

SRK's audited Mineral Resource Statements presented in this report are is reported inclusive of those Mineral Resources modified to generate Ore Reserves.

2.1.2 Ore Reserves

The JORC Code defines an Ore Reserve as the economically mineable part of a Measured and / or Indicated Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves. A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit. Specifically:

- A Probable Ore Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.
- A Proved Ore Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve represents the highest confidence category of reserve estimate and implies a high degree of confidence in the Modifying Factors. The style of mineralisation or other factors could mean that Proved Ore Reserves are not achievable in some deposits.

2.2 Technical Study Standards for Reporting Ore Reserves

The JORC Code requires the completion of technical studies to at least the level of a Preliminary Feasibility Study (Pre-feasibility Study or "PFS") as the minimum prerequisite for the conversion of Mineral Resources to Ore Reserves.

A PFS is defined by the JORC Code as a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resource may be converted to an Ore Reserve at the time of reporting. A PFS is at a lower confidence level than a Feasibility Study ("FS").

An FS as defined by the JORC Code is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a PFS.

SRK notes that the majority of Nordgold's assets are operating mines with long operational histories and well developed mine plans that rely on detailed planning and historical performance for the future designs, schedules and economic forecasts, which are considered by SRK to be at least at a PFS level of design. Further comments on Nordgold's planning process and technical study levels are presented in Section 2.3.

2.3 Mineral Asset Classification

With respect to the description of the Mineral Assets in this CPR, SRK applies the following standard conventions:

- **Exploration property:** properties where mineralisation may or may not have been identified, but where a mineral resource has not been identified.
- **Advanced exploration property:** properties where considerable exploration has been undertaken and specific targets have been identified that warrant further detailed evaluation, usually by drill testing, trenching or some other form of detailed geological sampling. A mineral resource estimate may or may not have been made, but sufficient work will have been undertaken on at least one prospect to provide both a good understanding of the type of mineralisation present and encouragement that further work will elevate one or more of the prospects to the resource category.
- **Pre-development property:** properties where mineral resources have been identified and their extent estimated (possibly incompletely) but where a decision to proceed with development has not been made. Properties at the early assessment stage, properties for which a decision has been made not to proceed with development, properties on care and maintenance and properties held on retention titles are included in this category if mineral resources have been identified, even if no further valuation, technical assessment, delineation or advanced exploration is being undertaken.
- **Development property:** properties for which a decision has been made to proceed with construction and/or production, but which are not yet commissioned or are not yet operating at design levels.
- **Operating mine:** mineral properties, particularly mines and processing plants that have been commissioned and are in production.

2.4 Nordgold Technical Study Standards and Planning Process

Nordgold has a set of internal processes for mine planning and design, which are defined below and which inform the statements of Ore Reserves and the Strategic Business Plans for the Company.

2.4.1 Planning Process

Nordgold undertakes an ongoing planning process defined within its various technical business units, in particular the Mineral Resource Management ("MRM") and Mine Technical Services ("MTS") groups. The Nordgold MRM and MTS Process Flow Chart defines these various inter-related processes, as summarised in Table 2-1.

Table 2-1: Nordgold Planning Process Summary (after Nordgold)

Group / BU	Activity				
	Exploration and Data Collection	**Long Term Planning**	**Short Term Planning**	**Mine Production**	**Reconciliation**
Mine Geology (MRM)	Exploration activities. Geological Models.	Mineral Resource Modelling; Resource Estimation;	Grade Control (GC) Process: drilling; QA/QC; Interp; Geol Model to Mineralization Model	Tracking, Sampling, Analysis, Protocols	Resource vs GC Reconciliation
MRM & MTS interface	Sterilization drilling and WRD design	Mineral Resource Model	Grade Control Model	Ore block design, bench plans, dilution	Reconciliation: GC Model vs Mined
Mine Technical Services (MTS)		Long/Medium Term Planning: MPAs; Optimisation; Design; Reserve models; LoMp; Budget Plan, Operating Plan	Production engineering: detailed design; drilling & blasting plan; blending strategy	Drill & Blast; Mining; Survey, Reporting. RoM	Ore Reconciliation: Geology, Mine Planning & Excavation
Metallurgy			Mineral Processing	CIL/CIP: Crushing; milling thickening & leaching; EW; smelting: Gold HL: Crush & screen; agglom; stacking; irrigation; ADR: Gold	Production reconciliation: Mining & Metallurgy; Geology & Metallurgy

2.4.2 Design Cases

Ore Reserve Case

The Ore Reserve Cases support the Ore Reserves for each Asset as declared by the Company, and which have been reviewed by SRK in this CPR. Ore Reserve Case designs are based on an optimised pit shell or optimised stope design at the long term gold price used by the Company for its Strategic Business Plan (see Section 2.4.4), containing only Measured and Indicated Resources and incorporating a range of mine planning assumptions ("MPA"), such as geotechnical slope angles, mining costs, processing costs, etc. The MPA for each mine/pit are set out in the mining section of the specific asset descriptions in this CPR. The optimised pits / stopes are then further designed to incorporate ramps and staged pushbacks to develop practical pits, or developments and stopes in the case of the underground mines. A mining and processing schedule is then developed from these "reserves inventories" and a financial model prepared, which includes provision for capital expenditure and closure costs, etc., to demonstrate that at the time of reporting the Reserves are economically viable as well as technical feasible, as required by the JORC Code.

Base Case Design – Strategic Business Plan (Reserves and Resources)

The Base Case designs support the Company's Strategic Business Plan (see Section 2.4.4), and are the plans to which Nordgold's Business Units work, as being the most profitable and practical long-term mine plan (or Life of Mine plan "LoMp"). The Base Case designs include both the Ore Reserves derived from Measured and Indicated Resources, plus additional material from Inferred Mineral Resources where it is practical and profitable to do so. Whilst there is Inferred material in the plan, the reliance on the Business Plan (see Section 2.4.3) in the first year means that the Base Case designs have a solid foundation in the Ore Reserves, with the BP updated every year. As with the Ore Reserve Case designs, the Base Case designs are based on optimised pit shells/stopes, practical pit designs with staged pushbacks or developments and underground mining layouts, plus a detailed mining schedule with a supporting production plan and financial model. Inferred material in the Base Case design may be mined incidentally when contained within areas of Measured and Indicated material, but in certain cases also forms distinct pushbacks or stope extensions, or may represent specific satellite pits or distinct areas of underground resources. The Base Case designs do not support the Ore Reserves, as they contain this Inferred material, nor are the Measured and Indicated Resources in the Base Case design directly equated to the Ore Reserves, for the various practical design reasons explained above.

2.4.3 Business Plan (BP)

Nordgold prepares a yearly Business Plan ("BP") for each of the mine sites, or Business Units ("BU"), which comprises a one-year plan developed by the BU. The BP provides a detailed mining and processing plan for the coming year and includes only Ore Reserves, as defined by the Ore Reserve Case Design. In addition, the BP compares the previous year's forecast from the Strategic Business Plan with the current plan, based on historical performance in the prior year. As well as the mining and processing plan, the BP includes an update of Resources and depletion, exploration plans, and proposed resource/reserve conversion summary. Other planned technical works are presented, including geotechnical and water management, new projects, cost reduction/efficiency initiatives, infrastructure upgrades, capital projects, etc., as well as summaries of HSE performance and HSE/HR initiatives. BP are prepared in Q3 and presented to Nordgold management in August/September, for Board approval in mid-Q4.

2.4.4 Strategic Business Plan (SBP)

In addition to the BP, Nordgold prepares a yearly Strategic Business Plan ("SBP") for each mine site, which is effectively the update to the LoMp. The SBP includes the BP for the first year, and so provides the additional details of the mining and processing plan after this. The SBP comprises the Base Case mine design, as described above, which includes the Ore Reserves but may also include Inferred material which is considered to contribute to the overall mine plan in terms of practical mining and project economics and which the Company believes is a plausible Base Case (see Section 2.4.2).

Similarly to the BP, the SBP covers all the key technical inputs to delivering the plan for the Life of Mine ("LoM"), also presenting a number of options relating to various future strategies, such as exploration, resource development programmes, major projects, expansions, underground development, etc. Major risks for the SBP case are also discussed and ranked within an established Risk Matrix profile.

The SBP planning process commences in mid-Q3 of the year prior to the BP, with the SBP being approved in Q1 of the year before the SBP commences; so for the current SBP beginning 2022, the SBP process started in September 2020 and these were confirmed in January and February 2021. A summary of the project planning cycle is presented in Table 2-2.

2.4.5 Mineral Resources and Ore Reserves

Mineral Resources and Ore Reserves are updated by Nordgold annually, with an interim, mid-year assessment which commences in May and continues through to end-July. The process is closely linked to the BP and SBP planning process and is finalised at year-end, with an interim final year position presented at end-October using forecast information for November and December (see Table 2-2).

2.4.6 Planning Cycle

Nordgold has a yearly planning cycle timetable which informs the various design and Business Plans described above. Close adherence to this timetable ensures that the BP and SBP can be approved by Management and the Board well in advance of the year end and enable timely implementation. A summary is provided in Table 2-2.

Table 2-2: Nordgold Planning Cycle Timetable (summary, after Nordgold)

		2020												2021	
PROCESS	**Task Description**	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
SBP 2021	**GM/COO/CEO SBP models Review**														
	SBP Options and Plan Consolidation														
	Board Meeting - Approve Final SBP														
MID YEAR RESERVES	Annual Planning Context Setting Document														
	BP Process & model updates														
	Mid-year MPAs and Optimizations for Reserves														
	Preparation of BP models & Mid-Year R&R updates														
	Mid-year sign-off & COO Review														
BP 2021	BP Estimate updates, COO & CEO Review														
	BP Models Shareholder Review														
	BP Estimate Updates & Shareholder Approval														
RESOURCES & RESERVES 2020 AND **SBP2022**	SBP Planning														
	Definition of new MPAs, & sign-off by HO														
	Optimizations for Reserves based on new MPAs														
	HO Review of Optimisations (Resource and Reserve)														
	Reserves update: 31 Oct 2020 survey + Nov, Dec 2020 forecasted Reserves														
	Delivery of Base Case schedules														
	Delivery of Base Case CAPEX														
	Annual JORC Resource and Reserve Draft Table Updates														
	Resources and Reserves COO and CEO Review, sign-off														
	Annual JORC Resource and Reserve Table Updates (as on 31st Dec 2020 actual survey position)		SPB2021											SBP 2022	
	Filing of Resource & Reserves Datafiles & MPAs														
	Update of Resource & Reserves Memos														
	Sign-off and filing of Resource & Reserve Memos														
	Strategic Business Plan Models Base Case and Ore Reserves Case preparation														

LEGEND

- Key Milestone
- Review Process
- Strategic Planning Process
- Budget Planning Process

3 NORDGOLD AND THE MINERAL ASSETS

3.1 Introduction

Nordgold is an internationally diversified gold producer with key operations, development and exploration properties in the Far East of the Russian Federation, as well as the Republic of Kazakhstan, West Africa (Guinea and Burkina Faso), French Guiana and Canada. The Company's strategy is to continue to build on this base through expansion and development initiatives at existing operating mines, development of new mines, advancement of its exploration properties and the targeting of other consolidation opportunities, with a primary focus in Russia and West Africa.

As at 31 December 2020, Nordgold had ten operating mines: five in the Russian Federation, one in Kazakhstan, three in Burkina Faso, and one in Guinea. In addition there are two development projects, one in Russia and one in French Guiana, and two exploration projects, one in Russia and one in Canada.

3.2 Nordgold – Brief Operating History

Nordgold was established in 2007 as a gold-focussed subsidiary of the Severstal Group, a Russia-based international steel and mining conglomerate. During 2007 and 2008, through various transactions, Nordgold acquired controlling stakes in the Neryungri (now Taborny), Buryatzoloto, Berezitovy in Russia and Suzdal mines in Kazakhstan, as well as the Taparko mine and Bissa project in Burkina Faso. In 2010, Nordgold acquired the Lefa gold mine in Guinea as a result of its acquisition of Crew Gold Corporation, and in 2011 received the mining licence for Bissa.

In 2012, Nordgold split off from Severstal and listed on the Main Board of the London Stock Exchange (“LSE”), and further consolidated its ownership of High River Gold Mines Ltd, the previous owners of the Buryatzoloto, Berezitovy and Taparko mines, and the Bissa project.

In 2013, Nordgold acquired 100% of High River Gold mines Ltd., the Bissa open pit mine went into operation, and the new Gross project in Russia received its mining licence, with construction commencing in 2016. Also in September 2016, the Bouly heap leach gold mine commenced operations (part of the Bissa gold complex).

Nordgold de-listed from the LSE in March 2017, and continued with new projects, such as the feasibility study for the Montagne d’Or project in French Guiana (controlling stake acquired in September 2017), the pre-feasibility study for the Uryakh project in far-east Russia, exploration of the Tokko project near the Taborny and Gross mines, and ongoing exploration at the Pistol Bay property in Canada (acquired in October 2016).

In September 2018, the Company’s flagship mine, Gross, went into production. The Neryungri entity was split into Gross and Taborny on 01 January 2019 and now operate as separate legal entities.

The various entities and subsidiaries are held under Nord Gold UK Societas, a UK incorporated company.

3.3 The Mineral Assets

The Company's Mineral Assets that have been reviewed by SRK as part of this CPR are listed below. The nine operating sites are as follows:

- Gross. An operating open pit gold mine located in the Republic of Sakha (Yakutia) of the Russian Federation, using heap-leaching technology for gold processing.
- Taborny (former Neryungri). An operating open pit gold mine located in the Republic of Sakha (Yakutia) of the Russian Federation, using heap-leaching technology for gold processing.
- Suzdal. An underground gold mine located in Kazakhstan, using flotation, BIOX and CIL technology for gold processing.
- Irokinda. an underground gold mine located in the Republic of Buryatia of the Russian Federation, which uses gravity and flotation technology for gold processing.
- Berezitovy. An open pit gold mine which has recently developed an underground mine, located in the Amur region of the Russian Federation, using CIP technology for gold processing.
- Taparko. A multi open pit gold mine located in Burkina Faso, West Africa, using CIL technology for gold processing.
- Lefa. A multi open pit gold mine located in Guinea, West Africa, using CIP technology for gold processing.
- Bissa and Bouly. Open pit gold mines located in Burkina Faso, West Africa, using CIL (Bissa pits) and heap-leaching (Bouly pit) technologies for gold processing.

The 90% interest in Taparko, Bissa and Bouly mines in Burkina Faso, as well as the 100% interest in Berezitovy mine in the Russian Federation, are owned through High River Gold Mines Ltd, in which the Company holds a 100% interest. A 92.53% interest in Buryatzoloto is commonly held directly by High River Gold Mines Ltd and the Company. The Lefa mine is held by the Company through Crew Gold Corporation (in which the Company has a 100% interest) which, as at the date of this CPR, indirectly holds a 85% interest in SMD, which in turn owns Lefa. The Suzdal mine in Kazakhstan is 100% owned by JSC FIC Alel, in which the Company in turn holds a 100% interest. The Gross mine in the Russian Federation is owned by the Company through “Neryungri-Metallic” LLC, in which the Company holds a 100% interest. The Taborny mine in the Russian Federation is held through “Rudnik Taborny” LLC, in which “Neryungri-Metallic” LLC (in which the Company has 100% interest) holds a 99.9998% interest, with the remaining 0.0002% interest being held by the Company directly.

Production statistics and Mineral Resource and Ore Reserve reporting provided herein have not been adjusted to give effect to minority interests.

In addition to the operating mines, the Company has built a portfolio of exploration and development projects which have the potential to increase its reserves base, including one development project (the Montagne d'Or project in French Guiana), one pre-development project (the Tokko project near the Gross and Taborny mines in the Republic of Sakha (Yakutia) in the Russian Federation), and two advanced exploration projects (the Uryakh project in the Irkutsk region of the Russian Federation, and the Pistol Bay project on the coast of Hudson Bay in Canada). The Company owns a controlling 55.01% interest in Compagnie Minière Montagne d'Or SAS, the development company for the Montagne d'Or project and is the operator of the project. The Company has a 100% interest in each of the Tokko, Uryakh and Pistol Bay projects.

A summary of the Mineral Assets is provided in Table 3-1 and the general location globally is shown in Figure 3-1. Regional maps showing the general locations of the Mineral Assets in Russia, Kazakhstan, Guinea, Burkina Faso, French Guiana, and Canada are shown in Figure 3-2, Figure 3-3, Figure 3-4, Figure 3-5, Figure 3-6, and Figure 3-7, respectively.

SRK notes that in the detailed sections per Mineral Asset, corporate overhead costs related to Nordgold's head office are not allocated to each site, and should be taken into account separately when valuing the Company. SRK has been informed that in total these costs amount to USD32.7m per annum whilst total gold production across all the Mineral Assets is maintained above 900 koz per annum.

Table 3-1: Summary of Nordgold Mineral Assets

Mineral Asset Name	Country	Operating Entity (Nordgold % Ownership)	Status of Asset	Open Pit or Underground	Process Route
Gross	Russia	"Neryungri-Metallik" LLC (100%)	Operating	Open Pit	Dynamic Heap Leach
Taborny	Russia	"Rudnik Taborny" LLC (100%)	Operating	Open Pit	Static Heap Leach
Berezitovy	Russia	"Berezitovy Rudnik" LLC (100%)	Operating	Open Pit & Underground	Leach & CIP
Irokinda:	Russia	"Irokinda" LLC (92.53%)	Operating	Underground	Flotation & Gravity
Suzdal	Kazakhstan	JSC FIC Alel (100%)	Operating	Underground	Biox, CIL & HiTeCC
Lefa	Guinea	SMD (85%)	Operating	Open Pit	Leach, CIP
Bissa	Burkina Faso	Bissa Gold S.A. (90%), Samtenga S.A. (90%)	Operating	Open Pit	CIL
Bouly	Burkina Faso	Bissa Gold S.A (90%)	Operating	Open Pit	Static Heap Leach
Taparko	Burkina Faso	Somita (90%), YEOU S.A. (90%)	Operating	Open Pit	Gravity, CIL
Montagne d'Or	French Guiana	Compagnie Minière Montagne d'Or SAS (55.01%)	Development (PFS)	Open Pit	Proposed CIL
Tokko	Russia	"Rudnik Taborny" LLC (100%)	Pre-development (MRE & PEA/Scoping)	Open Pit	Proposed Heap Leach
Uryakh	Russia	"Uryakh LLC" (100%)	Exploration (MRE)	Open Pit & Underground	Proposed CIL
Pistol Bay	Canada	Northquest Limited (100%)	Exploration (MRE)	Open Pit	tbc

Gold doré produced in Russia is refined at the Prioksky refinery in the Ryazan Region and the Krastsvetmet refinery in the Krasnoyarsk Region of the Russian Federation before being transported to banks in Russia. Gold doré from Nordgold's mines in Burkina Faso and Guinea is refined at MKS (Switzerland) S.A.'s refineries in India or Switzerland. Suzdal's gold doré is refined at Tau-Ken Altyn refinery in Kazakhstan. Gold doré is transported from the mines to refineries by a mixture of armoured cars, secured helicopters and planes. The risk of loss passes to the carrier once gold doré is handed over by the mine to a designated transportation agent.

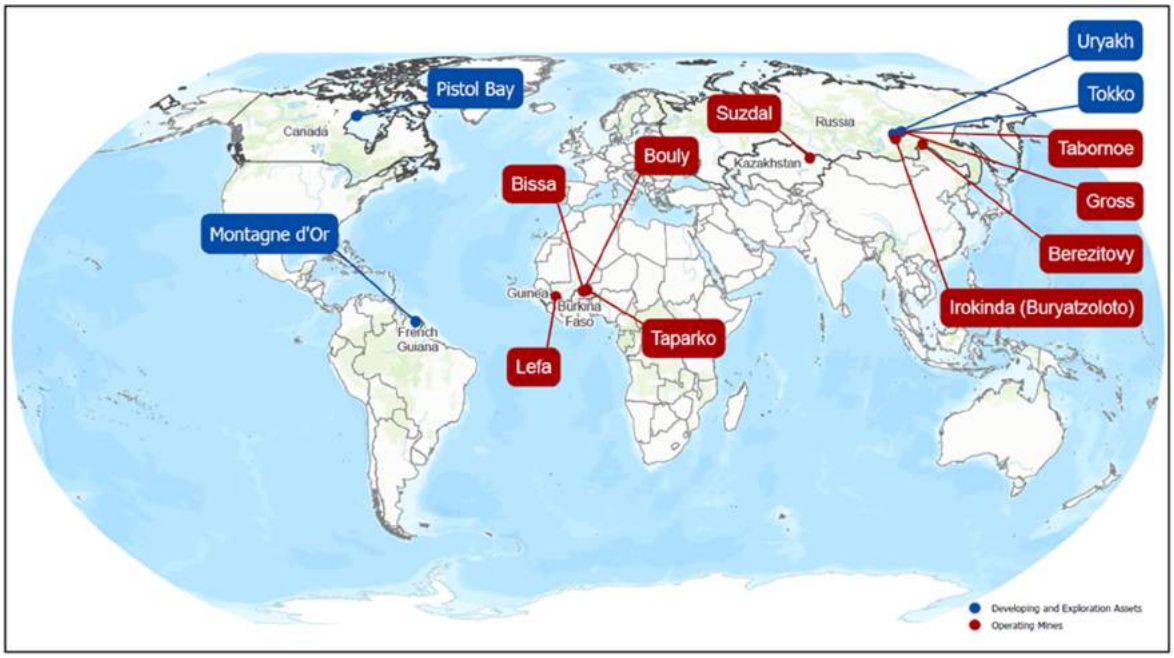


Figure 3-1: General Location of Nordgold's Mineral Assets Worldwide

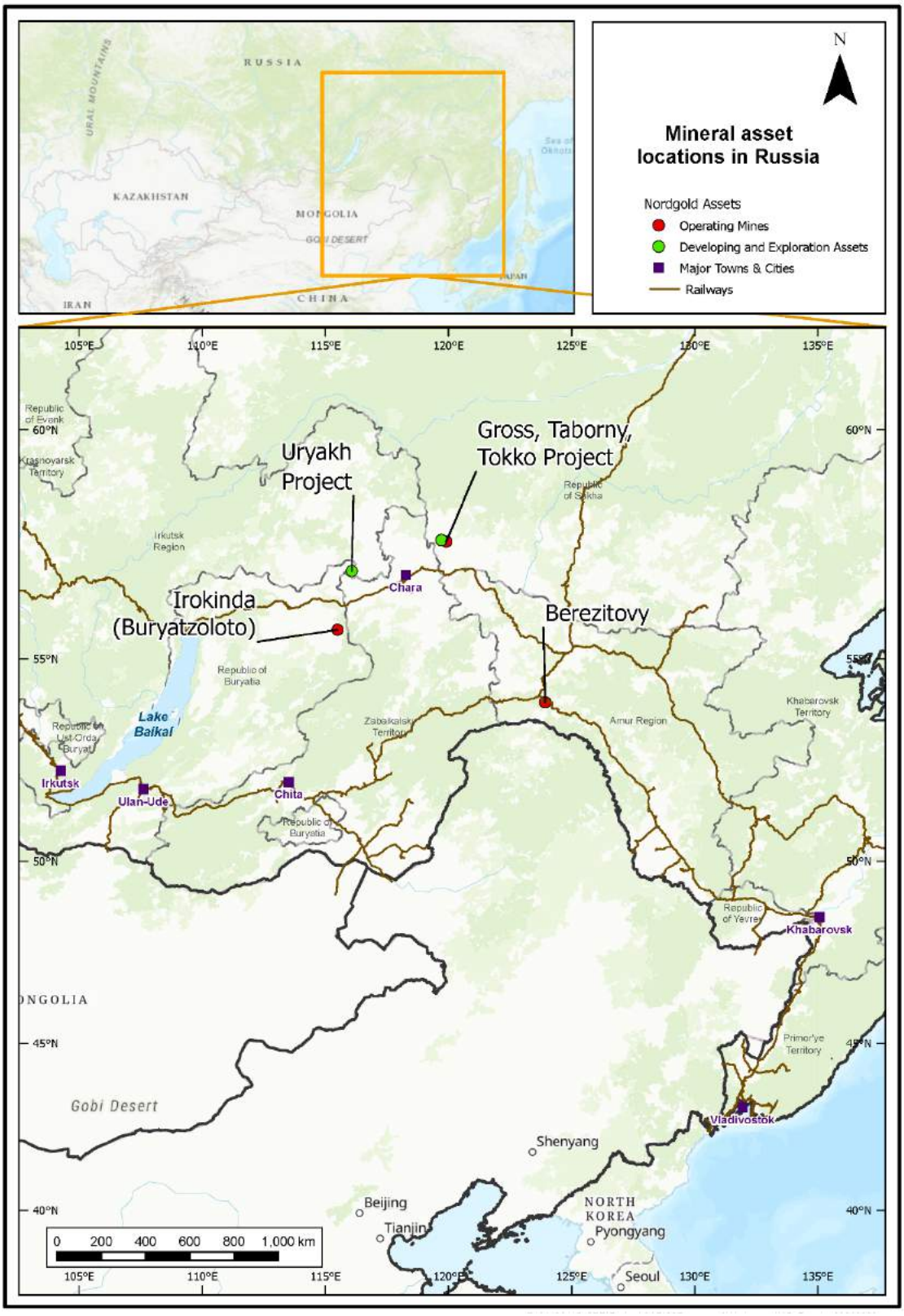


Figure 3-2: Regional Location of Nordgold's Mineral Assets in Russia

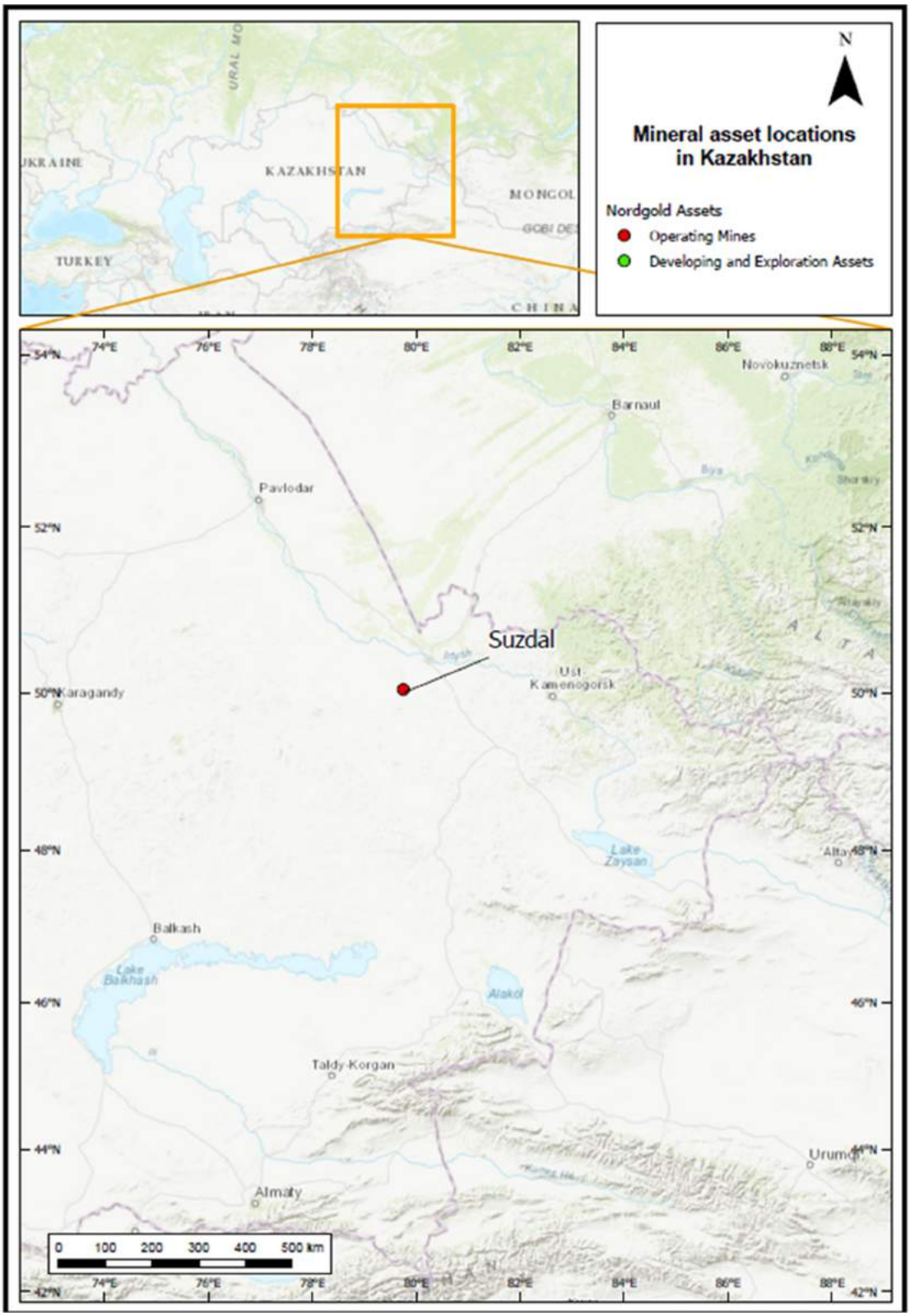


Figure 3-3: Regional Location of Nordgold's Mineral Assets in Kazakhstan

Figure 3-4: Regional Location of Nordgold's Mineral Assets in Guinea

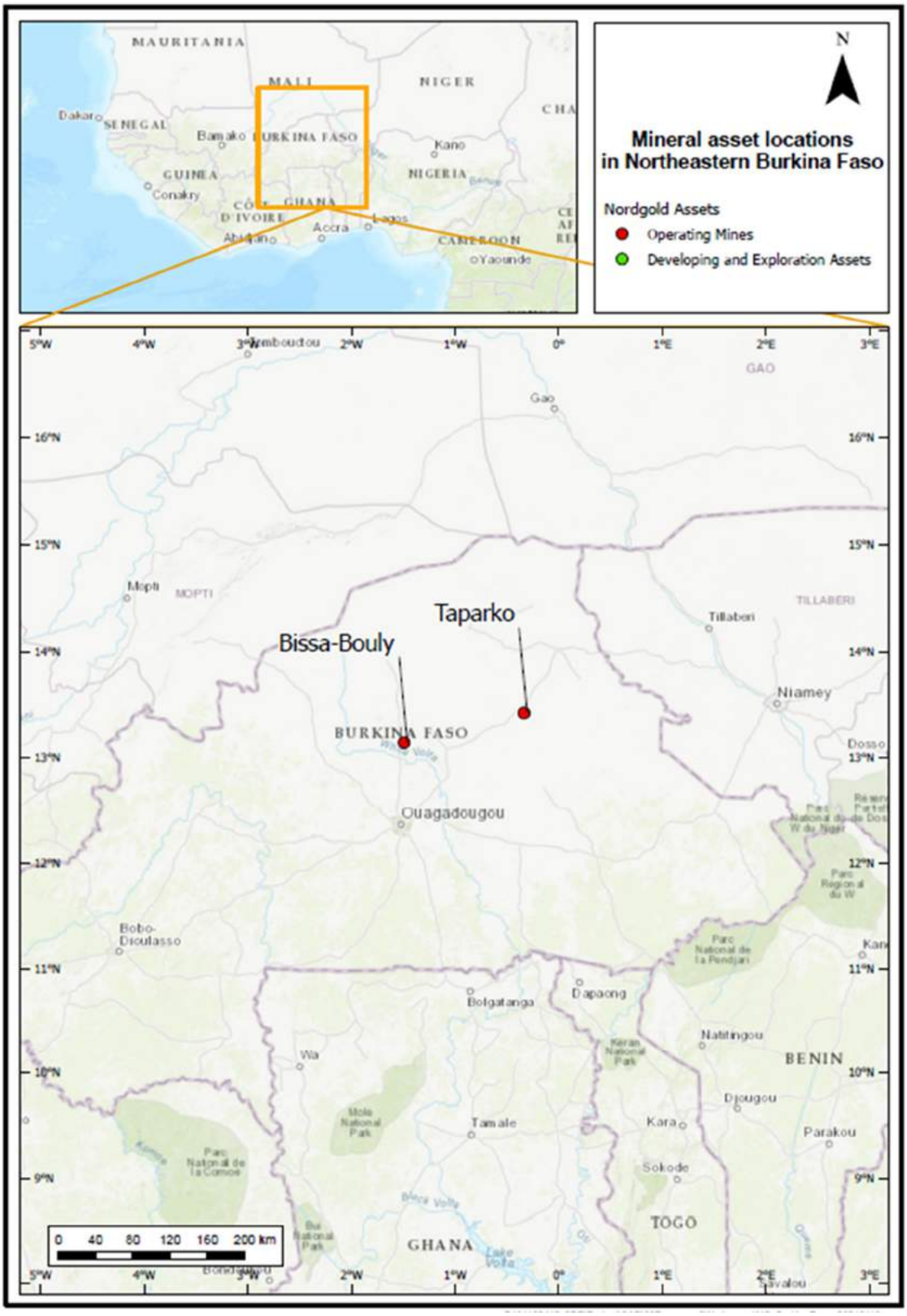


Figure 3-5: Regional Location of Nordgold's Mineral Assets in Burkina Faso

Figure 3-6: Regional Location of Nordgold's Mineral Assets in French Guiana

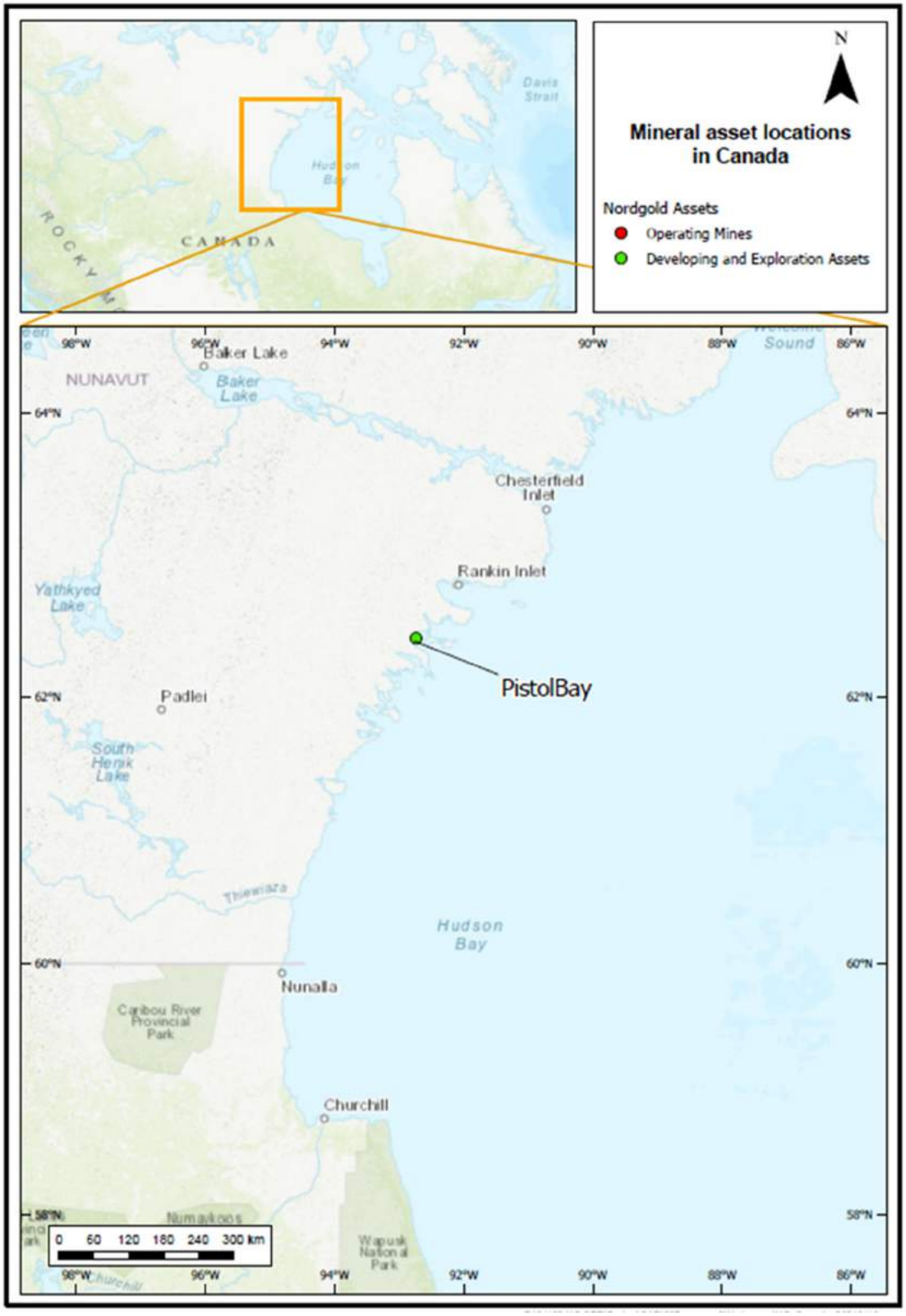


Figure 3-7: Regional Location of Nordgold's Mineral Assets in Canada

3.3.1 Gross

Gross is a single open pit mine located in the extreme southern part of the Republic of Sakha (Yakutia), approximately 300 km southeast of the district administrative centre of Olyokminsk town, 5 km east of the adjacent Taborny mine, and is accessible via an all-season road that links it to the Baikal-Amur Mainline ("BAM") railway approximately 75 km to the south. Production commenced in September 2018. It has two-stage gyratory and cone crushing capabilities, a dynamic heap leach pad, conveyors, a mobile stacker and reclaimer system, and a coal-fired 16 MWt power plant with capacity to provide sufficient electric power and heat for cyanide solution heating for high recovery during winter seasons.

The mine is 100% directly owned by the Company via its subsidiary "Neryungri Metallic" LLC. Until 01 January 2019, production results for Gross were reported together with Taborny as part of the same reportable segment, Neryungri.

As at 31 December 2020, Gross had estimated Ore Reserves totalling 419.4 Mt containing 6,583 koz of gold at an average grade of 0.5 g/t Au (4.1 Mt at 0.3 g/t Au classified as Proved Reserves and 415.3 Mt at 0.5 g/t Au classified as Probable Reserves), making it the largest asset in the Company's portfolio by total gold Resources and by proven and probable gold Reserves. The Reserves Life of Mine is currently 24 years at 18 Mtpa throughput.

The location of the Gross mine, together with local infrastructure, is shown in Figure 3-8.

3.3.2 Taborny

Taborny (formerly Neryungri mine) is an open pit gold mine located approximately 5 km west of the Gross mine complex, and is also accessible via an all-season road that links it to the BAM and main regional road to the south. The Company acquired the mine in 2007. Mining at Taborny is carried out as a conventional truck and shovel operation, with ore processing utilising straightforward heap-leach extraction methods, due to the highly oxidised low-grade ore. Gold is adsorbed from pregnant leach solution in carbon in solution columns, followed by desorption, electro-winning and smelting to produce gold doré.

The mine is 100% owned by the Company via its subsidiary "Rudnik Taborny" LLC.

As at 31 December 2020, Taborny had estimated Ore Reserves totalling 69.1 Mt containing 957 koz of gold at an average grade of 0.4 g/t Au (0.04 Mt at 0.5 g/t Au classified as Proved Reserves and 69.08 Mt at 0.4 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently 10 years at 7 Mtpa throughput.

The location of the Taborny Mine, together with local infrastructure, is shown in Figure 3-8.

3.3.3 Berezitovy

The Berezitovy gold mine is located in the Amur region in the far-east of the Russian Federation, approximately 85 km NW of the town of Skovorodino, the largest local settlement. It is accessible via an all-season road, which links the mine to the Trans-Siberian railway, the main east-west M58 highway, and also to the district town, Tynda, a further 150 km to the north. Production began at the Berezitovy mine in 2007. The Berezitovy mine comprises a single well-established open pit and a recently commenced small-scale underground operation. The processing plant contains crushing, SAG and ball milling and CIP circuits, a tailings water filter plant and a dry-stack tailings storage facility. The mine recently expanded its processing operations to include the treatment of low-grade ore by heap-leaching.

Berezitovy was acquired by the Company in late 2008 as part of the controlling interest in High River Gold Mines Ltd. The Company currently holds a 100% interest in High River Gold Mines Ltd, which in turn (through its 100% subsidiary Amur Gold Limited) holds a 100% interest in LLC “Berezitovy Rudnik”, the operating entity.

As at 31 December 2020, Berezitovy had estimated Ore Reserves totalling 3.7 Mt containing 108 koz of gold at an average grade of 0.9 g/t Au, all classified as Probable Reserves. The Reserves Life of Mine is currently two years at 1.85 Mtpa throughput.

The location of the Berezitovy Mine, together with local infrastructure, is shown in Figure 3-9.

3.3.4 Irokinda

Irokinda is an underground gold mine located in the northeastern corner of the Republic of Buryatia in the Russian Federation, and is the oldest asset in the Company’s portfolio. The mine is located approximately 75 km south of the town of Taksimo, where the Baikal-Amur Mainline railway station and airport are located. The mine is accessible via an all-season road. Production at Irokinda began in 1996. The Irokinda mine is an established underground operation. It has a processing plant with two crushing stages and two grinding stages using ball mills, followed by gravity separation, which produces concentrates for both gravity and flotation circuits. The gravity circuit is used to recover free gold, after which smelting produces doré bars. Flotation is used to recover finer gold particles into a flotation concentrate.

The asset was fully acquired by the Company in late 2008 as part of the controlling interest in High River Gold Mines Ltd. In total, the Company directly and indirectly owns a 92.53% share in JSC “Buryatzoloto”, the owner: High River Gold Mines Ltd holds 82.87% and the Company holds directly 9.66%. The asset is operated by “Irokinda” LLC which is 100% owned by JSC “Buryatzoloto”.

As at 31 December 2020, Irokinda had estimated Ore Reserves totalling 1.4 Mt containing 198 koz of gold at an average grade of 4.3 g/t Au, all classified as Probable Reserves. The Reserves Life of Mine is currently four years at 0.36 Mtpa throughput.

The location of the Irokinda Mine, together with local infrastructure, is shown in Figure 3-10.

3.3.5 Suzdal

The Suzdal gold mine is an underground mine located in eastern Kazakhstan, approximately 55 km southwest of the city of Semey (Semipalatinsk), which has a railway station and an airport and is served by an all-season road. The assets were acquired by the Company in 2007-2008. The mine facility contains a processing plant with crushing, grinding, flotation, BIOX and CIL circuits. The operations at Suzdal are among the most technologically advanced within the Company, as the plant possesses the technology necessary to process refractory sulphide ore. The BIOX processing circuit at the mine was the first in Eurasia. In June 2016, Suzdal launched the Outotec HiTeCC circuit to recover gold from both historical and CIL future tailings. The Suzdal mine is only the second mine worldwide to utilise this technology, which enables it to extend its LoM as well as increase production. At present, the HiTeCC operates on current CIL tails.

The Suzdal mine is currently owned 100% by JSC FIC Alel, which is in turn held 100% by the Company.

As at 31 December 2020, Suzdal had estimated Ore Reserves totalling 5.6 Mt containing 977 koz of gold at an average grade of 5.4 g/t Au (0.3 Mt at 5.7 g/t Au classified as Proved Reserves and 5.3 Mt at 5.4 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently 10 years at approximately 0.6 Mtpa throughput.

The location of the Suzdal Mine, together with local infrastructure, is shown in Figure 3-11.

3.3.6 Lefa

The Lefa gold mine is located in north central Guinea, approximately 700 km NE of the capital Conakry, and is connected to an all-season road that has close access to an air strip. Commercial production began at the Lefa mine in 2008. Lefa consists of two main open pits and several smaller satellite pits, with an 8 km conveyer belt from the Lero-Karta pits to the processing plant at Fayalala. The processing plant comprises a crushing circuit, two SAG mills, two ball mills and a CIP circuit, with tailings discharged to a dedicated tailings storage facility. There are a number of smaller satellite deposits within the Lefa concession, up to 30 km distant to the SW. The Company has commenced studies relating to underground mining beneath the main Lero-Karta open pit.

The mine was acquired by the Company at the end of July 2010, as part of the Crew Gold Corporation acquisition. The Company holds Lefa through Crew Gold Corporation Ltd (in which the Company has a 100% interest), which in turn holds an indirect 85% interest in Société Minière de Dinguiraye S.A. (“SMD”), which owns Lefa. The remaining 15% of shares in SMD are held by the Guinean government. In 2018, the Company extended Lefa’s mining permit and mining convention for a period of 15 years, and the new mining permit came into effect on 21 March 2019.

As at 31 December 2020, Lefa had estimated Ore Reserves totalling 45.2 Mt containing 1,281 koz of gold at an average grade of 0.9 g/t Au (0.2 Mt at 0.9 g/t Au classified as Proved Reserves and 45.0 Mt at 0.9 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently 8 years at approximately 6 Mtpa throughput.

The location of the Lefa Mine licence is shown in Figure 3-12.

3.3.7 Bissa

Bissa mine is a multi-open pit operation. It is located approximately 90 km north of Ouagadougou, the capital of Burkina Faso, and is accessible via Route Nationale 22, a sealed road. The mine was officially commissioned in 2013. The Bissa process flow sheet is a straightforward CIL design, well suited to the treatment of free milling gold. The process consists of primary crushing before feeding to a SAG/Ball grinding circuit, classifying the ground slurry product, and thickening, leaching, and carbon adsorption to recover soluble gold and silver. Tailings are discharged to a dedicated tailings storage facility.

The Bissa asset was fully acquired by the Company in late 2008 as part of the controlling interest in High River Gold Mines Ltd. The Company holds a 100% interest in High River Gold Mines Ltd, which in turn indirectly holds a 90% interest in Bissa Gold S.A., the operating entity.

As at 31 December 2020, Bissa had estimated Ore Reserves totalling 31.7 Mt containing 1,144 koz of gold at an average grade of 1.1 g/t Au (3.3 Mt at 1.2 g/t Au classified as Proved Reserves and 28.4 Mt at 1.1 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently 7 years at approximately 4.75 Mtpa throughput.

The location of the Bissa Mine licences, together with local infrastructure, is shown in Figure 3-13.

3.3.8 Bouly

In September 2016, the Company expanded its Bissa mine in Burkina Faso with the launch of an open pit heap-leach operation at the nearby Bouly deposit, investing USD140m in the project between 2015 and 2016.

Bouly is located approximately 5 km to the east of the Bissa mine, 95 km north of Ouagadougou. Bouly is operated by Bissa's management team and shares much of Bissa's existing infrastructure, including camp and mess facilities, the laboratory and the raw water reservoir (Tiben dam).

Bouly is the result of a greenfield development initiative at the Company and a successful exploration programme which identified a large, low-grade gold deposit. The mine commenced production in September 2016, reaching full capacity in November 2016. The Company has commenced studies to expand the Bouly operation to mine and process transitional and fresh rock, in addition to the current reserve base of oxide material.

Bouly is owned and operated by Bissa Gold S.A.

As at 31 December 2020, Bouly had estimated Ore Reserves totalling 67.2 Mt containing 957 koz of gold at an average grade of 0.4 g/t Au (15.5 Mt at 0.5 g/t Au classified as Proved Reserves and 51.7 Mt at 0.4 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently 9 years at approximately 7.9 Mtpa throughput.

The location of the Bissa Mine licence, which includes Bouly Mine, together with local infrastructure, is shown in Figure 3-13.

3.3.9 Taparko

The Taparko gold mine is a multi-open pit operation located in the Namantenga province of Burkina Faso in West Africa, approximately 200 km NE of Ouagadougou, the capital city. The mine is situated in a sparsely populated area readily accessible by road from the capital. The Bouroum pit, a satellite of Taparko, is located approximately 50 km NW of the main Taparko site, where all crushing and milling infrastructure is located. It is accessible from Taparko via a gravel road. Production began at the Taparko mine in late 2007. The mining operations consist of three separate open pits located at Taparko, and one satellite open pit located at Bouroum, which is currently inactive. The processing plant operates crushing, ball milling and CIL circuits, with tailings discharged to a dedicated tailings storage facility. Recent exploration activities have concentrated on satellite deposits to the SE and south of Taparko (Goengo, Tangarsi, Tangarsi East and Levri). The Company has commenced studies related to underground mining beneath the main 35 Pit.

The mine is operated by Société des Mines de Taparko S.A. ("Somita"), a company 90% owned indirectly by High River Gold Mines Ltd, with the remaining 10% interest held by the Burkina Faso government. The Yeou licence, approximately 45 km NW of Taparko, is included in the Taparko group but is owned by Nordgold YEOU S.A., also a 90% indirect subsidiary of High River Gold Mines Ltd.

As at 31 December 2020, Taparko had estimated Ore Reserves totalling 4.4 Mt containing 211 koz of gold at an average grade of 1.5 g/t Au (0.7 Mt at 2.2 g/t Au classified as Proved Reserves and 3.8 Mt at 1.3 g/t Au classified as Probable Reserves). The Reserves Life of Mine is currently three years at a maximum of 1.8 Mtpa throughput in year 2.

The location of the Taparko Mine licences, together with local infrastructure, is shown in Figure 3-13.

3.3.10 Tokko

The Tokko Project (formerly known as Tokkinsky, or Tokkinskoe) is located approximately 10 km to the west of the Taborny open pit mine in the far south of the Republic of Sakha in the Russian Federation, and was discovered as a result of the Company's near mine prospecting activities in 2017 to 2019. The Project comprises the Tokkinskoe and Roman deposits, located about 5 km apart. Camp infrastructure is closely linked to the Gross-Taborny mining complex and the project utilises the all-weather access road to connect to the local towns and the main regional railway approximately 80 to 100 km to the south.

The Tokkinskoe geological and resource evaluation was completed by a Russian technical institute in July 2020 with a PFS prepared in accordance with the Russian standards. Evaluation of the Roman deposit evaluation and a respective PFS are in progress. The licence is 100% owned by the Company via its subsidiary “Rudnik Taborny” LLC.

An international-standards Mineral Resource Estimate was completed in December 2020 by an external consultant, which estimated Mineral Resources totalling 172.6 Mt containing 3,611 koz of gold at an average grade of 0.7 g/t Au (15.1 Mt at 1.1 g/t Au classified as Indicated Resources and 157.5 Mt at 0.6 g/t Au classified as Inferred Resources). No Ore Reserves are declared at this stage, though a Preliminary Economic Assessment (“PEA”) was undertaken by an external consultant in February 2021, which outlines the key technical and economic parameters of the project at its current stage of development.

The location of the Tokko licence, together with adjacent exploration licences and local infrastructure, and its relation to Taborny and Gross is shown in Figure 3-8.

3.3.11 Uryakh

Uryakh is a greenfield exploration project located in the far eastern part of the Irkutsk region of the Russian Federation, located approximately 100 km to the northeast of the nearest town, Taksimo, and the Baikal-Amur Mainline railway. The deposits are primarily vein controlled with three primary areas of vein mineralization.

Exploration was undertaken at Uryakh between 2008 and 2018, with additional technical studies progressing to Pre-Feasibility level in 2019, with a PFS report produced by SRK in July 2019. Further exploration work continued in 2019 and 2020 resulting in an updated Mineral Resource Estimate in December 2020. Further exploration at Uryakh and other adjacent properties is ongoing, and the PFS is expected to be updated in the near future.

The Project is owned by local subsidiary “Uryakh” LLC, which was established in July 2020 and is a 100% subsidiary of “Berezitovy Rudnik” LLC.

As at 31 December 2020, the Uryakh deposit had estimated Mineral Resources totalling 21.5 Mt containing 1,926 koz of gold at an average grade of 2.8 g/t Au (19.0 Mt at 2.7 g/t Au classified as Indicated Resources and 2.5 Mt at 3.6 g/t Au classified as Inferred Resources). No Ore Reserves are declared at this stage.

The location of the Uryakh Project Licence area, together with adjacent exploration licences and local infrastructure, is shown in Figure 3-10.

3.3.12 Montagne d'Or

Montagne d'Or is an advanced stage open pit gold mining development project in French Guiana, approximately 180 km west of the capital, Cayenne. It benefits from straightforward metallurgy, excellent expected recovery rates, and a moderate stripping ratio.

The Company finally acquired a controlling 55.01% interest in CMMO, the development company for the Montagne d'Or Project, in September 2017 by exercising the earned-in option right under the CMMO option agreement. Nordgold acquired the right to exercise the option by completing a bankable feasibility study ("BFS") and by expending not less than USD30m in staged work expenditures between 2014 and 2017. These two requirements were completed by the Company in March 2017, following which the Company exercised the option. Nordgold is the operator of the project.

The Company intends to obtain construction and mining permits for the Montagne d'Or project as soon as possible, following ongoing stakeholder engagement and public enquiries.

As at 31 December 2020, Montagne d'Or had total estimated Ore Reserves of 54.1 Mt containing 2,750 koz of gold at an average grade of 1.6 g/t Au (8.25 Mt at 2.0 g/t Au classified as Proved Reserves and 45.9 Mt at 1.5 g/t Au classified as Probable Reserves). The Reserves Life of Mine was established in the FS as being 12 years at approximately 4.6 Mtpa throughput.

The location of the Montagne d'Or licence area, and other Nordgold exploration licences in French Guiana, is shown in Figure 3-14.

3.3.13 Pistol Bay

The Pistol Bay Gold Project is an advanced exploration project located in Nunavut Territory in northern Canada, on the western shore of Hudson Bay, approximately 74 km southwest of Rankin Inlet. The Pistol Bay property comprises 89 contiguous claims with a total area of 78 km^2. There is a port and an airstrip within 10 km of the deposit as well as an all-season road in the eastern part of the project which provides access to the Pistol Bay camp and to most of the known gold occurrences.

Following on from previous exploration started in the 1980s, in 2019 Northquest conducted further drilling at the Vickers deposit area, the best explored deposit of the Pistol Bay Project area. SRK prepared a Mineral Resource Estimate and Technical Report on Pistol Bay in February 2020.

Nordgold owns 100% of the Pistol Bay project through its acquisition of Northquest Ltd, a Toronto-based gold explorer, in October 2016.

As at 31 December 2020, the Pistol Bay deposit had estimated Inferred Mineral Resources totalling 22.4 Mt containing 1,581 koz of gold at an average grade of 2.2 g/t Au.

A map showing the location of the Pistol Bay Licences and local infrastructure is presented in Figure 3-15.

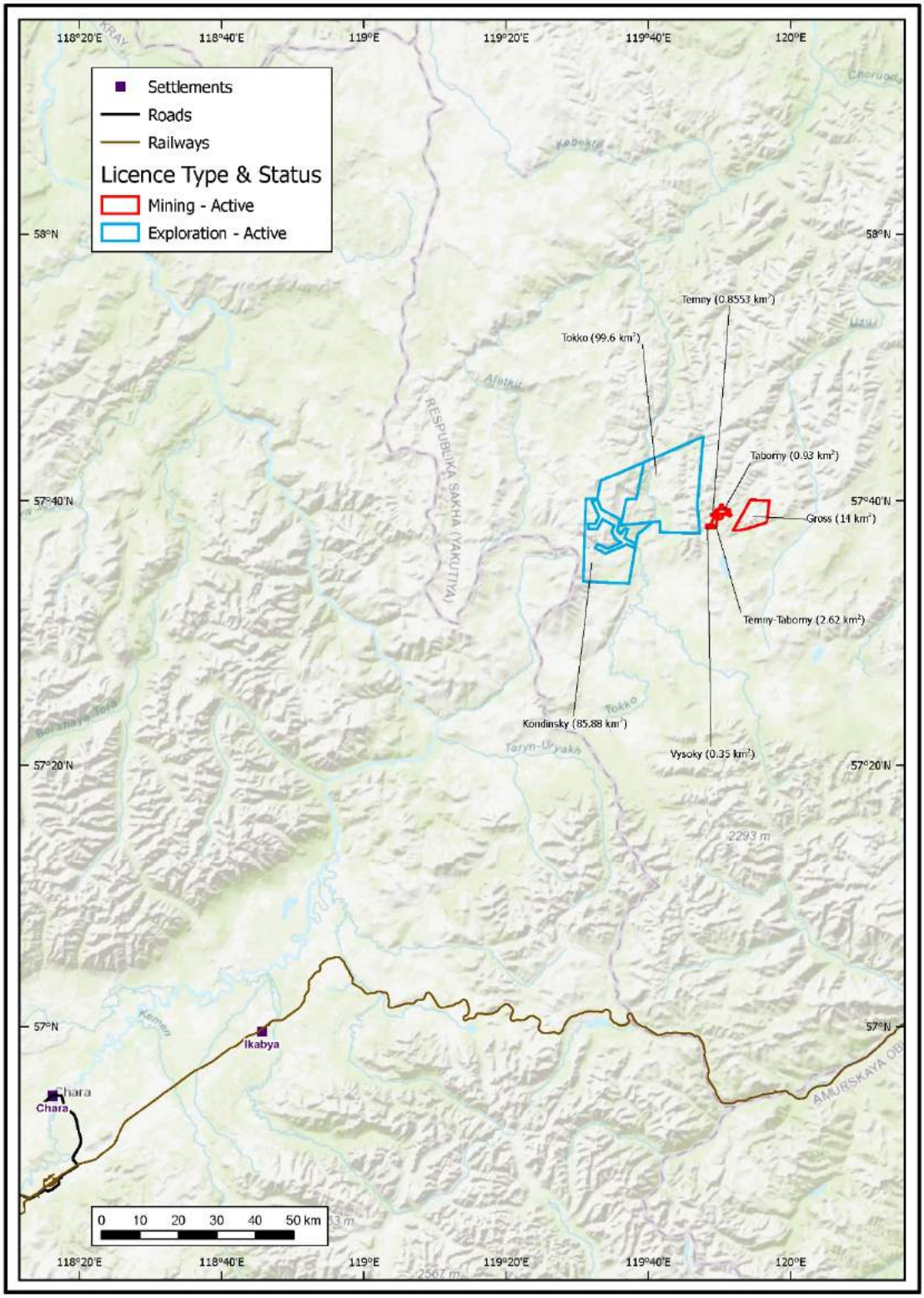


Figure 3-8: Location of Gross Mine, Taborny Mine and Tokko Project Licences

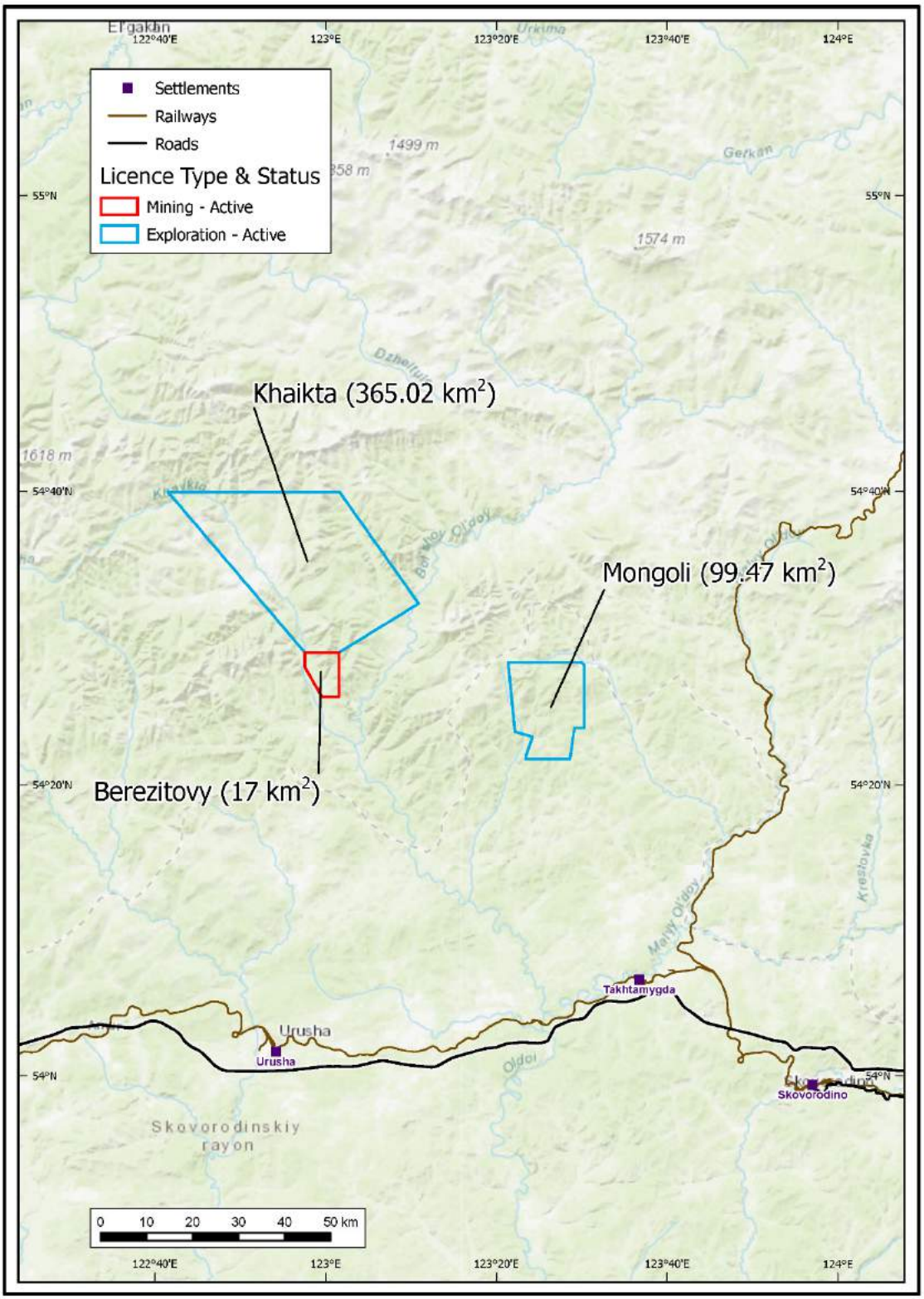


Figure 3-9: Location of Berezitovy Mine and Adjacent Exploration Licences

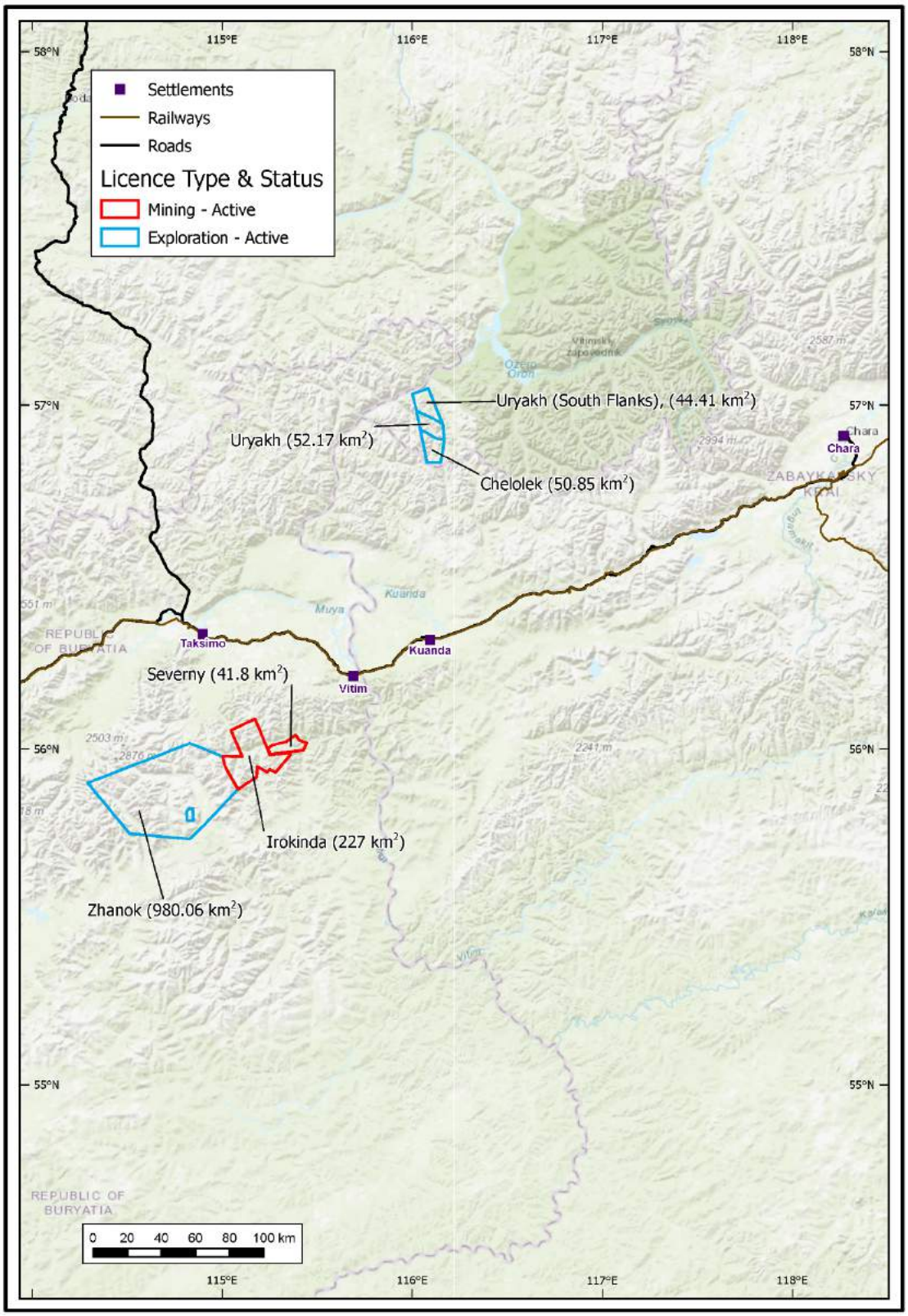


Figure 3-10: Location of Irokinda Mine and Uryakh Project, and Exploration Licences

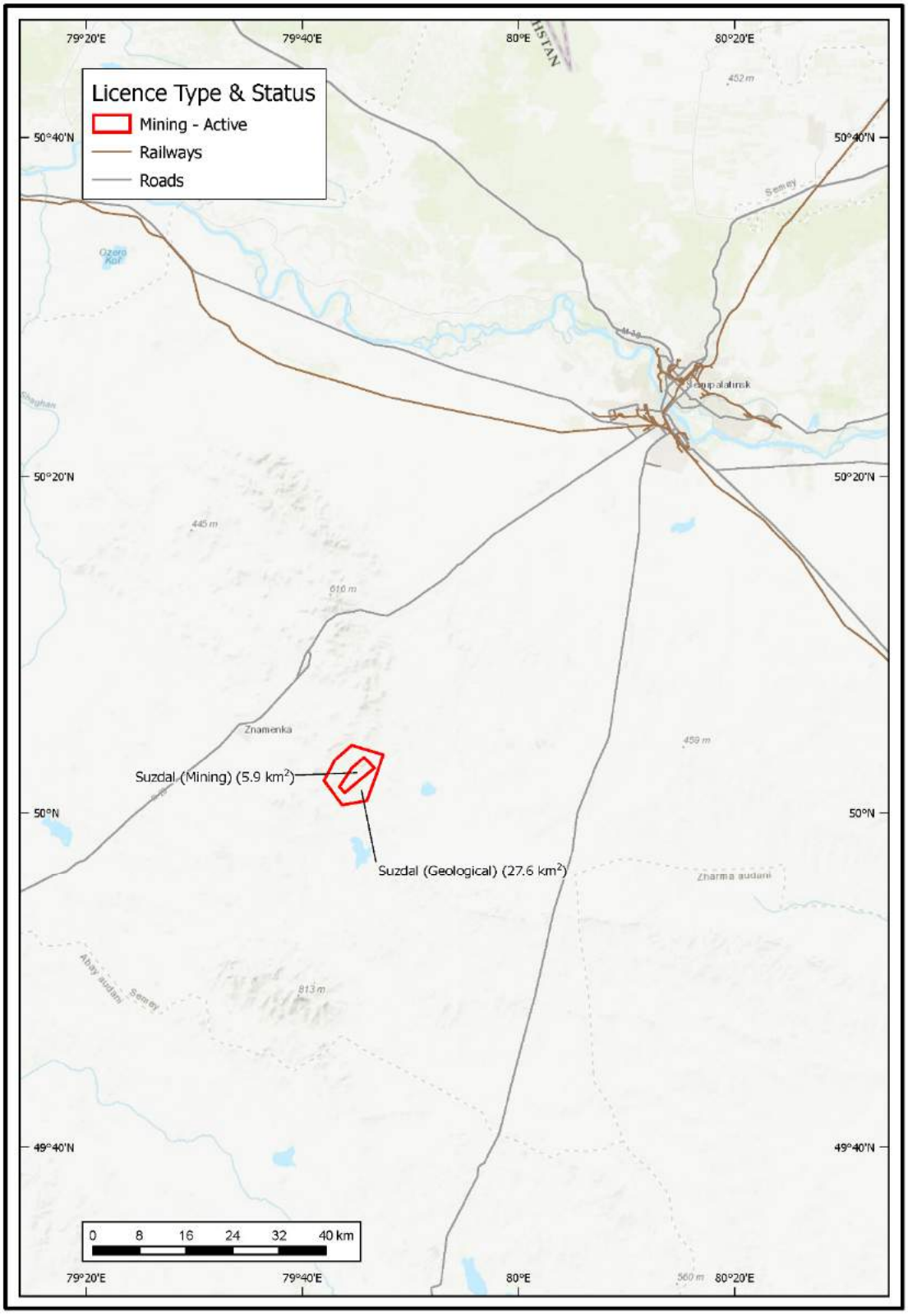


Figure 3-11: Location of Suzdal Mine, Kazakhstan

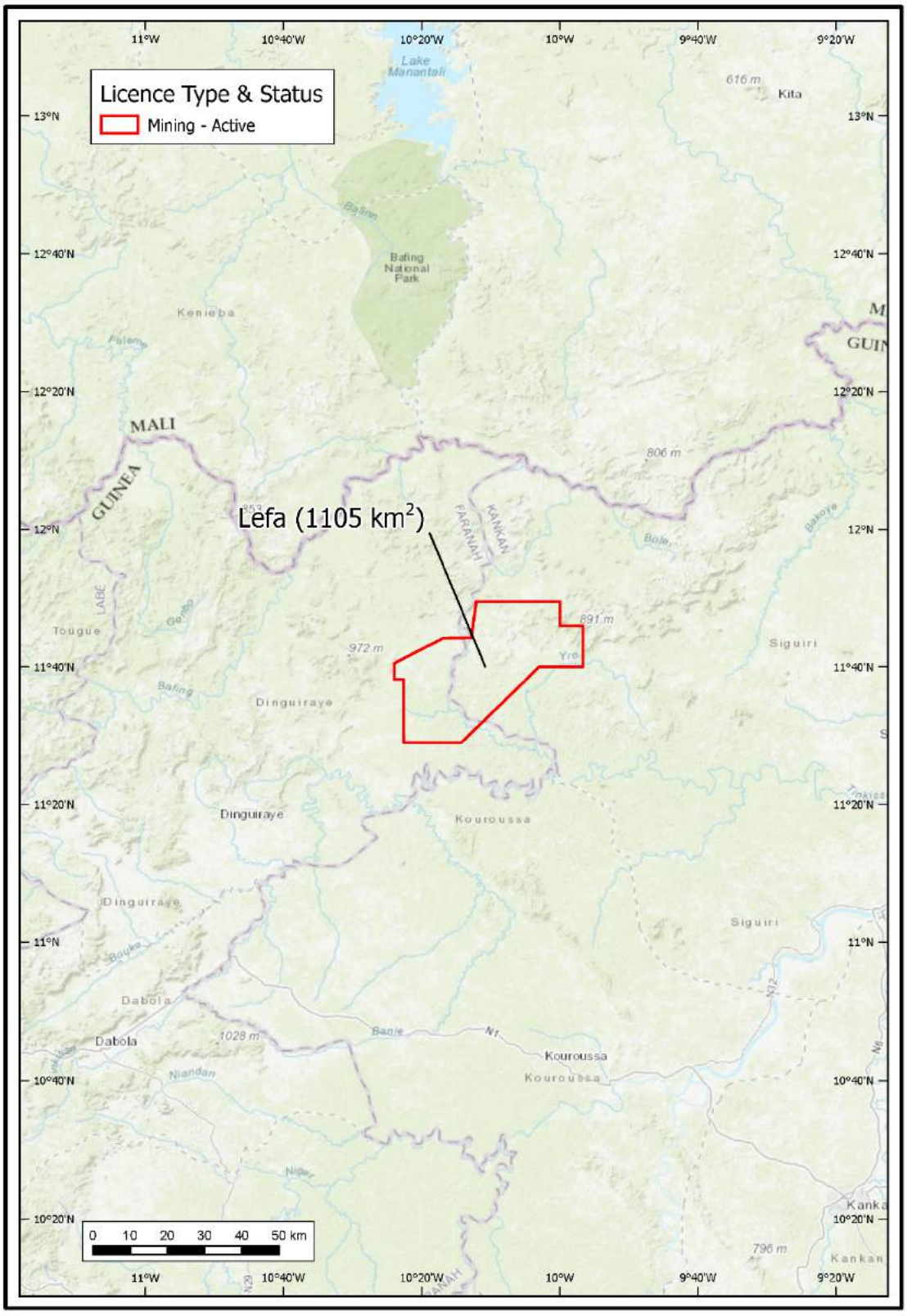


Figure 3-12: Location of Lefa Mine Licence Area, Guinea

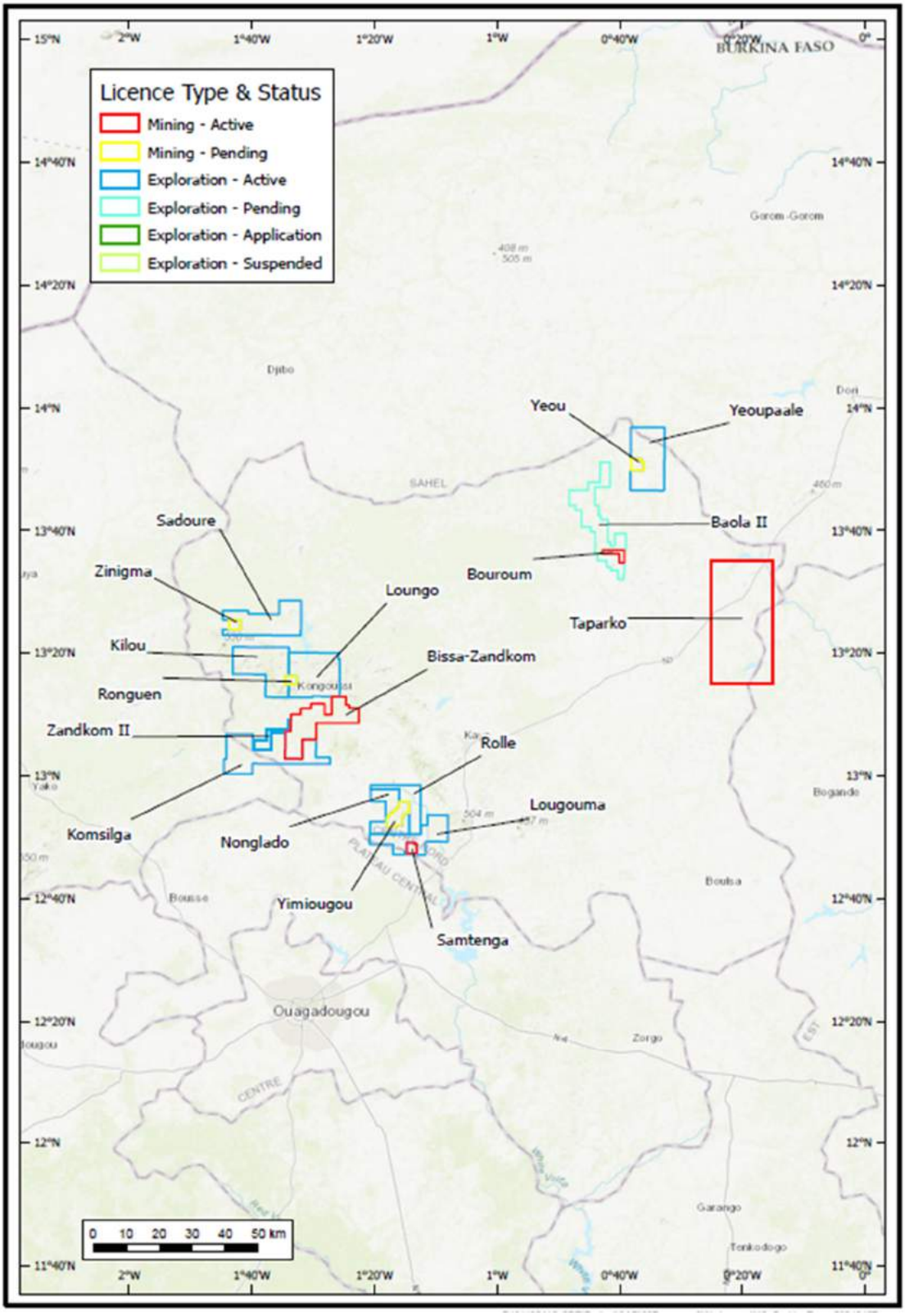


Figure 3-13: Location of Bissa-Bouly and Taparko Licences, Burkina Faso

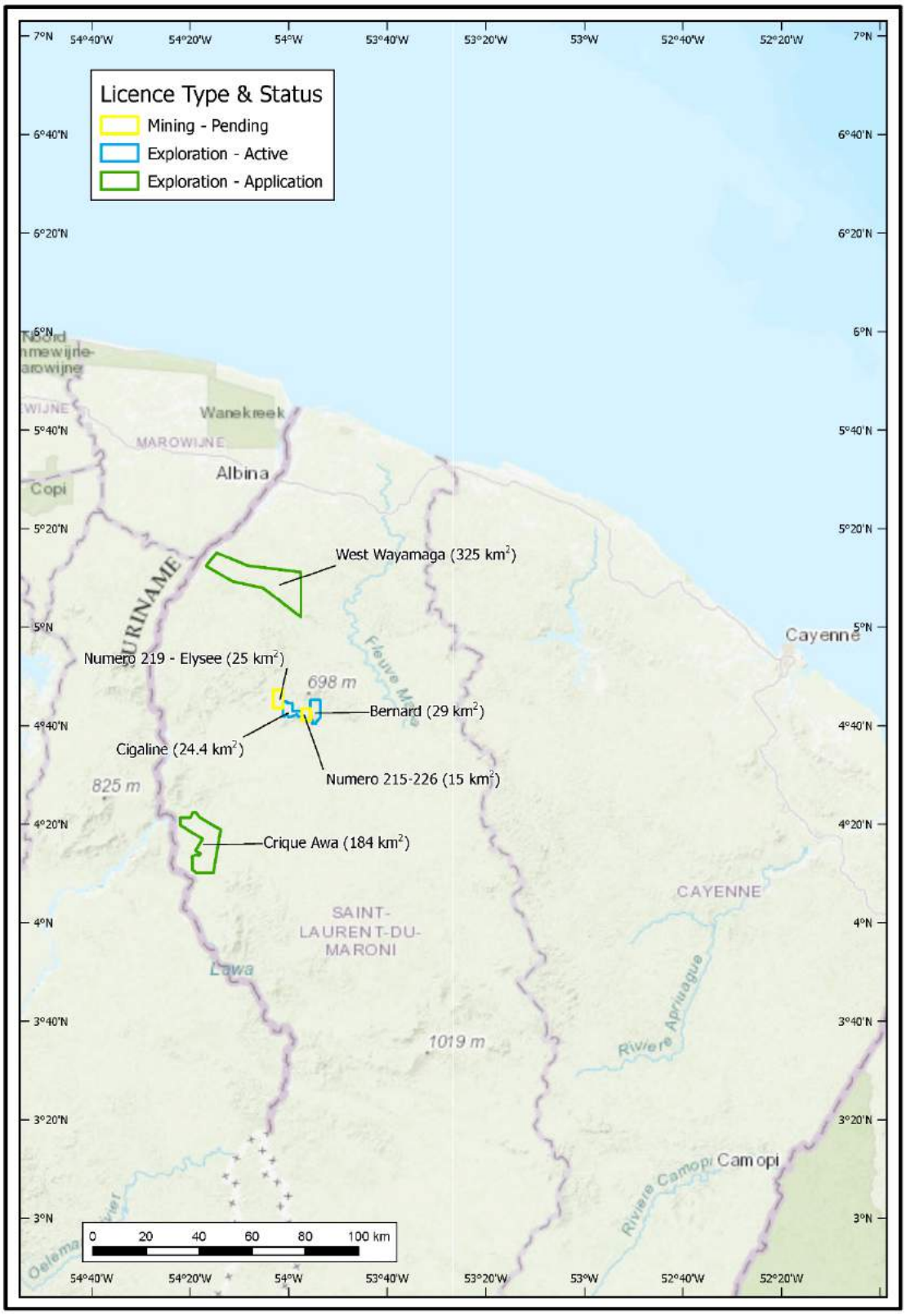


Figure 3-14: Location of Montagne d'Or Project and Licences in French Guiana

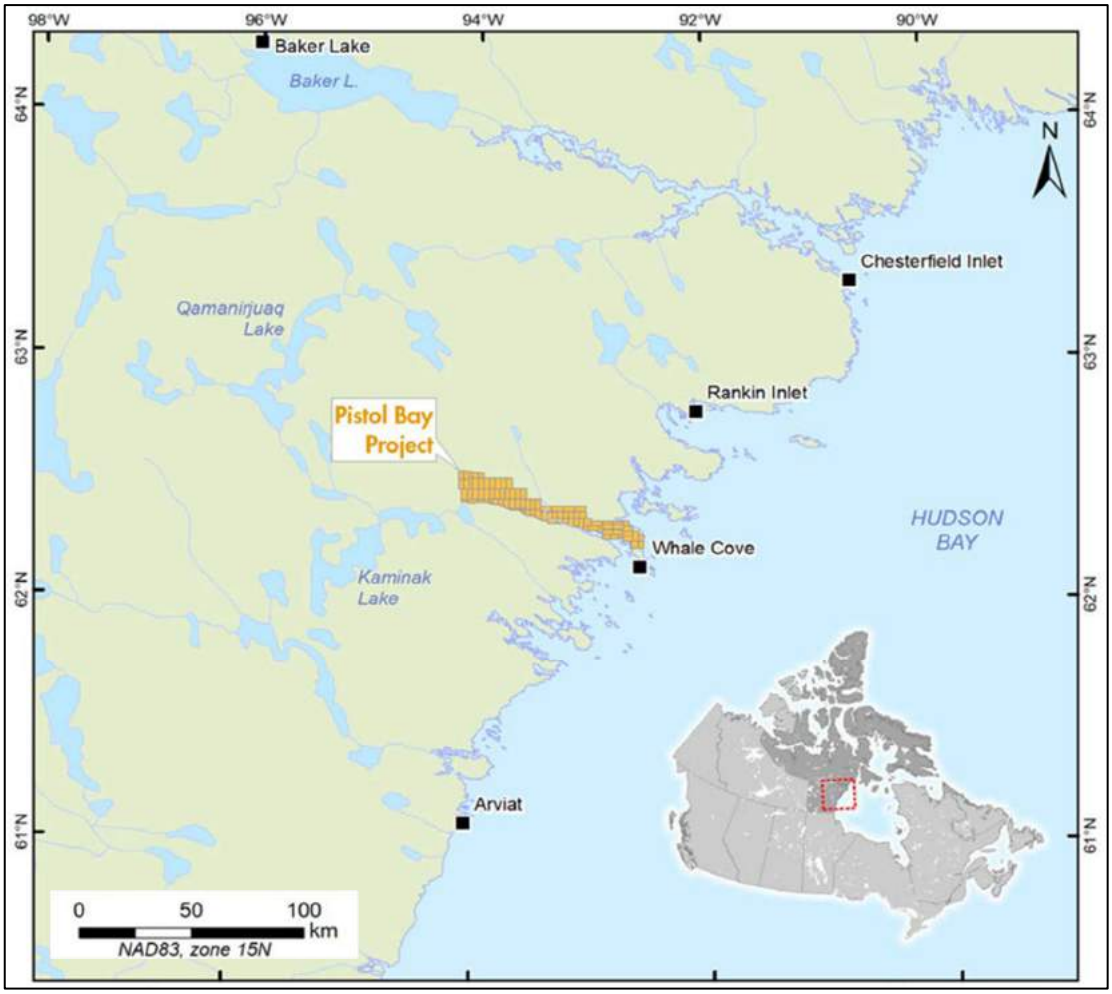


Figure 3-15: Location of Pistol Bay Project and Licences in Canada

3.3.14 Nordgold Personnel

As of 31 December 2020, Nordgold employed approximately 7,827 personnel (full time equivalent "FTE") at its various production operations worldwide and head office in Moscow (8,271 in 2019; 8,034 in 2018; 8,146 in 2017; 8,602 in 2016). Of these, 120 are Nordgold management and corporate roles, located primarily in Moscow. A summary of personnel broken down by site and head office, and split between operational and management/administration staff is provided in Table 3-2, for 2019, 2020 and the plan for 2021. SRK notes that personnel numbers have increased slightly overall since 2019 taking into account the nine current operations, excluding Zun Holba mine, which was sold in April 2021. Further details are included in the descriptions of the Mineral Assets in the following sections.

Table 3-2: Summary of Nordgold Personnel

Business Unit / operation	Total Head Count, FTE			Head Count in back office / support		
	Actual 2020	Actual 2019	Plan 2021	Actual 2020	Actual 2019	Plan 2021
Gross	1,128	1,057	1,265	20	20	20
Taborny	764	746	777	11	9	12
Berezitovy	867	887	746	24	24	24
BZ Irokinda	714	750	813	17	20	23
Suzdal	1,008	985	1,034	21	18	24
Lefa	1,306	1,287	1,240	43	38	44
Bissa and Bouly	1,371	1,289	1,378	33	36	34
Taparko	549	695	455	10	16	12
NGM & Other	120	112	127	110	110	125
Total	**7,827**	**7,808**	**7,835**	**289**	**302**	**318**

3.4 Relevant Legislation

3.4.1 Russian Federation

Mineral Rights (Subsoil Use Rights) Legislation

The main law that defines the requirements for the mineral deposit development is the Federal Law # 2395-1 "On Subsoil Use" dated 21 February 1992.

Mineral Rights

Russian legislation requires that a licence is obtained to secure the right to use a subsurface land plot. Licences for geological studies, exploration and mining are either issued as separate licences or combined licences covering all types of activities. Licences are issued for a defined period, after which they can be extended.

Appended to licences are the "Terms and Conditions for the Subsoil Use", which establish the licence boundaries, types, scope and timing of works on site, payments, taxes, reporting, special requirements (including environmental, social and health and safety requirements) and other conditions or provisions.

In 2015-2016, the Federal Agency on subsoil use (Rosnedra) checked licences issued in Russia with the aim of improving the efficiency of subsoil use. At the same time, all licences were put into a single consistent format as far possible, as they have varied not only from region to region but also depending on the date of issue.

Environmental and Social Obligations of Mineral Rights Holders

It is common that a mining licence prescribes certain environmental and social requirements. Usually, these are general statements about the need to meet legislative norms, but sometimes the licence may contain specific requirements. Typical requirements included in the licences are:

- fulfilment of the requirements established by Russian law for the protection of subsoil and the environment; and
- development of a technical design for the permanent or temporary closure of sites one year before the planned closure date.

There are no specific laws related to community development and no specific documents defining community development initiatives or commitments that must be submitted for project approval; however, the Federal Law # 2395-1 “On Subsoil use” specifies that one of the main criteria for awarding the right to use subsoil is a contribution to the socio-economic development of the area.

Most mining licence agreements have been updated in the last 4-5 years and do not contain any special environmental requirements or requirements for a company's participation in the social-economic development of the regions where the assets are located. This update to agreements corresponds with the 2015-2016 licence review process mentioned above.

Closure Requirements

Requirements for permanent/temporary closure of mining operations and land rehabilitation are defined in Federal Law No. 200 – Forest Code and in Federal Law # 23395-1 "On Subsoil", as well as in other legislative acts. Mining operations must be closed upon expiry of the mining licence in accordance with approved plans, and disturbed lands must be restored to a level appropriate for the defined type of land use. The design section on land rehabilitation must be included in the design documentation and the detailed closure design must be developed one year before the mining licence expires.

The framework requirement for closure is stated by the lease agreements of the forest land plots: at the end of the lease, the land should be rehabilitated and returned to the state in a condition appropriate for forestry purposes.

There is no legal requirement in Russia to create any type of financial guarantee instrument (such as liquidation fund, bank guarantees or deposits) to accumulate financial resources for settling closure liabilities. Currently, the legal requirements for setting up special liquidation funds are only determined for certain types of mining (public-private partnership). A draft law that requires formation of liquidation funds for all new deposits is currently undergoing the public consultation and expert review procedures.

In addition to closure, the legislation also provides for mine conservation where there is a temporary cessation of mining operations if they become inefficient or unprofitable. Mine conservation requires that all the main structures of the mine should be preserved in a condition suitable for the resumption of mining operations in the future. There are two types of conservation: dry conservation, where mine drainage is maintained; and wet conservation, where the mine is allowed to flood. As with closure, mine conservation must be carried out in accordance with a project that includes environmental protection measures. During mine conservation, periodic safety audits should be conducted. There is currently no legal limitation on the maximum duration of the conservation[1].

Environmental Legislation

Environmental legislation in the Russian Federation is based on the Constitution and the Federal Law # 7 "On Environmental Protection" dated 10 January 2002. Environmental laws and by-laws are subdivided according to environmental components (such as ambient air, surface water and groundwater, flora and fauna, land, subsoil, soils) and by environmental aspects (including sources of impacts such as waste disposal, discharges, air emissions).

The key Federal-level environmental legislation is identified in Table 3-3. Federal laws establish general provisions. More specific requirements are defined in secondary legislation (such as instructions and rules). Regions of the Russian Federation can have their own secondary legislation.

Table 3-3: Primary Environmental Legislation Relevant to Mining

Legislation	Key content
Federal Law # 7 "On Environmental Protection" dated 10 January 2002	General approach to the protection of the environment
Federal Law # 74 “Water Code of the RF” dated 3 June 2006	The procedure for subsoil use within the boundaries of water bodies and their buffer zones
Federal Law # 136 “Land Code of the RF” dated 25 October 2001	The procedure for provision of land / forest plots for subsurface use
Federal Law # 136 “Forest Code of the RF” dated 4 December 2006	
Federal Law # 96 “On Ambient Air Protection” dated 4 May 1999	Framework rules for ambient air protection (regulation of emissions, definition of sanitary protection zones), including for mining operations
Federal Law # 89 “On Production and Consumption Waste” dated 24 June 1998	General approach to waste classification and management, and management of disposal facilities, including waste rock dumps and tailings storage areas
Federal Law # 52 “On Animal Environment” dated 24 April 1995	General procedure for protection of wildlife and habitats and for developing the corresponding actions
Federal Law # 33 “On Specially Protected Nature Territories” dated 14 March 1995	Procedure of subsurface use within the specially protected natural areas and buffer zones depending on their status
Federal Law # 52 “On sanitary-and-epidemiologic wellbeing of the population” (the Sanitary Protection Law) dated 24 April 1995	Defines general requirements to industrial safety, including management of waste and hazardous substances, and public health and safety
Federal Law Federal Law # 174 “On Environmental Expert Review” dated 23 November 1995	Criteria for identifying assets subject to State Environmental Review
Resolution of the RF Committee on Environmental Protection (“Goskomecologiya”) # 372 “Provisions on Environmental Impact Assessment for Planned Economic and Other Activities in the RF” dated 16 May 2000.	Procedure for impact assessment, documentation required and format of public participation (This expired on 1 January 2021. A replacement law is still being approved.)

[1] *Previously, there was a limit of 15 years, but has now been cancelled*

The Federal Law # 7 "On Environmental Protection" provides for environmental permitting and requires that decisions made at all stages of project development have environmental justification. This does not only apply to project planning/ engineering, but also to exploration, construction, and operation.

In addition, environmental monitoring is required from pre-engineering stages (geological exploration stage) through to project implementation (construction and operation). The required type of monitoring and the monitored parameters are determined according to the mechanisms of impact and affected environmental components.

Facilities that have a negative impact are split into four categories: from Category I (significant environmental impact) to Category IV (minimal negative impact). Category I facilities are subject to implementation of best available techniques ("BAT")[2], where the design must allow for the technical indicators of BAT. BAT principles for the gold industry are defined by the following documents:

- Technical reference book # 49: Precious metals mining.
- Technical reference book # 14: Precious metals production.
- Technical reference book # 16: Mining industry. General processes and methods.

In addition, general BAT principles for all operations are described in reference books on wastewater treatment, emissions treatment, waste disposal and environmental monitoring.

Environmental Impact Assessment (EIA or OVOS)

Federal Law # 7 requires that an environmental impact assessment ("EIA") is conducted for any project that may have a direct or indirect environmental impact. There are two levels of assessment: basic (known as environmental action plans) and detailed (known as EIA or OVOS). The first appears as a chapter in the design documentation. It should contain a list of main impacts and associated management measures. Since 2019, Category I projects, most mining projects, must undertake an OVOS, and this must pass State Environmental Experts' Review. The term for the approval is a "Positive Conclusion of State Environmental Review".

According to Russian law, the design of mine waste storage sites must be presented in a separate volume/document. This design document is subject to State Environmental Review. As soon as operations begin, all external disposal sites must be registered in the State Register of waste disposal facilities. A special environmental monitoring program for mine waste disposal sites/dumps must be developed and monitoring must take place on a regular basis.

[2] *BAT refers to techniques used for production of goods, performance of works and provision of services. They are determined based on modern achievements in science and technology and the best combination of criteria for achieving environmental protection objectives, if it is technically feasible to use them.*

Environmental Permitting and Regulatory Authorities

Companies must obtain and update environmental permits for air emissions, wastewater intake and discharges and for waste disposal at all stages of a project (exploration, engineering, construction, and operation). From 1 January 2019 to 1 January 2025[3], Category I facilities need to obtain a complex environmental permit for water usage, air emissions, treatment, and disposal of waste. Previous permits remain valid until the complex environmental permit is received.

Linked to the above-mentioned complex permit requirement, the Government Decree # 440 of 3 April 2020, extends permits expiring in the period 15 March to 31 December 2020, for 12 months (including mineral licences, water use agreements, permits for use of water bodies, emission permits, approvals of State Environmental Experts).

Either current/existing permits or complex environmental permissions set the enforcement limits, volumes, and allowable pollutants for emissions / wastewater discharges. Water discharge limits also consider the maximum allowable concentrations ("MAC") in the water bodies, which are stricter for fishing water bodies than for the drinking water[4]. If the water body belongs to the highest fishing category, the strictest requirements are applied.

Limits for impacts on groundwater quality are not defined, and therefore payments are not imposed for releases of pollutants to groundwater.

The limits on permitted wastes are defined based on a detailed inspection of the consumption of materials, current inventories, and expiry dates. Such estimates are slightly conservative, to provide some contingency for minor changes in the operation. Solid wastes are divided into five groups, or classes, from hazardous to non-hazardous. For extractive industry wastes, such as waste rock and tailings, it is necessary undertake biotoxicity studies to determine the waste type.

Failure to comply with legal requirements can lead to fines and, under certain conditions, to the suspension of operations.

Inspections to check environmental performance are mainly conducted by Rospotrebnadzor (Federal Service for Consumer Rights Protection and Human Wellbeing) and Rosprirodnadzor (Federal Service for Supervision of Nature Resources). Some issues (related to the use of water bodies) may be checked by the Fishery Agencies followed by reporting to Rosprirodnadzor.

3 Nordgold operations are not included in the list of "300 projects" (that make the most contribution to the negative environmental impact), for which a longer period is established.

4 In Russia some MACs are stricter than in EU and USA for example for Cu, V and Mn, but are less strict for Cd, As, Pb and Al.

Environmental Payments and Fines

Federal Law # 7 establishes the principle of "chargeable natural resource use and compensated environmental damage" resulting from water/air pollution and waste disposal ("environmental/pollution payments"). Additional environmental fees and fines are applied if a project does not have the necessary permits or is exceeding the allowable rates and limits. From January 2020, environmental payments stopped being levied for emissions, discharge, and waste disposal where technological parameters are within the acceptable range established in the BAT. This is to encourage companies to implement BAT and improve their environmental performance voluntarily.

From 1 January 2020, the fines for exceeding the allowable rates and limits were increased; however, these are usually not material for discharges and emissions (these do not motivate companies to install treatment facilities), but for waste disposal the fines can be more material.

At the design stage, estimates must be made of environmental payments to compensate for impacts (on forest resources, soils, aquatic biological resources, vegetation, and wildlife) that cannot be avoided through design.

Stakeholder engagement Requirements

The legislation requires stakeholder engagement through review and public hearings on the OVOS reports, and public environmental experts' review of design documents. The legislation does not require any further stakeholder engagement beyond the scope of the OVOS. Government Decree #440 of 3 April 2020, allows discussing the project and the environmental impact assessment results through teleconference.

Health and Safety Legislation

Russian health and safety legislation describe both general requirements and requirements for specific types of production and processes in number of documents. Safety issues are traditionally considered separately from environmental requirements. The basis of Russian health and safety legislation is formed with the following federal laws (all as amended):

- Federal law #116-FZ "On Production Safety of Hazardous Industrial Objects" dated 21 July 1997;
- Federal law #69-FZ "On Fire Safety" dated 12 December 1994;
- Federal law #117-FZ "On Safety of Hydro-technical Constructions" dated 21 July 1997.

In addition, in the Russian Federation there are numerous by-laws (federal standards, rules and instructions) that establish industrial safety requirements (for employees of hazardous operations, emergency action plans, etc). Usually these documents are approved by orders of Rostekhnadzor (Federal Service for Environmental, Technological and Nuclear Supervision) and can be general or industry-specific, including those specific to mining industry:

- Safety rules for mining and processing of solid minerals (Rostechnadzor Order #599 of 11 December 2013).
- Instructions for containment and elimination of accidents at hazardous production facilities where mining operations are carried out (Order of Rostekhnadzor #449 of 31 October 2016).

- Safety Rules for Hydraulic Engineering Facilities of Liquid Industrial Waste Storage Facilities (Resolution of Gosgortekhnadzor # 6 of 28 January 2002).
- Other rules and regulations[5].
- Among other things, these documents define general requirements for hydrometallurgical processes and leaching (including the handling of cyanide).

In addition, each operation must develop internal policies and standards for industrial safety and handling of hazardous substances and reagents.

Land Tenure Legislation

In accordance with Russian legislation, a mineral licence holder does not automatically obtain the right for the surface land plot above the deposit. The holder must register their rights for the land plot separately (property, lease, etc). The registration procedure depends on the land plot category (forest, land or water resources, settlements, etc).

Forest Fund Lands

Most of the Nordgold's assets are located on the lands of the forest category, therefore the key land use restrictions are defined by the Forest Code and its by-laws.

Before a deposit is developed, the mineral rights holder must lease forest areas for a defined purpose. To obtain the lease, it is necessary to prepare and obtain approval for a forest development programme that contains a list of rehabilitation commitments upon expiry of the lease. Disturbed land must be rehabilitated in accordance with the rehabilitation programme after the project is completed.

When cutting the forest or withdrawing the land from the Forest Fund, the licence owner must carry out compensatory reforestation. It must be carried out within one year, within the same administrative region of the Russian Federation, on a plot of equal area to replace the withdrawn land. Limited annual quotas of areas available for reforestation are determined by the regional office of the Federal Forest Agency.

According to the Forest Code of the Russian Federation, there are three main categories of forests: operational, reserved, and protected. Additionally, within each category, specially protected forest sites can be defined, which are usually small in area (for example, habitats of rare species).

Operational or reserved forests can usually be used for mining purposes without any significant restrictions, the land can be leased and then returned to the state after the project is completed. In contrast, restrictions can be applied to the protected forest category and the specially protected forest sites.

In some cases, the land needs to be reclassified from 'forest land' to 'industrial land'. This can only be done by special order of the Government. This process requires proof of the significance of the assets at the state or municipal level and the absence of alternative sites. As with leases, compensatory reforestation will also be required in this case.

[5] *SRK notes that many of these industry regulations will be cancelled from 1 January 2021, while replacement in some cases is not yet available. This can create a legal gap for some time.*

Sanitary protection zones (SPZ)

In accordance with Federal Law # 52 “On sanitary-and-epidemiologic wellbeing of the population” (the Sanitary Protection Law, “SPZ”) dated 30 March 1999, an SPZ is delineated around each mine. SPZ define the limits of the area that could be affected by the operation. The law defines the standard size of the sanitary zone; however, a reduction of the size of the zone can be motivated if it can be demonstrated through monitoring that no risk to human health exists. No residential buildings, summer cottages or garden plots are allowed within the SPZ.

Water protection zones (WPZ)

In accordance with the Water Code, Water Protection Zones (“WPZ”) are territories adjacent to the boundaries of the water body of seas, rivers, streams, canals, lakes, and reservoirs with restrictions from economic and other activities. The width of the WPZ depends on the length of the river and is equal to 50 m for rivers shorter than 10 km, 100 m for the rivers with the length 10-50 km and 200 m for rivers with the length 50-200 km and longer.

There are some limitations in the WPZ, including prohibition of the following in the zones: industrial and general waste storage; use and storage of chemicals, explosives, toxic or poisonous substances; moving and parking of vehicles; constructing or rebuilding gas stations, fuel stores and lubricants; discharges of wastewater including drainage; and performing exploration and mining activities of common minerals.

Territories of Traditional Land Use

Territories for traditional land use by indigenous minorities are defined by federal and, in some cases, regional, legislation. The industrial activities should not violate the local communities and the environment within territories of traditional use. When developing new land plots, the results of gatherings or referendums of local residents should be taken into account. Ethnological review[6] of the design documentation is also required.

3.4.2 Kazakhstan

Mineral Rights (Subsoil Use Rights) Legislation

Exploration and Exploitation Licences

According to the Constitution of the Republic of Kazakhstan (1995, as amended), natural resources, including minerals, belong to the state. Rights to use solid minerals are referred to as “subsoil use rights” and are granted in the form of exploration and exploitation licences under the Subsoil and Subsoil Use Code (2018, No 156-V14) (the "2018 Subsoil Code"). It requires that minerals use is undertaken in compliance with tax, environmental and industrial safety legislation.

Mining contracts issued under legislation that was repealed by the 2018 Subsoil Code are still valid but are updated when there are changes to the operations and new developments.

[6] *The ethnological review is stated by legislation of Russia and Republic of Sakha (Yakutia) as the scientific study of the impact on the native habitat of indigenous peoples and the socio-cultural situation*

In the history of Kazakhstan's independence, the legal regime for subsoil use has changed several times. The previous legislation, the Law on Subsoil and Subsoil Use, was in effect between 1999 and 2018 and the adoption of the new Subsoil Code made the following key changes:

- Transition to a licensing system from central government contracts (except for uranium).
- Exploration licence are granted for an initial period of six years (with a further five years extension subject to reduction of the licence area by 40%), minimum annual expenditure is required and calculated through a "monthly calculation index".
- Exploitation licences are granted for an initial term of 25 years but are extendable for multiple similar periods.
- Transfer rights are provided in Articles 40 to 48 of the code and allow the licence holder to grant security over licences in most circumstances.

The competent authority regulating the extraction of solid minerals in Kazakhstan is the Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan. Among other, the competent authority's functions include:

- Control and regulation of solid minerals exploration and extraction.
- Issue, renewal, suspension and revoking of licences for the right to use subsoil in accordance with the legislation of the Republic of Kazakhstan.
- Exercising state control over the observance by subsoil users of the procedure for the acquisition of goods, works and services during operations for the extraction of solid minerals.
- Conduct of complex reviews of closure plans.

The 2018 Subsoil Code has extended provisions relating to the ability of exploitation licence holders to effectively suspend operations for economic reasons without losing the licence in question are relatively new and will be appreciated by those active in the industry (see Articles 222 to 230). In case of violation of the mining license, a competent authority formally notifies the subsoil user to fix identified violations and/or non-compliances to the terms of the mining contract within a prescribed period. The competent authority has the right to unilaterally terminate the contract if two violations or non-compliances remain uncorrected in a timely manner.

Since January 2012, non-tariff regulation of precious metals in Kazakhstan has restricted gold exports from Kazakhstan. This regulation gives a priority right of the state to purchase gold bullion designated for export at market prices. In addition, an export licence is required to export gold and raw materials containing gold, including copper concentrates, anywhere except the Eurasian Economic Union. This restriction was introduced in order to increase the gold reserves of the National Bank of the Republic of Kazakhstan ("NBK"). It had the secondary intention of encouraging the utilisation of domestic refining capacity.

In Kazakhstan, companies who are permitted to export copper concentrates containing gold are required to repatriate gold doré for refining in Kazakhstan.

Subsoil Code: Environmental and Social Obligations of Mineral Rights Holders

Compliance with environmental legislation is required from the earliest stages of planning a mining project, including project conceptualisation and design (Article 52 of the Subsoil Code).

Responsible mining is covered in Articles 52 to 58 and compliance and enforcement are covered in Articles 66 to 68 of the 2018 Subsoil Code. More information on required environmental approvals and financial provisions for mine closure is presented in the next sections. The 2018 Subsoil Code also includes provisions that promote local employment and procurement (Article 28) and investment in local training and research. Articles 212 and 213 provide further specifications relevant to training, research and local procurement.

Mining licences generally contain conditions that elaborate on the above-mentioned environmental and social obligations. These include general statements about the need to meet legislative norms and specifications pertaining to:

- Annual payments for the social and economic development of the region (amount varies).
- Annual investments in training and research (1% of production expenses or more).
- Financial assurance for mine closure.

Subsoil Code: Closure (Liquidation) Requirements

The 2018 Subsoil Code refers to “closure” as “liquidation” (these two terms are used interchangeably in this section) and requires the applicant for an exploitation licence to:

- Provide a mine closure plan (includes acid rock drainage and metal leaching potential assessment) as part of application for mining licence.
- Include a cost estimate in the mine closure plan to cover decommissioning of the mine and associated processing and waste facilities and rehabilitation of disturbed areas.
- Provide financial assurance for full cost of mine closure, by means of a bank deposit, a corporate guarantee or insurance (the insurance relations are governed by the civil legislation of the Republic of Kazakhstan) in accordance with closure plan.
- Periodically review and update the closure cost estimate (at least once in three years or whenever a mine plan is updated).

Prior to the adoption of this legislation, reclamation activities could be included in either a closure plan or an environmental action plan linked to environmental permitting. A liquidation fund had to be established by each mine, with contributions made by the mine operator. The required contributions were not always based on a closure cost estimate. Generally, they were expressed as a small percentage of an annual operating budget (generally ranging from 0.1% to 1% of operating costs) and would not actually cover the full costs of closure.

The mine operator can use the liquidation funds for its closure activities with the permission of the competent authority at the end of the mine life and once the final closure plan (referred to as a ‘liquidation project’ in national term) is approved by the regulators. If there is progressive remediation of the site during operations, the expense is deducted from the liquidation fund at the time the closure cost estimate is updated (every three years). If the actual closure cost exceeds the value of the fund, the mining operator must cover the remaining costs.

Under the new Subsoil Code, all infrastructure associated with a mining operation will have to be included in the closure cost and the cost estimate must be updated every three years. Mine closure is carried out in accordance with the liquidation project which is a detailed design that becomes a binding agreement between the operator and regulatory authority once it is approved. It must be developed two years prior to the expiration of the exploitation licence based on the latest closure plan. According to the subsoil legislation, the operator is obliged to start its closure no later than 8 months prior to the date of exploitation licence termination.

Environmental Approvals

Relevant Legislation and Responsible Authorities

Environmental legislation in the Republic of is primarily based on the Constitution as a supreme law and 2007 Environmental Code (as amended). This code will be replaced by 2021 Environmental Code that was adopted in January 2021 and comes into effect in July 2021. Environmental protection is also supported by the laws in Table 3-4. Currently, the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan has full executive authority in environmental protection.

Table 3-4: Other Key Kazakhstan Legislation Relevant to Environmental Protection

Legislation	Year Passed	Last Amended
Code on Subsoil and Subsoil Use	2017	2020
Land Code	2003	2020
Water Code	2003	2019
Forestry Code	2003	2020
Code on Population's Health and Healthcare System	2007	2020
Law on Protected Natural Areas	2006	2019
Law on Protection, Reproduction and Use of Fauna	2004	2019
Law on Protection and Use of Flora	2002	2019
Law on Protection and Use of Historical and Cultural Heritage	2019	2019

Environmental Impact Assessment (EIA or OVOS) and Approval

An environmental impact assessment approval is a prerequisite to financing and implementing most mining projects (Article 65 of new Environmental Code). The EIA process is referred to as an "OVOS" process. The procedure for conducting and reviewing an EIA is provided by the Ministry of Environment under Order № 204-п issued in June 2007 and amended 17 June 2016. The EIA consists of three stages as outlined in the Table 3-5. It must be undertaken by licensed EIA practitioners.

Table 3-5: Alignment of Kazakhstan Project Design Stages and EIA Stages

EIA stages	Project design stages
I Stage – Preliminary EIA	Justification of investments, feasibility study, technical and economic calculations, business plan and other pre-project documents, projects of technological schemes and field development
II Stage – EIA	Project, pilot mining production design, field development design, technical projects
III Stage – Section "Environmental protection"	Project design (working documentation)

The EIA approval takes the form of a record of decision referred to as a “positive conclusion of the state environmental expertise”. The decision is taken by relevant national and local government officials based on review of the technical design and the corresponding report documenting the EIA undertaken concurrently with the design process. The decision must also take account of public concerns raised in the EIA process.

Environmental Permitting

A positive EIA approval decision is a prerequisite to granting of environmental permits. Several environmental permits must be obtained before a mine becomes operational. These include permits for environmental emissions (effluent discharges, air emissions and waste disposal), abstraction of water, land use, and disturbance to forestry or other designated natural resources depending on environmental setting of the operation.

Environmental permits in Kazakhstan are issued in a form of environmental emissions permit or complex environmental permit. The latter is issued if a company introduces Best Available Technologies (“BAT”) to minimize its operation’s environmental footprint.

From 1 January 2025, all Category I enterprises commissioned after 1 July 2021 must obtain complex environmental permit and include BAT in their operation (Article 111 of new Environmental Code). The regulatory authority will develop a guide on the BAT by 1 July 2023. An automated monitoring system (“AMS”) is also required for all Category I operations (Article 186 of new Environmental Code).

In addition to environmental permits, mining and other industrial operations are required to have environmental monitoring programmes (“PEK”) and environmental action plans. Failure to comply with the above-mentioned requirements risks potential fines and could in some serious cases result in a complete shutdown of operations.

Sanitary norms specify the maximum allowable concentrations (“MAC”) of contaminants on the outer boundaries of a buffer zone around mine infrastructure, the “sanitary protection zone” (“SPZ”). SPZ are defined for each operation in accordance with the sanitary-epidemiological requirements set in the Order of the Minister of National Economy of the Republic of Kazakhstan No. 237 dated 20March 2015.

Labour Protection and Occupational Health and Safety

Labour protection and health and safety in Kazakhstan are regulated by the Constitution, Labour Code (2015, No 414-V) and Law on Civil Protection (2015, No 188-V). The Ministry of Labour and Social Protection is responsible for implementation of the Labour Code.

The Constitution and the Labour Code guarantee basic workers' rights, including the occupational safety and health, the right to organize and the right to strike. The Labour Code regulates employment and related matters, including dismissal, and safety in the workplace.

The Law on Civil Protection regulates fire safety and industrial safety, as well as defines the main tasks, organizational principles for the construction and operation of the civil defence of the Republic of Kazakhstan

Land Tenure Legislation

The Land Code (2003, as amended) enables land to be given designated uses. The Code requires owners/users of land, whether state or privately owned, not to harm public health or the environment, not to pollute the land or cause deterioration in soil fertility, to conserve topsoil, and to rehabilitate disturbed land. The Land Code allows for state appropriation of land for "public needs" (which may include mineral exploration/exploitation) or if the land is not being used as per its designated land use. It also includes the legal procedure for changing land use. Managing land is the responsibility of the Committee for Land Management of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

3.4.3 Burkina Faso

Overview of Relevant Legislation

Mining legislation in Burkina Faso is directly linked to the Constitution (1991, as amended) and environment legislation. Under the Constitution, the natural resources are governed by the state in the interests of the people of Burkina Faso. Mining legislation regulates how rights to explore and mine minerals are granted and requires that holders of these mineral rights protect the environment and respect human rights. Mining legislation includes environmental, social and governance ("ESG") provisions and it also requires compliance with environmental legislation. Relevant legislation is summarised in Table 3-6.

The regulatory authorities responsible for the primary approvals for mining are:

- The Bureau of Mines and Geology ("BUMIGEB") within in the Ministry of Mines and Energy;
- The National Commission of Mines, which facilitates consultation between various government departments with an interest in mining activities;
- The Ministry of the Environment, Green Economy and Climate Change ("MEEVCC");
- The National Office of Environmental Assessments ("BUNEE") within the MEEVCC;
- The Ministry of Water and Sanitation.

Mineral Rights (Subsoil Use Rights)

Mineral rights are granted in Burkina Faso in the form of exploration and exploitation permits and authorisations for quarrying and artisanal mining. The rights are now granted under the 2015 Mining Code (Law 036-2015), which replaced the 2003 Mining Code (Law 031-2003).

Exploitation permits are granted by the Council of Ministers after consultation with the Minister of Mines and the National Commission. An exploitation permit for a large-scale mine is referred to as a "industrial exploitation permit" or "industrial operating permit" (depending on the translation of the term used in the Code, which is "permis d'exploitation industrielle"). An industrial exploitation permit is valid for a 20-year period. It is then renewable for consecutive periods of five years until the relevant deposits are exhausted.

An exploitation permit is coupled with an agreement between the government and the permit holder referred to as a "mining convention". This agreement is valid for the same period as the industrial exploitation permit.

The Mining Code enables state acquisition of additional equity if it reaches an agreement with the investor. The state's dividend must be paid before any other allocation of the distributable profit.

Table 3-6: Primary Legislation Relevant to Mining, Burkina Faso

Legislation	Requirements
Constitution of Burkina Faso, 1991, as amended	Acknowledges (Article 29) the right a healthy environment and states (Article 14) that natural resources "belong to the people" and "shall be used for the improvement of their living conditions." Establishes a right to petition against harmful activities.
Mining Code (Law 036-2015)	Governs the granting of mineral rights and defines the obligations of mineral rights holders.
Other notable mining legislation relevant to large-scale mines	The following legislation is also relevant to large-scale mines: • Decree 2017-023, which covers mining taxes and royalties; • Decree 2017-024, which covers the local development fund; • Decree 2017-0035, which presents the model mining convention; • Decree 2017-036, which covers management of mining titles and authorisations; • Decree 2017-068, which covers closure planning and provisions; • Decree Scheduling Transactions Applicable to Offenses Committed in Violation of the 2018 Mining Code; • Decree 2015-1200, which covers environmental audits; and • Law 2017-028/AN on trade of gold and other precious minerals in Burkina Faso.
Framework Law on Sustainable Development (Decree 343-2014)	This lays down the general rules for implementation of sustainable development in Burkina Faso. The private sector is required to provide decent jobs and access to work (under Article 14). It is also required to repair or mitigate environmental and social damage from activities. Provides for a Fund for Future Generations financed through a proportion of revenues from the exploitation of non-renewable natural resources.
Code of the Environment, (Decree 006-2013)	Provides for sustainable management of natural resources, establishes a universal right to a healthy environment and rights to participate in the management of their environment, to make use of natural resources, and to share in the benefits from their exploitation (Article 8). Article 87 requires authorities to take necessary measures to meet the basic needs of the population in relation to disease, hunger, unemployment, poverty, and social exclusion. Under Article 25, activities likely to have significant effects on the environment are subject to the prior approval of the Ministry of the Environment. Provides for polluting activities, products and facilities are subject to taxation (Article 67), levied through annual fees defined in discharge and emission permits (Article 75).
Decree on Environmental Assessment Procedures (Decree 1187-2015)	Outlines the requirements ESIA processes, report contents and approvals. Defines requirements for ESIAs, Environmental and Social Management Plans, Resettlement Action Plans, and Rehabilitation and Closure Plans.
Act on Rural Land Tenure (Act 034-2009)	Establishes private and state-owned rural lands, land security principles and sets conditions for expropriation. Village lands attached to urban communes are also subject to this Act (Article 2).
Act on Agrarian and Land Reform (Act 034-2012)	Provides for expropriation for public purposes.
Framework Law on Water Management (002-2001)	Provides for authorisation of water uses including abstraction, discharges and alteration of flow in watercourses.
Decree on Discharge of Pollutants (185 - 2001)	Establishes discharge standards for the release of pollutants to air, water and soil. Requires authorisations of substance prior to release.
Decree on Water Discharge Standards, (Decree 1205-2015)	Aims to prevent or limit discharges and sets standards and conditions for discharges. Requires authorisations of substance prior to release. Substances include hydrocarbons, cyanides and heavy metals.
Decree on Environmental Inspection (1203-2015)	Inspectors are empowered to make unannounced visits to check compliance. Under Article 9, Class 1 and Class 2 facilities are subject of environmental inspections at least two times per year.
Code of Sanitation (Decree N°022-2005)	Emissions are only allowed according to provisions of the Code. Article 124 requires noise from motorised vehicles to conform with current regulations.
Code of Public Health, (Decree 1994-023)	Defines rights and duties inherent to the protection and promotion of the health of the population" as well as "promoting environmental health".
The Forest Code (Decree 003-2011)	Establishes the basic principles of sustainable management and valuation of forest resources, fish and wildlife. Any major work involving forest clearing is subject to prior authorization.
Protection of Cultural Heritage (Decree 024-2007)	Provides for protection and preservation of cultural heritage within Burkina Faso.

The holder of an exploitation permit must set up a legal entity governed by Burkinabé law and have its registered office in Burkina Faso.

An application for an exploitation permit must include:

- a draft mining convention to be signed with the state;
- a commitment to grant the state 10% free equity participation in the company holding the exploitation permit;
- a feasibility study that includes an explanation of how the mining development will contribute to the economy, upstream and downstream;
- a training and promotion plan for local managers and staff;
- an environmental approval; and
- a mine closure plan.

Environmental and Social Obligations of Mineral Rights Holders

The 2015 Mining Code requires compliance with environmental and land legislation and provides for gains in the country's human and social capital from exploitation of the country's mineral wealth.

Under the Mining Code, holders of exploitation permits must make annual contributions to three funds. The contributions are tax free. The funds are:

- a local development fund (Article 26);
- a rehabilitation and closure fund (Articles 27 and 141); and
- a research and training fund (Article 29) - for financing geological and mining research and supporting training in the earth sciences.

The local development fund is financed by both the state (15% of the collected proportional royalties) and exploitation permit holders (1% of turnover before tax). It is administered jointly by the Ministry of Mining and the Ministry of Finance. The fund for financing geological and mining research and supporting training in the earth sciences is funded by 15% of proportional royalties, surface taxes, fixed fees and fees for application for approval to purchase and of gold sales collected.

In addition to the above, the Mining Code requires that a feasibility study for an industrial exploitation permit application must define a plan for anchoring the activity of the mining company to the local and national economy. This must indicate the economic links upstream and in downstream with businesses and economic agents as well as spillover effects.

Furthermore, the Mining Code promotes preferential local employment and procurement (Article 102). Both holders of mineral rights and their suppliers (service providers and subcontractors) must preferentially employ Burkinabé executives. Applications for exploitation permits must include plans to support the progression of local managers and staff and to progressively replace expatriates (Article 41).

The Mining Code requires respect for human rights (Article 19). Under Article 120, the exploration, research or exploitation of mineral substances cannot be undertaken without the consent of affected communities.

Landowners or occupiers have a right to fair compensation prior to land disturbance by mining (Article 123). Affected authorised miners are also entitled to compensation.

The Code provides for authorisation of artisanal mining (Articles 71 to 83). Artisanal mining authorisations (valid for two years) will not be renewed where exploitation permits are awarded.

Health and safety aspects of mining activities are regulated by the Code and regulations made under the Code. Environmental aspects are more specifically regulated by the Environmental Code and its implementing regulations.

Award of an exploitation permit is dependent upon environmental approval from the Ministry for the Environment (Article 41) (Environmental Approvals Section below)

Exploitation permit holders are required to undertake environmental management system audits (Article 139 of the 2015 Mining Code and Decree 2015-1200 on Conditions of Environmental Audits). The audit reports must be submitted to the minister in charge of the environment for approval. The technical services of the mining administration also have free access to the mining sites to carry out necessary checks and inspections. Failure to comply with the obligations in the Mining Code can result in fines or even withdrawal of the permit.

The sustainable development requirements in the Mining Code mirror those in many neighbouring countries. The Code implements requirements of the Economic Community of West African States Directive No. C/DIR3/05/09 dated 27 May 2009 that aims to harmonise policies in the mining sector and the West African Economic and Monetary Union mining code regulation (Regulation 18/2003/CM/WAEMU dated 23 December 2003).

Closure Requirements

Annual contributions to a rehabilitation and closure fund are required as mentioned in the preceding section (see Environmental and Social Obligations section above). These contributions are based on the closure cost estimate divided by the years of operational life. The exploitation permit holder is required to open and maintain an account trustee at the Central Bank of West African States or in a commercial bank in Burkina Faso to set up the fund for rehabilitation and closure.

Decree No. 2017-068 requires that closure plans and cost estimates are updated annually and submitted to a government technical committee for review. The committee is formed by the Minister of Mines, the Minister of the Environment and the relevant local authorities. At least one year before the end of the exploitation activity a final plan and costs must be submitted. The decree repeals previous legislation on funding rehabilitation and closure.

Environmental Approvals

The Mining Code requires observation of relevant environmental and social legislation. Relevant legislation is summarised in Table 3-6. To develop a mine in Burkina Faso, environmental approval must be obtained under the Environmental Code (Decree 006-2013) and based on an ESIA process. The ESIA process includes a public enquiry. The ESIA report must be accompanied by Environmental and Social Management Plan ("ESMP"), including a Resettlement Action Plan ("RAP") where required and a rehabilitation and closure plan. The environmental licence is issued is the project is deemed environmental and social acceptable and the licence decision is based on the ESIA report and supporting ESMP.

Mining operations are subject to regular environmental inspections (Articles 39 and 44) and must submit annual environmental reports (Article 41). Operating permits (such as industrial exploitation permits) may be suspended or withdrawn by the administration (Article 79) if there is persistent nonconformance.

The Code also provides for taxation of polluting activities, products and facilities (Article 67), levied through annual fees defined in discharge and emission permits (Article 75).

Administration of ESIA processes and enforcement of compliance with environmental approval conditions and is undertaken by BUNEE.

Surface Rights

Until 2009, most rural land in Burkina Faso was state-owned and customary systems of land ownership were not recognised. The 2009 Act on Rural Land Tenure changed this situation; it recognizes customary rights and seeks to formalize existing customary practices and rules to make them more compatible with modern economies and production systems.

The 2012 Act on Agrarian and Land Reform addresses requires compensation for involuntary physical and economic displacement of people and sets out compensation rules (Article 323).

Both Acts provide for decentralisation of land administration. The latter Act provides for the establishment of a rural land service at the local authority and defines its attributes (Article 163). This land service is yet to be fully established in many local jurisdictions.

The 2015 Minerals Code states that landowners or occupiers have a right to fair compensation prior to land disturbance by mining (Article 123). Affected authorised artisanal miners are also entitled to compensation.

Extractive Industries Transparency Initiative (EITI)

Burkina Faso joined the Extractive Industries Transparency Initiative ("EITI") in 2008. Burkina Faso obtained the status of "Candidate Country" on May 2009 and Burkina Faso was found to have made progress in implementing the 2016 EITI Standard, with considerable improvements in January 2020. The progress is classified as "meaningful progress". The third validation of the country's progress will commence on 23 January 2021 (https://eiti.org/countries).

3.4.4 Guinea

Mineral Rights

The Mining Code for the Republic of Guinea (Law L/2011/006/CNT of 9 September 2011), amended by Law L/2013/053/CNT of 8 April 2013, entered into force in June 2013.

The Mining Code states that mineral substances within the territory of Guinea are the property of the State and cannot be subject to private appropriation except as provided for by the Code. Furthermore, it seeks to balance investment promotion with sustainable economic and social development, for the Guinean people, through a systematic and transparent process.

The key bodies responsible for regulating mining activities in Guinea are:

- Ministry of Mines and Geology, responsible for promotion and control of activities of prospecting and mining and for drawing up the legislative and regulatory provisions.
- The National Directorate of Mines, responsible for the technical and environmental assessment of permit applications.
- SOGUIPAMI (Société Guinéenne du Patrimoine Minier), state-owned and responsible for managing the shareholdings held by the State in mining companies.
- Mining Promotion and Development Centre (Centre de Promotion et de Développement Minier, “CPDM”) serves as an interface between investors and the mining administration.
- National Mining Commission (Commission Nationale des Mines), comprising a strategic committee and a technical committee of titles, to strengthen transparency and good governance and to supervise the activities of the CPDM.

Mineral rights in Guinea are issued in the form of permits, which include exploration permits, semi-industrial and industrial mining operating/exploitation permits and mining concessions. There are also authorisations for quarrying and artisanal mining.

Mining Concession

A mining concession allows the permit holder to conduct field exploitation for mineral substances to any depth within its perimeter. A project is deemed require a mining concession if it involves investment of at least USD500m for projects covering substances other than bauxite, iron ore and radioactive substances. A mining concession is granted for 25 years and can be renewed for 10-year periods.

The application for a mining concession must include a copy of the valid exploration permit and proof of payment of all fees and royalties due. A feasibility study must also be submitted, which should include:

- a detailed environmental and social impact study accompanied by supporting environmental and social management plans (including a resettlement plan if required);
- an economic and financial analysis of the project, detailed schedule of the work and the plan for obtaining the requisite permits and authorisations;
- plans and estimates for industrial infrastructure;

- a plan for supporting Guinean companies and to promote the employment of Guinean nationals;
- a community development plan annexed to a local development agreement to be signed upon the grant of the concession; and
- an architectural plan of the company's headquarters with an application for land allocation (the head office must be constructed within a maximum period of three years from the date of the grant of a concession for iron ore, bauxite, gold, and diamonds).

Non-commencement of work within a year of the issuance of a mining concession results in a monthly fine of USD2m per month for the first three months. This amount will increase by 10% month from the fourth month of delay until the twelfth month of delay. The state may revoke the title if development work has not begun within two years of the grant of a concession.

Commercial production must start within five years of the issuance of the permit if the ore is to be exported or six years if the ore is to be processed locally, otherwise a penalty for delay based on the gap between planned and actual expenditure may be applied.

Mining concessions can be transferred, sold or used as collateral. Any direct or indirect change in the control of the company owning a mining title should be submitted to the Minister of Mines for approval.

Mining Convention

The granting of a mining concession must be accompanied by a mining agreement (convention) which sets out the rights and obligations of the parties. This agreement is valid for the period corresponding to the term of the permit to which it relates. It is renewable for periods of ten years.

The Mining Code grants the government a free 15% stake in mining projects as well as the option of purchasing an additional 20% stake on terms to be agreed with the permit holder. This requirement does not apply to the holders of mining conventions which were signed and ratified prior to the adoption of the 2011 Mining Code. The 2013 amendment to the Code clarifies that the State may not assign, pledge or mortgage its free carried participation[7].

Environmental and social obligations of mineral rights holders

The 2011 Mining Code includes environmental and social provisions relating to:

- Protection of the environment and health (Article 143).
- The requirement to enter into 'development agreements' with local communities living around the areas of operations (Article 130).
- Detailed rehabilitation and mine closure obligations.

7 https://icsid.worldbank.org/sites/default/files/parties_publications/C3765/Claimants%27%20Amended%20Memorial/Factual%20Exhibits/C-0145.PDF

Requirements to comply with the international obligations of the state are stipulated in Article 122. These obligations relate to the Economic Community of West African States ("ECOWAS"), the Kimberley Process and the EITI.

Environmental and Social Impact Study

Article 142 of the Mining Code states that any application for an operating permit or mining concession must include an Environmental and Social Impact Study ("ESIS"), in accordance with the Environmental Code and its implementing regulations (see 7). The detailed ESIS should be accompanied by an ESMP describing measures to mitigate negative impacts and optimise positive impacts. The extent of the impact study depends on the extent of the scheduled work, ranging from an Environmental Impact Notice (Notice d'impact environnemental et social, "NIES") for an Exploration Permit to a detailed ESIS for a mining title. The ESMP must include measures to mitigate negative impacts and optimise positive impacts, an Emergency Plan, a Risk Management Plan, a Health and Safety Plan, a Resettlement Plan and a Rehabilitation Plan (Article 30; Article 37).

Local Development Agreement

An application for a mining permit also requires a Community Development Plan as part of a Local Development Agreement ("LDA"). The permit holder should enter into an LDA with the local community residing on or in the immediate vicinity of its mining title area. The LDA will be signed upon delivery of the mining permit.

The financial contribution of the permit holder for local development is fixed at 1% of the turnover (gross revenue) made on a mining permit for all commodities (excluding bauxite and iron ore which have a 0.5% turnover contribution), to be paid from the date of first commercial production.

Local Employment and Procurement

The Mining Code includes provisions requiring preferential employment of local people and procurement from companies owned or controlled by Guineans, coupled with requirements to report on this. There are also requirements to appoint a Guinean deputy general and general manager and implement a plan for supporting and building the capacity of local companies.

Land Access

Article 123 of the Code requires the permit holder to obtain consent of the landowner before carrying out any activities that would affect the surface. Furthermore, Article 111 prohibits any activity to be carried out within a 100 m radius of properties surrounded by walls or similar enclosures, villages, settlements, wells, religious buildings, cemeteries and sites considered sacred, without the consent of the owner. Article 124 stipulates the terms related to compensation and Article 125 sets out the process for expropriation.

Closure Requirements

There are several articles within the Mining Code and Environmental Protection Code relating to mine closure:

- Article 131 of the Mining Code states that mine closure must be notified 12 months in advance and a closure plan must be filed six months before the date of closure.

- Article 144 of the Mining Code requires the permit holder to open and fund an environmental rehabilitation trust account to guarantee the rehabilitation and closure.

Environmental Approvals

The primary environmental approvals are directed by:

- The Mining Code (Law L/2011/006/CNT of 9 September 2011) amended by Law L/2013/053/CNT of 8 April 2013.
- The Environmental Code (Law L / 2019/0034 / AN / of July 04, 2019), relating to protection and development of the environment.

The Environmental Code requires developers of projects that are likely to have a significant impact on the environment to conduct an ESIA process for the Project, resulting in an ESIS.

Decree D/2014/014 on environmental and social impact assessment for mining operations describes how impact assessments in the mining sector should be conducted. It states that companies must demonstrate compliance with national environmental standards or, in their absence, with international best practices.

The ESIA process is administered by the Ministry for Environment, Water and Forests ("MEEF") through the Guinean Bureau of Studies and Environmental Assessments ("BGEEE"). The ESIA is assessed by an inter-ministerial committee, which includes representatives of civil society organizations. Upon approval by the committee, the company can obtain the environment ministry certificate (a Certificate of Environmental Conformity) for the project to proceed.

The BGEEE conducts annual inspections of mining companies to reissue a Certificate of Environmental Conformity based on adequate compliance with its ESMP.

Secondary permits and authorizations include: hazardous industry authorisations; construction permits; water use permits or agreements in the mining concession; discharge water authorisations; land clearing/tree felling permits; land access authorisations; permits to disposal of non-recycled waste; and permits for disturbance of forested areas.

3.4.5 French Guiana

French Guiana's mining regime is governed by the legislative and regulatory regime applicable to the French mainland, with certain legal and regulatory provisions that take into account particular characteristics and constraints of this overseas territory. The Mining Code requires that two conditions are met to be able to explore or exploit a Mineral Resource: holding a mining title (provided at a national level); and obtaining work authorizations (at a territorial level).

The general provisions of the Mining Code provide for two main types of mining titles: the exclusive exploration permit ('permis exclusif de recherche' or "PER") for the exploration phase, and the concession (Concession) for the exploitation phase. In addition, small-scale mining, including most lawful alluvial operations, are carried out through exploitation authorizations ('autorisation d'exploitation' or "AEX") granted for areas no larger than 1 km^2.

New mining legislation, referred to as the Schéma Départemental D'Orientation Minière de la Guyane ("SDOM"), came into effect in January 2012. It was drafted by representatives of the national government of France in the Prefecture of French Guiana following broad consultation with regional communities, the economic players concerned, environmental protection organisations, trade unions, the State and local and regional bodies competent in the fields of natural and human environment, biodiversity and geology. It was approved by decree (décret no 2011-2106) on 30 December 2011.

The legislation was created with the dual objectives of encouraging economic development of the mining industry in French Guiana while protecting its environment. Under the SDOM legislation, the territory of French Guiana is divided into four land use classifications, defined as Zones 0, 1, 2, and 3 (the SDOM Zones). These outline areas where the possibility of prospecting and mining are defined in accordance with Article L.621-1 of the Mining Code. The classification takes into consideration the necessity to protect sensitive natural environments, landscapes, sites and populations, a balanced management of the land and the natural resources, economic interests, and sustainable development of the mining resources, within the limits of current knowledge of the biodiversity and the mineral wealth. The areas where mining activity are permitted represents 55% of the territory:

- Zone 0: Banned for prospecting and mining.
- Zone 1: Open to airborne surveys, underground mining authorised subject to conditions.
- Zone 2: Open to prospecting, underground and open pit mining authorised subject to conditions.
- Zone 3: Open to prospecting and underground and open pit mining.

The SDOM provides increased security of land tenure, clarifies mineral development guidelines and environmental conditions and restrictions.

In addition to the Mining Code and SDOM, the following Laws and Decrees are applicable to the project:

- Law no. 98-297 of April 21, 1998 adapting the Mining Code to the overseas departments.
- Decree No. 59-285 of January 27, 1959 on the General Regulations on the Exploitation of Mines Other than solid mineral fuel mines and hydrocarbon mines.
- Decree No. 2010-1394 of November 12, 2010 amended by Decree No. 2017-609 of April 24, 2017, which enacts requirements relating to the operation of category M mines (mines of substances other than hydrocarbons) and facilities for the management of inert waste and unpolluted soil resulting from their operation.
- Decree No. 2011-2106 of December 30, 2011 laying down provisions for the implementation of the departmental mining zonation plan (SDOM) of Guiana.
- Decree No. 80-331 of May 7, 1980 on the General Regulations for Extractive Industries as amended by Decree No. 88-1027 of November 7, 1988.

From the environmental perspective, the key legislation is the Environmental Code, in particular Chapter 2 which lays out the requirements for an impact assessment.

The European Water Framework Directive is implemented in Guiana through the Schémas Directeurs d'Aménagement et de Gestion des Eaux ("SDAGE"). The SDAGE is a document that derives directly from the Water Framework Directive ("WFD"). The WFD was adopted on 23 October 2000 and transposed into French law by Law 2004-338 of 21 April 2004. The SDAGE Guyana 2016-2021 was adopted on 24 November 2015 by the basin committee. The document specially refers to the risk of gold mining in relation to achieving the target of good water quality for all catchments.

The General Tax code covers royalties on gold production payable in French Guiana. These are set on a yearly basis by articles 1519,1587 and 1599. There is payment required at the regional level, communal level and departmental level.

3.5 Safety and Sustainable Development

3.5.1 Health and Safety

Standard Practice

Nordgold views the health and safety of its workforce as its first priority and a critical component to its operations. It believes that injuries can be prevented and that employees and especially the management of the Company are responsible for making the workplace injury free. Nordgold is also committed to preventing people from being exposed to occupational risks in the workplace.

Nordgold's primary health and safety objective is to achieve zero harm rate for all employees and contractors. It has established a health and safety ("H&S") risk management system for its operations that involves understanding the risks, learning from incidents, implementing risk mitigation processes and technologies, and encouraging appropriate behavior patterns. This risk management system includes the following activities:

- Critical control for TOP-5 injury risks; implementation risk control and mitigation programs.
- Seasonal risk mitigation programs implementation.
- Hazard identification approach; involving all employees on a daily basis.
- Use of the job safety analysis ("JSA") approach prior high-risk operations.
- Use of the safety behavioural audit ("SBA") approach for reducing unsafe behaviour.
- Working with safety ambassadors; monitoring, inspections and coaching on following safety requirements.
- Developing standard operation procedures ("SOP") for all operations including risk assessment and step by step safe job description.
- Using both lagging and leading indicators for system improvement, such as corrective actions close-out tracking, investigations completion tracking, safety inspections non-conformities close out tracking, SBA per person, unsafe actions, and unsafe conditions.
- Implementing of a HSE communication plan; employee safety engagement activities.

Nordgold records safety incidents, including those involving contractors. Every incident is subject to an in-depth incident investigation and a root-cause-analysis process to understand the causes and to identify and act upon the preventive actions avoiding new incidents.

Health and safety information is disclosed in the Nordgold's public annual reports and sustainable development reports.

Corporate guidance on handling hazardous materials has been developed and is based on industry best practice. The guidance is complemented with procedures for cyanide usage based on the International Cyanide Management Code.

Every mine site has an emergency response plan for hazardous production facilities that is regularly updated. Each plan contains a list of officials, notification/alert procedures, sequence of actions and responsibilities, analysis of accident scenarios, information on hazardous substances, and a description of the actions for each emergency scenario.

Nordgold has committed to align its health and safety management systems with ISO 45001:2018. Certification will be obtained for the corporate management system and the mine site management systems between 2021 and 2023.

Response to the Covid Pandemic

Nordgold has responded to the Covid pandemic with the development and implementation of a business continuity action plan. The main actions include:

- COVID-19 testing of staff and contractors;
- response plans for reacting to positive COVID-19 tests;
- extended staff rotations, travel limitations, remote work (where applicable), increased medical checks;
- disinfection and provision of Personal Protective Equipment;
- observation facilities established on mines and/or nearby cities;
- refurbishment of mine infrastructure (including production buildings, living blocks and canteens) to meet the anti-Covid requirements;
- increased transportation capacities to provide the social distancing were expanded;
- identification, verification and replenishment of critical stock (such as equipment and spare parts), coupled with identified list of alternative suppliers and update of acceptable minimum and maximum stock levels;
- revised measures to transport gold to accommodate travel restrictions;
- scenario planning for temporary interruptions in production in the case of outbreaks of the virus on sites.

3.5.2 Sustainable Development

Nordgold has committed to sustainable business practices and to alignment with the United Nations Guiding Principles on Business and Human Rights (UNGP), including its Protect, Respect and Remedy Framework, and the UN Sustainable Development Goals.

In addition, Nordgold:

- is a member of the UN Global Compact;
- participates in the Extractive Industry Transparence Initiative ("EITI");

- disclosures its taxes and payments to governments in line with the Extractive Sector Transparency Measures Act (“ESTMA”);
- is now carrying on the self-assessment to adhere to the World Gold Council Responsible Gold Mining Principles (“RGMP”);
- is committed to the Voluntary Principles on Security and Human Rights;
- is represented in the International Bar Association (“IBA”);
- is a member of the Mineral Deposit Research Unit.

Furthermore, Nordgold has committed to align its environmental management systems with ISO 14001:2015. Certification will be obtained for the corporate management system and the mine site management systems between 2021 and 2023.

Nordgold invests in initiatives promoting social and economic development of local communities. It has also set targets pertaining to:

- managing water (reduction of water use and zero discharge of processing water);
- minimization of greenhouse gas emissions;
- minimization of energy use;
- safe use of dangerous substances;
- minimization of environmental impact on biodiversity; and
- mining waste management.

Nordgold calculates its Scope 1 and 2 emissions and will disclose these in the sustainability report for 2020, which is to be issued in April 2021. A Task Force on Climate-Related Financial Disclosures statement will be also part of the sustainability report. Furthermore, Nordgold will also calculate its Scope 3 emissions with support of a service-provider to be selected in 2021.

Nordgold’s current initiatives to reduce the carbon intensity of its operations are:

- establishment of a new efficient power plant at Lefa, this is to be completed by the end of 2021;
- implementation of power plant improvement programme at the Gross mine, over three years (2021-2022);
- implementation of the OMNICOMM fuel and lubricant materials consumption monitoring and the WENCO mining equipment dispatching systems which is expected to reduce both fuel consumption and downtime;
- undertaking of technical feasibility and design assessments for a proposed solar power plant at Bissa;
- annual reforestation campaigns; and
- looking at options to use hydropower generation where this source of energy is available.

In 2015, Nordgold established a corporate confidential hotline that is available for employees and other stakeholders. The statistics show most appeals are internal and pertain to information requests, remuneration, accruals, bonuses, and payments.

3.5.3 Corporate Safety and Sustainability Responsibility Chart

Nordgold's corporate safety and sustainability responsibility chart is shown in Figure 3-16. Reportedly, matters relating to health, safety, and sustainable development fall within the scope of the Safety and Sustainable Development Committee. The Committee communicates key issues to the Board of Directors as necessary. The Chief Executive Officer ("CEO") and the representatives of the management team oversee relevant activities and attend the Committee's meetings. The business units report on regular basis (quarterly) to the Committee on their performance for environmental targets and level of incidents.

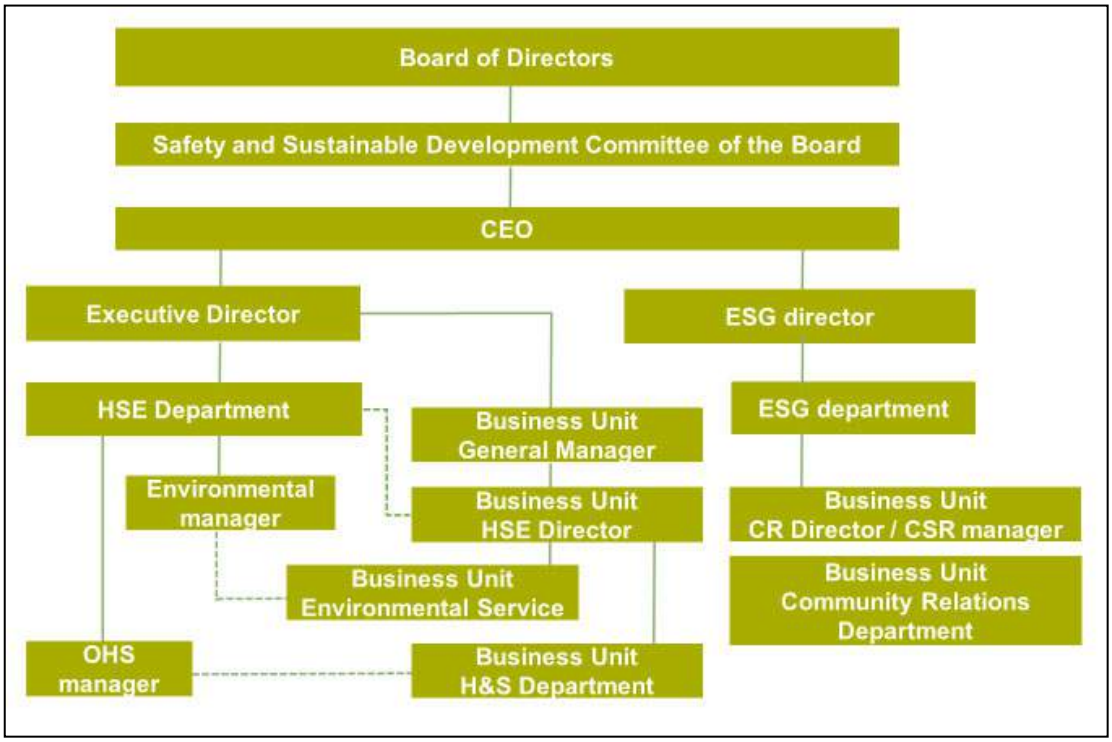


Figure 3-16: Nordgold Safety and Sustainability Responsibility Chart

3.6 Corporate Security

3.6.1 Context

Security is a potential threat to the West African operations and can be attributed to widespread livelihood insecurity and extremist terrorism.

Livelihoods in the rural areas of Burkina Faso and Guinea are largely based on agriculture, mostly subsistence cultivation and livestock herding. Stresses on these livelihoods include droughts, floods and soil degradation associated with overgrazing and clearing of land not suited for agriculture. These stresses are worsened by climate variability and climate change. Part of Burkina Faso is in the Sahel climate zone, where temperatures are predicted to rise at rates higher than the global average. The livelihood stresses are extreme in Burkina Faso and result in food insecurity, competition for land and water resources, large-scale migration and conflict.

Artisanal and small-scale mining ("ASM") has become more important to many households in West Africa, as a source of supplementary income, in recent years. Rising mineral prices have resulted in explosive growth in ASM. Associated with this, there are clashes over claims and incursions onto large-scale mine tenements.

Terrorist groups are present in Burkina Faso. In recent years, there have been regular attacks on police, military personnel and civilians. The attacks on civilians can be indiscriminate, affecting religious sites, schools, markets, transport hubs and businesses with international interests. The terrorism risks are highest on the borders of Burkina Faso. Currently, a state of emergency prevails in the Sahel and Eastern Regions.

3.6.2 Impact on Nordgold Operations

The security teams at the West African mines deal with artisanal-miner incursions, terrorism threats, theft and community protests.

Invasions of Nordgold operations in West Africa by artisanal miners occur on a regular basis. Semi-industrial illegal mining and processing activities that use cyanide have been found near Nordgold's Lefa operations.

Typical thefts experienced at the West African mines involve stealing of materials useful to local communities such as batteries, fencing, electrical cables, and drums (used for waste disposal).

Community protests can take the form of road blockades and are used to make complaints about matters such as deterioration of a road following rains, a road not being watered to suppress dust, a disagreement on a resettlement matter, and a perception that a community development agreement is not being fulfilled. Blockades are also used to request support. For example, in October 2020 there was a road blockade affecting Lefa mine that was a request for transport. Students wanted bus transport from Lero village to Siguiri province (about 150 km) to participate in 2020 Baccalaureate exams. This request was fulfilled.

Local protests experienced by Nordgold's operations are in line with other similar operations in the region, and Nordgold recognises that further strengthening of community engagement is required to reduce incidents of community protest.

The security incidents to date have not significantly impacted on the continuity of Nordgold's operations in West Africa.

3.6.3 Security Systems

Nordgold's mining and exploration operations are protected by security contractors. The level of security and safety protection required in West Africa is higher than in Russia and Kazakhstan and so there are more complex security arrangements in West Africa. A West Africa regional security team, comprising a regional director and two superintendents, supports dedicated security teams at Bissa, Bouly, Taparko, and Lefa. The regional team helps with the security analysis and strategic development of security.

The West Africa regional security team and the various site security teams reports to and receives advice from a head office security team, which includes specialists in economic security, forensic security, cyber security and physical security. In addition, Nordgold has a consulting contract with Severstal for ongoing advice on security management, including training, intelligence, preparedness for evacuation and escape, and governance.

In West Africa, physical security is provided by security staff and contractors and armed police. Processing sites are fenced and equipped with surveillance infrastructure. Mine vehicles are escorted by the police. Safe-haven buildings have been established on sites. Drones are used for surveillance of mine sites and roads are inspected for bombs. Investments have also been made in armoured vehicles to protect staff against explosive devices and bullets.

Security staff and contractors are provided with training, including training on human rights. Training is being developed for police.

The reliability of job applicants and contractors is checked. Candidates are considered reliable if they abide by law, do not have criminal records, and have no record of bribery and corruption.

There is an extra focus on gold security from mined ore, through the process plant, to the gold room and shipment. This includes a high level of video surveillance and metal detection. Metal accounting is checked for any deviations and every deviation is investigated.

Security intelligence and site-information on security is analysed and documented in numerous reports: weekly, monthly, quarterly, and annual reports. Numerous metrics are used and security strategies are regularly updated in response to changes in information.

3.7 Mineral Resources and Ore Reserves Summary

The combined audited Mineral Resource and Ore Reserve Statements for Nordgold's Mineral Assets are tabulated in Table 3-7 to Table 3-16, respectively. Mineral Resources are reported inclusive of Ore Reserves. SRK notes that for a number of the Mineral Assets, especially in the West African mines, there are multiple resource models and pits, which are spatially separate and are reported individually in detail in the respective sections of the CPR.

In reporting the Mineral Resource Statements as presented in Table 3-7 to Table 3-12, SRK notes:

- All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
- The Mineral Resources are reported on a 100% basis and do not account for minority shareholdings.
- The long-term commodity price assumption relied on for ensuring that the Mineral Resources are potentially economic is USD1,750/oz for gold.
- All open pit Mineral Resources are reported based on an optimised pit shell at a gold price of USD1,750/oz, and were depleted for mining up to 31 December 2020.
- All underground Mineral Resources are reported based on optimised mine stopes ("MSO") at a gold price of USD1,750/oz, and were depleted for mining up to 31 December 2020.
- Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.
- All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

In reporting the Ore Reserve Statements as stated in Table 3-13 to Table 3-16, SRK notes:

- The long-term commodity price assumption relied on for ensuring that the Ore Reserves are potentially economic is USD1,400/oz for gold.
- All open pit Ore Reserves are reported based on an optimised pit shell at a gold price of USD1,400/oz, and were depleted for mining up to 31 December 2020.
- All underground Ore Reserves are reported based on MSO at a gold price of USD1,400/oz, and were depleted for mining up to 31 December 2020.
- The Ore Reserves are reported on a 100% basis and do not account for minority shareholdings.
- All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

Table 3-7: Mineral Resources Summary, as at 31 December 2020: Russia & Kazakhstan

Mineral Asset	Deposit	CoG Au (g/t)	Measured Mineral Resources			Indicated Mineral Resources			Measured + Indicated Mineral Resources			Inferred Mineral Resources			Total Mineral Resources		
			(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)
Gross	Gross	0.27	751	0.44	11	581,056	0.55	10,316	581,807	0.55	10,327	125,649	0.46	1,850	707,456	0.54	12,177
	Stockpiles		-	-	-	17,627	0.32	182	17,627	0.32	182	-	-	-	17,627	0.32	182
	Total Gross		**751**	**0.44**	**11**	**598,683**	**0.55**	**10,498**	**599,434**	**0.55**	**10,509**	**125,649**	**0.46**	**1,850**	**725,083**	**0.53**	**12,359**
Taborny	Taborny + Temny	0.20	-	-	-	92,100	0.49	1,454	92,100	0.49	1,454	26,035	0.44	367	118,135	0.48	1,822
	Visoky	0.20	-	-	-	1,167	1.17	44	1,167	1.17	44	541	0.82	17	1,708	1.10	61
	Vrezanny	0.20	-	-	-	-	-	-	-	-	-	9,623	0.61	188	9,623	0.61	188
	Stockpiles		-	-	-	3,766	0.30	37	3,766	0.30	37	-		-	3,766	0.30	37
	Total Taborny		**-**	**-**	**-**	**97,033**	**0.49**	**1,535**	**97,033**	**0.49**	**1,535**	**36,198**	**0.49**	**572**	**133,232**	**0.49**	**2,107**
Berezito	Open pit	0.26	-	-	-	3,231	0.94	98	3,231	0.94	98	685	0.89	20	3,916	0.93	117
	Crown Pillar	0.88	-	-	-	108	3.91	14	108	3.91	14	27	5.31	5	136	4.19	18
	Underground	0.88	-	-	-	279	2.88	26	279	2.88	26	79	3.12	8	358	2.94	34
	Stockpiles / HL		-	-	-	2,698	0.39	34	2,698	0.39	34	-	-	-	2,698	0.39	34
	Total Berezitovy		**-**	**-**	**-**	**6,316**	**0.84**	**171**	**6,316**	**0.84**	**171**	**791**	**1.27**	**32**	**7,107**	**0.89**	**204**
Irokinda	Irokinda UG	1.16	-	-	-	822	9.04	239	822	9.04	239	1,901	9.20	563	2,723	9.15	802
	Stockpiles		-	-	-	11	2.81	1	11	2.81	1	-	-	-	11	2.81	1
	Total Irokinda		**-**	**-**	**-**	**832**	**8.96**	**240**	**832**	**8.96**	**240**	**1,901**	**9.20**	**563**	**2,734**	**9.13**	**802**
Tokko	Tokkinskoe	0.20	-	-	-	15,100	1.08	524	15,100	1.08	524	33,900	0.72	781	49,000	0.83	1,305
	Roman	0.20	-	-	-	-	-	-	-	-	-	123,600	0.58	2,305	123,600	0.58	2,305
	Total Tokko		**-**	**-**	**-**	**15,100**	**1.08**	**524**	**15,100**	**1.08**	**524**	**157,500**	**0.61**	**3,086**	**172,600**	**0.65**	**3,611**
Uryakh	Open Pit	0.75	-	-	-	11,730	2.59	978	11,730	2.59	978	826	4.76	126	12,556	2.74	1,104
	Crown Pillar	1.20	-	-	-	561	2.60	47	561	2.60	47	41	4.09	5	601	2.70	52
	Underground	1.20	-	-	-	6,705	2.84	612	6,705	2.84	612	1,652	2.97	158	8,357	2.86	770
	Total Uryakh		**-**	**-**	**-**	**18,996**	**2.68**	**1,637**	**18,996**	**2.68**	**1,637**	**2,518**	**3.57**	**289**	**21,515**	**2.78**	**1,926**
Suzdal	Suzdal UG	2.3	492	7.48	118	4,822	6.55	1,016	5,314	6.64	1,135	1,713	5.38	296	7,028	6.33	1,431
	Stockpiles		-	-	-	34	5.17	6	34	5.17	6	-	-	-	34	5.17	6
	Tailings Retreat.		-	-	-	483	5.60	87	483	5.60	87	-	-	-	483	5.60	87
	Total Suzdal		**492**	**7.48**	**118**	**5,339**	**6.46**	**1,109**	**5,831**	**6.55**	**1,227**	**1,713**	**5.38**	**296**	**7,544**	**6.28**	**1,524**
Total Russia & Kazakhstan			**1,243**	**3.23**	**129**	**742,300**	**0.66**	**15,714**	**743,543**	**0.66**	**15,843**	**326,272**	**0.64**	**6,689**	**1,069,814**	**0.66**	**22,532**

Table 3-8: Mineral Resources Summary, as at 31 December 2020: Lefa, Guinea

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)
Lefa	Lero Karta OP	0.27	-	-	-	21,167	1.12	759	21,167	1.12	759	756	0.88	21	21,923	1.11	781
	Lero Karta UG	1.40	-	-	-	500	2.23	36	500	2.23	36	1,220	2.48	97	1,720	2.40	133
	Lero Karta UG	1.40	-	-	-	4,358	2.77	388	4,358	2.77	388	9,955	2.39	766	14,313	2.51	1,154
	Firifirini	0.31	-	-	-	6,289	1.08	219	6,289	1.08	219	894	1.15	33	7,183	1.09	252
	Fayalala East	0.29	-	-	-	34,478	0.78	866	34,478	0.78	866	4,867	1.07	167	39,345	0.82	1,033
	Kankarta	0.33	-	-	-	5,127	1.23	202	5,127	1.23	202	733	1.10	26	5,860	1.21	228
	Toume Toume	0.33	-	-	-	234	1.04	8	234	1.04	8	600	1.16	22	834	1.12	30
	Banora East	0.48	-	-	-	2,655	1.51	129	2,655	1.51	129	480	1.57	24	3,135	1.52	153
	Gold Ring	0.31	114	1.35	5	493	1.38	22	606	1.38	27	136	1.81	8	742	1.46	35
	Banko South	0.30	-	-	-	1,023	1.16	38	1,023	1.16	38	618	1.26	25	1,641	1.19	63
	DTM	0.28	24	1.84	1	223	1.93	14	247	1.93	15	159	1.81	9	406	1.88	25
	Sikasso	0.32	130	1.19	5	680	1.08	24	810	1.10	29	306	1.09	11	1,116	1.10	39
	KassaKassa	0.33	41	0.86	1	917	1.12	33	959	1.11	34	484	1.41	22	1,443	1.21	56
	Dihuili Bougoufe	0.40	-	-	-	-	-	-	-	-	-	210	1.22	8	210	1.22	8
	Dar Salaam	0.32	-	-	-	-	-	-	-	-	-	801	1.04	27	801	1.04	27
	Solabe	0.31	-	-	-	-	-	-	-	-	-	179	0.99	6	179	0.99	6
	Amina	0.28	-	-	-	-	-	-	-	-	-	503	0.95	15	503	0.95	15
	Nyerema	0.28	-	-	-	330	1.00	11	330	1.00	11	111	1.09	4	441	1.02	14
	Diguili Central	0.43	-	-	-	3,045	1.03	101	3,045	1.03	101	3,125	0.73	73	6,170	0.88	174
	Stockpiles / HL		-	-	-	12,559	0.58	234	12,559	0.58	234	-	-	-	12,559	0.58	234
	Lefa Total		**309**	**1.25**	**12**	**94,078**	**1.02**	**3,083**	**94,387**	**1.02**	**3,095**	**26,137**	**1.62**	**1,365**	**120,524**	**1.15**	**4,460**

Table 3-9: Mineral Resources Summary, as at 31 December 2020: Bissa & Bouly, Burkina Faso

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)
Bissa	BH	0.36	367	2.00	24	99	2.41	8	467	2.08	31	4	0.94	0	471	2.08	31
	lOSE	0.41	-	-	-	4,533	1.00	145	4,533	1.00	145	1,190	0.99	38	5,723	1.00	183
	SW	0.54	434	2.33	33	1,739	2.73	153	2,174	2.65	185	2	10.15	1	2,176	2.66	186
	51	0.43	1,505	1.54	75	2,776	1.63	145	4,281	1.60	220	1,881	1.80	109	6,162	1.66	329
	52	0.46	3,703	1.28	153	3,749	1.38	167	7,452	1.33	320	2,538	1.35	110	9,990	1.34	430
	Gougre	0.55	639	1.69	35	2,690	1.92	166	3,328	1.88	201	778	1.96	49	4,107	1.89	250
	Ronguen	0.46	-	-	-	5,022	1.58	256	5,022	1.58	256	138	0.85	4	5,160	1.56	259
	Zinigma	0.59	-	-	-	3,001	1.18	114	3,001	1.18	114	187	1.51	9	3,189	1.20	123
	Yimiougou	0.65	-	-	-	3,372	1.76	190	3,372	1.76	190	160	1.64	8	3,532	1.75	199
	Samtenga	0.72	159	2.86	15	801	3.02	78	960	2.99	92	72	3.58	8	1,032	3.03	101
	Zandkom	0.43	-	-	-	12,806	1.11	459	12,806	1.11	459	5,664	1.07	194	18,470	1.10	653
	Stockpiles		-	-	-	11,194	0.66	238	11,194	0.66	238	-		-	11,194	0.66	238
	Total Bissa		**6,808**	**1.52**	**333**	**51,783**	**1.27**	**2,119**	**58,591**	**1.30**	**2,451**	**12,614**	**1.31**	**530**	**71,205**	**1.30**	**2,982**
Bouly	Bouly	0.23	21,269	0.49	338	158,766	0.51	2,584	180,035	0.50	2,922	117,907	0.51	1,930	297,942	0.51	4,853
	Stockpiles		-	-	-	12,173	0.32	126	12,173	0.32	126	-	-	-	12,173	0.32	126
	Total Bouly		**21,269**	**0.49**	**338**	**170,939**	**0.49**	**2,710**	**192,208**	**0.49**	**3,048**	**117,907**	**0.51**	**1,930**	**310,115**	**0.50**	**4,978**
Bissa-Bouly Total			**28,078**	**0.74**	**671**	**222,721**	**0.67**	**4,829**	**250,799**	**0.68**	**5,500**	**130,522**	**0.59**	**2,461**	**381,321**	**0.65**	**7,960**

Table 3-10: Mineral Resources Summary, as at 31 December 2020: Taparko, Burkina Faso

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)
Taparko	35 OP	0.76	**3**	**1.39**	**0**	**244**	**3.63**	**28**	**248**	**3.59**	**29**	**-**	**-**	**-**	**248**	**3.59**	**29**
	35 Crown Pillar	1.20	100	3.23	10	109	3.73	13	208	3.49	23	52	4.67	8	260	3.73	31
	35 UG	1.00	88	3.73	11	917	3.90	115	1,005	3.88	125	898	3.69	106	1,903	3.79	232
	GT	0.76	81	3.30	9	210	4.77	32	290	4.36	41	212	3.97	27	502	4.20	68
	2N2K	0.77	160	1.82	9	679	2.11	46	838	2.05	55	14	2.16	1	852	2.05	56
	Bouroum	0.90	591	2.16	41	506	2.62	43	1,097	2.37	84	0	1.39	0	1,098	2.37	84
	Yeou	0.99	-	-	-	271	2.08	18	271	2.08	18	55	2.63	5	326	2.18	23
	Goengo	0.96	49	3.30	5	122	2.46	10	170	2.70	15	92	1.51	4	263	2.28	19
	Tangarsi	0.84	103	1.53	5	364	2.15	25	467	2.01	30	107	2.78	10	574	2.15	40
	Tangarsi East	1.09	-	-	-	24	2.45	2	24	2.45	2	4	2.22	0	28	2.41	2
	Nayiri	0.90	-	-	-	365	1.98	23	365	1.98	23	207	2.26	15	571	2.08	38
	Bissinga	0.93	25	3.85	3	96	3.77	12	120	3.79	15	15	2.84	1	135	3.69	16
	Stockpiles		-	-	-	3,497	0.82	92	3,497	0.82	92	-	-	-	3,497	0.82	92
	Taparko Total		**1,199**	**2.42**	**93**	**7,402**	**1.93**	**459**	**8,601**	**2.00**	**552**	**1,657**	**3.34**	**178**	**10,259**	**2.21**	**730**

Table 3-11: Mineral Resources Summary, as at 31 December 2020: Canada & French Guiana

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)	(kt)	Au (g/t)	Au (koz)
Montagne d`Or		0.4	10,328	1.80	599	74,818	1.35	3,247	85,146	1.41	3,846	20,202	1.48	964	105,348	1.42	4,810
Pistol Bay	Vickers	0.9	-	-	-	-	-	-	-	-	-	22,370	2.20	1,581	22,370	2.20	1,581

Table 3-12: Mineral Resources as at 31 December 2020: Summary

Mineral Asset	Measured Mineral Resources			Indicated Mineral Resources			Measured + Indicated Mineral Resources			Inferred Mineral Resources			Total Mineral Resources		
	Tonnes (kt)	Grade (g/t Au)	Contained Au (koz)	Tonnes (kt)	Grade (g/t Au)	Contained Au (koz)	Tonnes (kt)	Grade (g/t Au)	Contained Au (koz)	Tonnes (kt)	Grade (g/t Au)	Contained Au (koz)	Tonnes (kt)	Grade (g/t Au)	Contained Au (koz)
Gross	751	0.44	11	598,683	0.55	10,498	599,434	0.55	10,509	125,649	0.46	1,850	725,083	0.53	12,359
Taborny	-	-	-	97,033	0.49	1,535	97,033	0.49	1,535	36,198	0.49	572	133,232	0.49	2,107
Berezitovy	-	-	-	6,316	0.84	171	6,316	0.84	171	791	1.27	32	7,107	0.89	204
Irokinda	-	-	-	832	8.96	240	832	8.96	240	1,901	9.20	563	2,734	9.13	802
Tokko	-	-	-	15,100	1.08	524	15,100	1.08	524	157,500	0.61	3,086	172,600	0.65	3,611
Uryakh	-	-	-	18,996	2.68	1,637	18,996	2.68	1,637	2,518	3.57	289	21,515	2.78	1,926
Suzdal	492	7.48	118	5,339	6.46	1,109	5,831	6.55	1,227	1,713	5.38	296	7,544	6.28	1,524
Lefa	309	1.25	12	94,078	1.02	3,083	94,387	1.02	3,095	26,137	1.62	1,365	120,524	1.15	4,460
Bissa	6,808	2	333	51,783	1.27	2,119	58,591	1.30	2,451	12,614	1.31	530	71,205	1.30	2,982
Bouly	21,269	0	338	170,939	0.49	2,710	192,208	0.49	3,048	117,907	0.51	1,930	310,115	0.50	4,978
Taparko	1,199	2	93	7,402	1.93	459	8,601	2.00	552	1,657	3.34	178	10,259	2.21	730
Montagne d`Or	10,328	2	599	74,818	1.35	3,247	85,146	1.41	3,846	20,202	1.48	964	105,348	1.42	4,810
Pistol Bay	-	-	-	-	-	-	-	-	-	22,370	2.20	1,581	22,370	2.20	1,581
Total Nordgold	**41,156**	**1.14**	**1,505**	**1,141,320**	**0.74**	**27,331**	**1,182,476**	**0.76**	**28,836**	**527,159**	**0.78**	**13,236**	**1,709,636**	**0.77**	**42,073**

Table 3-13: Ore Reserves Summary, as at 31 December 2020: Russia & Kazakhstan

Mineral Asset	Deposit	CoG Au (g/t)	Proved			Probable			Proved + Probable		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Gross	Oxide	0.24	394	0.4	6	373,160	0.5	5,901	373,554	0.5	5,907
	Transitional	0.24	-	-	-	28,260	0.5	494	28,260	0.5	494
	Stockpiles	0.24	3,749	0.3	39	13,878	0.3	143	17,627	0.3	182
	Total Gross		**4,144**	**0.3**	**45**	**415,297**	**0.5**	**6,539**	**419,441**	**0.5**	**6,583**
Taborny	Oxide	0.2	35	0.5	0.5	65,318	0.4	920	65,352	0.4	920
	Stockpiles		-	-	-	3,766	0.3	37	3,766	0.3	37
	Total Taborny		**35**	**0.5**	**0.5**	**69,083**	**0.4**	**957**	**69,118**	**0.4**	**957**
Berezitovy	Open pit	0.3	-	-	-	3,032	0.9	85	3,032	0.9	85
	Underground	1.1	-	-	-	383	1.4	18	383	1.4	18
	Stockpiles	0.3	-	-	-	142	0.8	4	142	0.8	4
	Heap Leach	0.3	-	-	-	138	0.4	2	138	0.4	2
	Total Berezitovy		**-**	**-**	**-**	**3,695**	**0.9**	**108**	**3,695**	**0.9**	**108**
Irokinda	Serebryakovskaya	1.3	-	-	-	591.8	5.0	94.9	591.8	5.0	94.9
	Tuluinskaya	1.6	-	-	-	311.5	4.1	40.6	311.5	4.1	40.6
	Visokaya	1.4	-	-	-	510.6	3.8	61.6	510.6	3.8	61.6
	Stockpiles	2.0	-	-	-	10.5	2.8	1.0	10.5	2.8	1.0
	Total Irokinda		**-**	**-**	**-**	**1,424**	**4.3**	**198**	**1,424**	**4.3**	**198**
Suzdal	Underground	2.6-3.2	382	5.7	70	4,741	5.3	814	5,123	5.4	884
	Stockpiles	2.0	-	-	-	34	5.2	6	34	5.2	6
	Tailings retreat.	2.0	-	-	-	483	5.6	87	483	5.6	87
	Total Suzdal		**382**	**5.7**	**70**	**5,258**	**5.4**	**907**	**5,639**		**5.4**
Total Russia & Kazakhstan			**4,560**	**0.8**	**115**	**494,757**	**0.5**	**8,708**	**499,317**	**0.5**	**8,823**

Table 3-14: Ore Reserves Summary, as at 31 December 2020: West Africa: Guinea and Burkina Faso

Mineral Asset	Deposit	CoG Au (g/t)	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Lefa	Lero Karta	0.3	-	-	-	10,362	1.1	370	10,362	1.1	370
	Fayalala	0.3	-	-	-	12,407	0.8	319	12,407	0.8	319
	Kankarta	0.3	-	-	-	2,322	1.2	91	2,322	1.2	91
	Firifirini	0.3	-	-	-	3,307	1.0	108	3,307	1.0	108
	Banko South	0.4	-	-	-	104	1.7	6	104	1.7	6
	GoldRing	0.4	80	1.1	3	277	1.1	10	357	1.1	13
	Banora	0.4	-	-	-	1,028	1.4	45	1,028	1.4	45
	Toume Toume	0.6	-	-	-	137	1.0	4	137	1.0	4
	DTM	0.4	-	-	-	-	-	-	-	-	-
	Diguili Central	0.3	-	-	-	2,313	1.1	78	2,313	1.1	78
	Kassa Kassa	0.5	-	-	-	180	1.5	9	180	1.5	9
	Sikasso	0.4	101	0.8	3	10	1.0	0	111	0.9	3
	Nyerema	0.4	-	-	-	123	0.8	3	123	0.8	3
	Total Ore Mined		181	0.9	6	32,571	1.0	1,042	32,751	1.0	1,048
	LK Stockpiles		-	-	-	2,541	0.6	46	2,541	0.6	46
	Fayalala Stockpiles		-	-	-	4,259	0.6	78	4,259	0.6	78
	Total Stockpiles		-		-	6,800	0.6	124	6,800	0.6	124
	Heap Leach		-	-	-	5,659	0.6	109	5,659	0.6	109
	Total Lefa		**181**	**0.9**	**6**	**45,029**	**0.9**	**1,275**	**45,210**	**0.9**	**1,281**
Bissa	Bissa Mine:										
	(SW, IOSE, 51, 52)	Variable	1,459	1.3	62	3,155	1.7	177	4,614	1.6	239
	Stockpiles		-	-	-	10,134	0.7	212	10,134	0.7	212
	Satellite Pits: (Gougre N, Zandkom, Ronguen, Samtenga, Yimiougou)	Variable	1,849	1.1	66	14,137	1.3	605	15,986	1.3	671
	Sat. Stockpiles		-	-	-	923	0.8	22	923	0.8	22
	Total Bissa		**3,308**	**1.2**	**128**	**28,349**	**1.1**	**1,015**	**31,657**	**1.1**	**1,144**
Bouly	Open Pit	Variable	15,552	0.5	241	39,505	0.5	589	55,057	0.5	831
	Stockpiles		-	-	-	12,173	0.3	126	12,173	0.3	126
	Total Bouly		**15,552**	**0.5**	**241**	**51,678**	**0.4**	**715**	**67,230**	**0.4**	**957**
Taparko	Open Pits	Variable	624	2.1	42	788	2.1	53	1,412	2.1	95
	Stockpiles		-	-	-	2,597	0.9	72	2,597	0.9	72
	35 Underground	1.8	59	3.1	6	375	3.1	37	434	3.1	43
	Total Taparko		**683**	**2.2**	**48**	**3,760**	**1.3**	**163**	**4,443**	**1.5**	**211**
Total West Africa			**19,724**	**0.7**	**423**	**128,816**	**0.8**	**3,169**	**148,539**	**0.8**	**3,592**

Table 3-15: Ore Reserves Summary, as at 31 December 2020: French Guiana

Mineral Asset	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Montagne d'Or	8,245	2.0	527	45,868	1.5	2,218	54,113	1.6	2,745

Table 3-16: Ore Reserves as at 31 December 2020: Summary

Mineral Asset	Proved			Probable			Proved + Probable		
	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Gross	4,144	0.3	45	415,297	0.5	6,539	419,441	0.5	6,583
Taborny	35	0.5	1	69,083	0.4	957	69,118	0.4	957
Berezitovy	-	-	-	3,695	0.9	108	3,695	0.9	108
Irokinda	-	-	-	1,424	4.3	198	1,424	4.3	198
Suzdal	382	5.7	69.9	5,258	5.4	907	5,639	5.4	977
Lefa	181	0.9	5.5	45,029	0.9	1,275	45,210	0.9	1,281
Bissa	3,308	1.2	128.5	28,349	1.1	1,015	31,657	1.1	1,144
Bouly	15,552	0.5	241	51,678	0.4	715	67,230	0.4	957
Taparko	683	2.2	48	3,760	1.3	163	4,443	1.5	211
Montagne d'Or	8,245	2.0	527	45,868	1.5	2,218	54,113	1.6	2,745
Total Nordgold	**32,529**	**1.0**	**1,065**	**669,441**	**0.7**	**14,096**	**701,970**	**0.7**	**15,161**

4 GROSS OPEN PIT GOLD MINE

4.1 Introduction

4.1.1 Location

The Gross mine is located in the in the Olyokminsky District of the far south-west of the Republic of Sakha (Yakutia). The location of the mine is shown in Figure 3-8, Section 3.3, and in Figure 4-1. The nearest settlement is Tyanya, 155 km to the north. The distance to the regional centre (Olyokminsk city) is approximately 300 km. It is close to Nordgold's Taborny mine, which is operated by "Rudnik Taborny" LLC (Figure 4-1).

The mine is within the taiga forest biome on state-owned Forestry Fund lands (Neryungri Forestry) and in the territory of the Tyanya National Nasleg, which is a traditional land use area for indigenous minorities. Nomadic tribal communities use land in this territory for hunting and reindeer breeding.

For more information on the environmental setting of the mine see Section 4.11.

Gross is operated by "Neryungri-Metallic" LLC [8].The ore is crushed and transported to a dynamic heap leach facility ("DHLF"), where it is treated with sodium cyanide solution. The pregnant solution is taken to a processing plant to produce the final product (doré alloy). Waste rock material is disposed of on waste dumps. Once ore has completed leaching on the DHLF, it is transported to a dedicated, lined "leached ore dump".

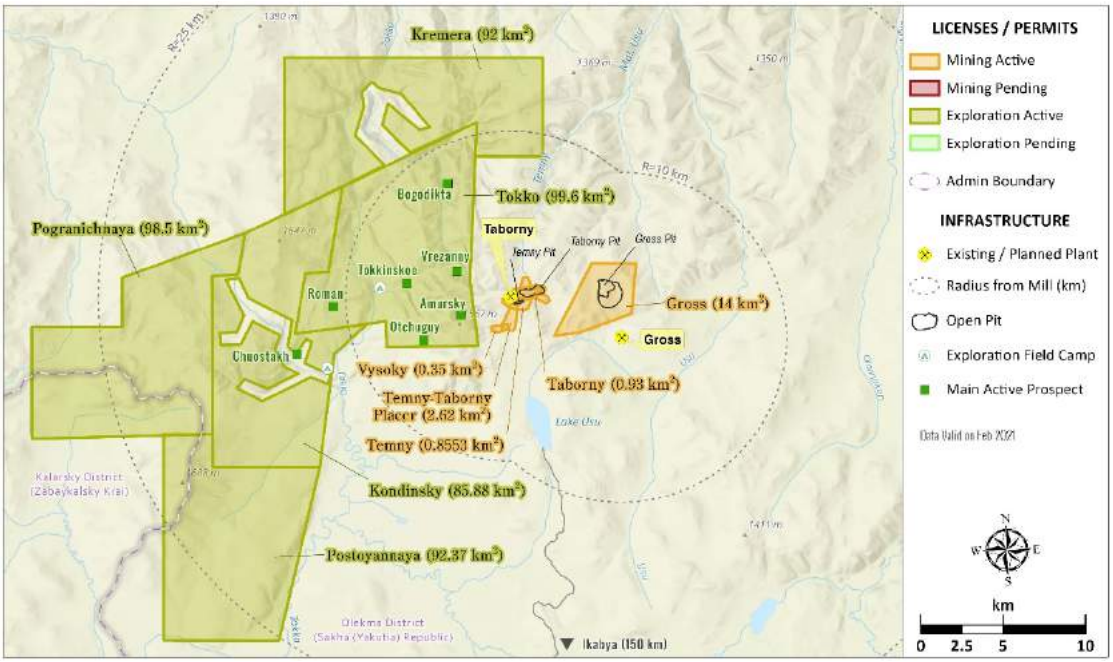


Figure 4-1: Gross Licence Area and Neighbouring Nordgold Assets (Nordgold)

[8] *Previously "Neryungri-Metallic" LLC covered both Gross and Taborny mines. Since 2018, Taborny mine and associated deposits constitute a separate legal entity.*

4.1.2 Access

The BAM railway passes 80 km to the south of the mine. Supply to the site is by rail to Ikabya station, where the trans-shipment facility of "Neryungri-Metallic" LLC is located. From the railhead, transportation is along a 70 km section of the regional Ikabya – Khani road and then via a 90 km access road, operated and maintained by Nordgold[9].

4.1.3 Climate

The climate of the region is sharply continental with large daily and annual fluctuations of air temperature. The area has long cold winters (down to -55°C in December-January) and short warm summers (up to +35°C in July). The maximum temperature range is up to 90°C. The prevailing wind direction is north-west, with an average speed of 2.2 m/s. The average annual precipitation is 365 mm, most of which (about 80%) occurs during the warm season. Snow cover lasts around 7 months (October to May). There is permafrost up to 400-450 m thick in the deposit area.

4.2 Mineral Rights and Primary Approvals

4.2.1 Mineral Rights Held

"Neryungri-Metallic" LLC has one active production licence, YaKU 03559 BE, issued in 2013 and valid to July 2033. The licence area is shown in Figure 4-1.

The licence of "Neryungri-Metallic" LLC has no special environmental or social requirements. The licence agreements define general requirements to comply with the Russian environmental and mineral resource legislation, and to develop a (temporary) closure program one year before the planned closure date.

4.2.2 Land Tenure

Gross is located on Forestry Fund land leased from the State. The Company has leased 28 land plots with an area of 1,499 ha and has developed and had approval for forest management projects in compliance with Forestry legislation. Most leasing agreements expire in the period 2027-2034.

The Company is currently applying for additional leases in response to a recent review of the project infrastructure areas against existing lease boundaries which show encroachment on some boundaries, specifically the leached ore dump, ore crushing site, open pit, waste rock dump, and the off-balance/ low-grade ore stockpile locations.

Compensatory reforestation is required for any forest clearance. The Company plans to undertake compensatory reforestation in 2021 for the Gross mine development and the Taborny mine expansion. The Federal Forest Agency has given preliminarily approval for the reforestation of a 109 ha plot.

4.2.3 Environmental Approvals

Table 4-1 summarizes the environmental permits that "Neryungri-Metallic" LLC had in December 2020.

[9] *The land plot for the access road is federally owned and leased by the "Rudnik Taborny" LLC.*

Table 4-1: "Neryungri-Metallic" LLC Permitting Documentation

Aspect	Permit	Validity	
		From	To
Waste management	Document # 18/203: approval of waste generation rates and waste disposal limits	2018-12-29	2023-12-28
	Licence 14#00417 for collection, transportation, processing, utilization, neutralization and disposal of wastes of I-IV hazard categories	2018-12-21	Unlimited
	Contracts for the transfer of waste to third parties (mercury lamps, ferrous metals, used batteries, oils, tires, etc.)	Signed/extended annually	
Sanitary protection zone (SPZ)	Sanitary conclusion for the project of the estimated (preliminary) SPZ # 14.01.01.000.T.000248.03.18	2018-03-20	Unlimited
Air emissions	Air emissions permit # PDV-18/171	2018-11-29	2025-11-28
	Air emission rates # 1077 dated 2018-11-29		
Water consumption	Water Use Agreement 14-18.03.04.002-O-ДЗВХ-C-2019-07627/00 (water intake from Usu Lake)	2019-03-14	2020-12-31 (Update in progress)
	Sanitary and epidemiological review of the plan of sanitary protection zone for the water supply source – water intake on Usu Lake, and sanitary protection buffer zones of water pipelines for household and drinking water supply	2018-06-05	Unlimited
Water discharge	Decision to permit the usage of water body # 14-18.03.04.002-P-PCBX-C-2019-07884 / 00 (discharge # 3, shift camp)	2019-07-08	2024-02-01
	Permit for discharge of substances and microorganisms into water bodies # НДС-19/3 (discharge # 3, shift camp)	2019-04-18	2024-02-01

The waste dump, ash dump of the coal-fired power plant, leached ore dump, and landfill are registered in the State Register of Waste Disposal Facilities ("GRORO").

The mine is updating its emissions permit to cover increased power output from the coal-fired power plant, as planned for the mine expansion and recorded in the official project documentation. After obtaining a new permit, the Company will seek approval for the final sanitary protection zone ("SPZ") around the mine site. The deadline for this is 2025.

The mine is routinely inspected by State authorities. Any findings of the inspections are prioritised and addressed by the mine. The most recent inspection by the Rosprirodnadzor in 2019-2020 had findings relating to environmental monitoring, reporting on wastes and treatment of sewage at the camp. Reportedly, these were all addressed on time and the sewage treatment facilities have been upgraded in response to this.

4.3 Geology

The Gross deposit is a structurally controlled zone of potassic metasomatism, hosted by Proterozoic sandstones. Mineralisation is associated with iron and manganese oxides, that follow from primary sulphides, particularly pyrite. The main part of the mineralised zone is truncated by surface topography, strikes east-west for approximately 1 km, dips shallowly to the south with a down-dip extent of 1.5 km, and is up to 400 m thick.

The deposit is situated in the western part of the Aldan shield, in the southwestern corner of the Uguskiy Graben. The graben is filled with Lower Proterozoic sediments of the Olonnokonskiy Formation, which discordantly overlie early Archaean gneisses and a later Archaean intrusive complex.

The major regional structural features are: 1) the N-S striking Tokkinsky Fault Zone (along the western margin of the Uguskiy Graben); and 2) WSW-ENE striking faults of the Kondinsky Fault System, which cut across the Tokkinsky Fault Zone, and are broadly parallel to the southern margin of the graben. The main geological features of the Uguisky Graben are shown on the geological map in Figure 4-2.

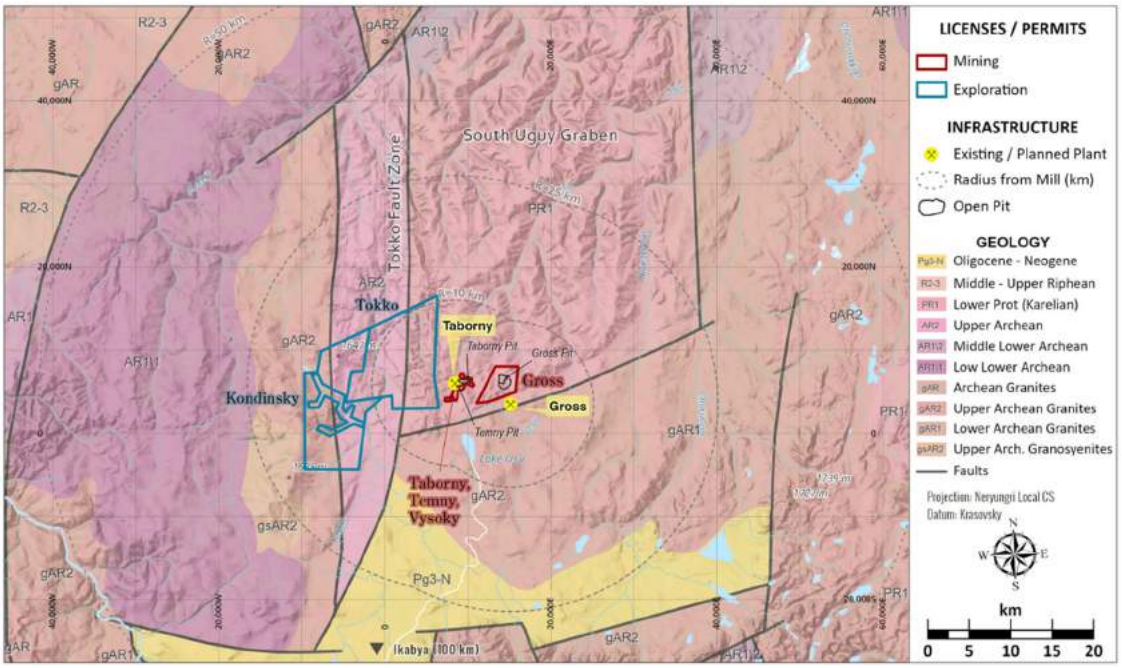


Figure 4-2: Uguskiy Graben Geological Map showing Major Deposits and Faults

Gross mineralisation is hosted by the Olonnokonskiy Formation, and in the project area this formation comprises up to 20-30 m of basal conglomerates and gravels, overlain by 300-400 m of fine to medium grained sandstones. The sediments are shallow-dipping to the north, northeast or east.

The Olonnokonskiy Formation host rocks have undergone multiple tectonic and magmatic activation events, dominated by deformation and metasomatism associated with the intrusion of Mesozoic dykes and sills.

The main part of the mineralisation is located between two major south-dipping reverse faults: the Bottom Thrust and the Granichniy Fault. Between these faults are many secondary structures, dipping both north and south. To the south of the main mineralisation is a thinner zone of mineralisation, concentrated around a shallow north dipping structure.

The thickness of alluvial and glacial Quaternary cover sediments is negligible; usually no more than 5 m.

Mineralisation was introduced by potassic metasomatism, and is controlled by structural features within the fault-bound wedge of sandstone host rock.

Gold and silver are the only elements of economic significance. Gold is strongly correlated with potassium and arsenic. Sulphide content on average is less than 1%. The dominant sulphide mineral appears to have been pyrite. The sulphides have been oxidised to limonite, down to a depth of approximately 400 m.

The gold is seldom visible, and mainly occurs as micron-scale particles.

The main part of the mineralised zone is truncated by surface topography, strikes east-west for approximately 1 km, dips shallowly to the south with a down-dip extent of 1.5 km, and is up to 400 m thick.

The overall orientation and continuity of mineralisation is aligned with the south-dipping reverse faults that bound the deposit. Within the deposit, there are local variations in the orientation of the mineralisation, corresponding to the secondary structures between the bounding faults.

SRK considers that the geology, style and distribution of mineralisation is well understood for Gross, this knowledge of the controls on mineralisation provides a solid foundation for resource estimation.

4.4 Mineral Resources

4.4.1 Introduction

The Mineral Resources presented herein are based on review of an estimate prepared internally by Nordgold effective as at 31 December 2020. The key aspects are summarised below.

4.4.2 Exploration History

The likely presence of mineralisation at Gross was identified in from regional mapping in 1969, followed by surface geochemical sampling and radiometric surveys.

Drilling

In 2004-2005, a core drilling program, on the exploration licence that surrounds the Taborny mining license, intersected low grade gold mineralisation of the Gross deposit. A more intensive drilling program in 2008 revealed several of the main mineralised structures. This 2008 drilling represents the earliest data included in the Mineral Resource database.

All exploration information used to prepare the Mineral Resource estimate was collected by Neryungri-Metallik, LLC, which is fully owned by Nordgold. The database contains 844 diamond core holes (242,985 m), and 294 RC holes (22,034 m). The drillholes were designed to be vertical, and the hole spacing ranges from 20 x 20 m, to 80 m (north-south) by 160 m (east-west).

Over 90% of the diamond core metres were drilled from 2008 to 2013. The remaining core holes were drilled in 2020. RC holes were drilled from 2017 to 2020. Grade control (since mining commenced in 2017) is by blast hole sampling, however these holes were not used for the Mineral Resource estimation.

SRK carried out a statistical comparison of the diamond core assay versus the RC assays, constrained to where the two types of drilling are within 10m of each other, and found no evidence of significant relative bias between these two sources of grade information.

The core drilling was conducted using Boart Longyear LF90 rigs, and is mostly HQ diameter (63.5 mm). The RC holes were drilled using an Atlas Copco LY55N drill rig equipped with XRVS466 compressor. RC drilling diameter was 122-124 mm.

Diamond core recovery is reported as typically high (95% to 100%), based on comparing the total length of core pieces to the length of each drilling run. No correlation is apparent between recovery and grade, therefore potential biases related to core loss are not considered to be a material risk to confidence in the Mineral Resource estimate.

Sampling and Assays

Sampling was mostly on fixed 1 m intervals. The entire lengths of holes were sampled, because visual identification of mineralisation is difficult. For the diamond core holes, half core was sampled, and the other half stored. Rock chips from RC drilling were split, using a cyclone splitter, to produce 4-5 kg samples.

Crushing, splitting, and grinding of core and RC samples was done on site, to prepare 200 g subsamples (with a particle size of <0.074 mm) for shipment to SGS Laboratories in Chita. Samples were analysed for gold by fire assay (SGS method FAA515). Core samples that produced gold results above the lower detection limit were also analysed for silver (SGS method AAS12E). Gold or silver analyses that reach the upper detection limit were reanalysed by fire assay with gravimetric finish (SGS methods FAG3030, FAG313).

QA/QC

Quality control sampling included resubmitting duplicate pulps, and analysis of duplicate pulps by an umpire laboratory, blank samples, and analysis of certified reference materials. Each category of quality control sampling was carried out at a proportion of 2-5% of the primary samples. Overall, the results of the quality control sampling reveal no problems with accuracy or precision significant enough to cause material concerns about the quality of assay information supporting the Mineral Resource estimate.

The database is stored in Geobank (one of the Micromine software tools). During loading of data, Nordgold validated approximately 5% of the database against original paper logbooks, and found no materially significant level of errors. Checks for internal consistency, during loading and analysis in other software (Datamine, Leapfrog), further confirmed the overall cleanliness of the database.

4.4.3 Mineral Resource Estimation

Geological Modelling

The estimation domains were modelled in Leapfrog Geo, based on grade shells at 0.2 and 0.3 g/t Au thresholds. The anisotropy of the grade shell contouring was guided by a wireframe interpretation of the major faults that control mineralisation continuity. Additional to the grade shells, the deposit was divided into six structural domains, based on the interpreted extents of influence of these major faults.

Oxide, transitional and primary domains were also modelled in Leapfrog Geo, based on the logging recorded in the database. A zero cut-off, the Primary material contributes less than 8% to the total tonnes within the mineralised domains, within the constraining resource pit shell and below the end of 2020 topography. Based on technological mapping so far, the metallurgical recovery for Primary material is estimated to be in the order of only 25% (compared to 50% to 82.5% for various grade ranges of Oxide and Transition, depending on crushing or auto-stacking before leaching). The main features of the geological model and structures are shown in the cross section through the deposit in Figure 4-3.

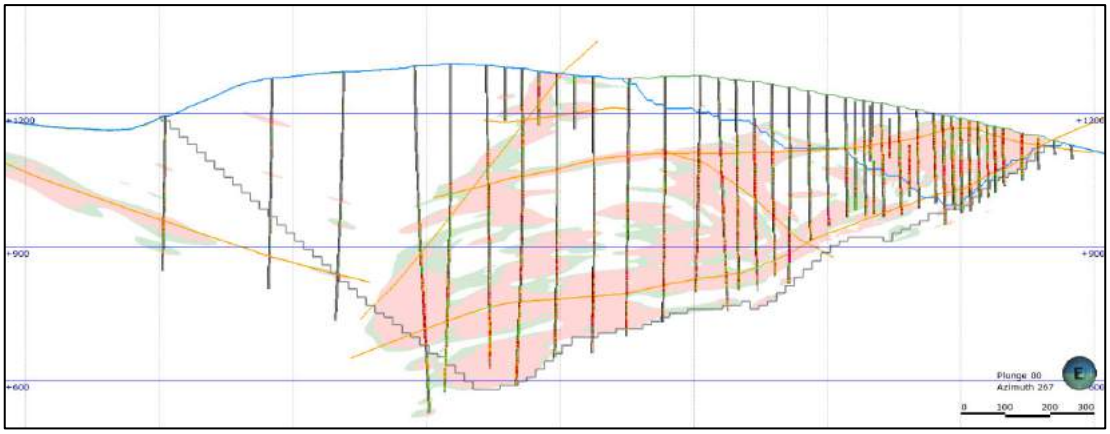


Figure 4-3: Cross section looking west, on approximately 14250E. Green trace = original topography.

Note: Blue trace = mining topography at end of 2020. Grey trace = USD1750/oz Mineral Resource pit shell. Orange traces = Structures controlling the anisotropy of grade shell modelling and estimation. Red shading = >0.3 g/t Au mineralisation domain. Green shading = 0.2-0.3 g/t Au mineralisation domain

Geostatistical Estimation

Au and Ag block grades were estimated by Ordinary Kriging, using Datamine software. The estimation approach can be summarised as follows:

- Composite length 2 m.
- Block size 20 x 20 x 6 m, with sub-blocking to 5 x 5 x 2m.
- Estimation within the 0.2 to 0.3 g/t Au grade shell uses only composites within this domain (hard boundary domain).
- Estimation within the >0.3 g/t Au shell uses composites from the 0.2 to 0.3 g/t Au grade shell as well (soft boundary domain).
- Separate capping, variogram model, and search neighbourhoods for each of the six structural domains, but soft boundaries between these domains.
- Capping thresholds for Au range from 1.5 g/t to 4 g/t Au.
- Capping thresholds for Ag range from 3 g/t to 30 g/t Ag.
- Variogram model for the largest domain (BD domain, which contains almost 50% of the composites) has 0.28 nugget and two structures. First structure 0.37, with ranges in the Major, Semi-major, and Minor directions of 49 m, 17 m, and 65 m, respectively. Second structure 0.35, with ranges 155 m, 104 m, and 66 m. Main direction of continuity is along the strike, instead of down dip. The variogram model parameters for this domain are reasonably representative of the parameters used for the other domains.
- Three- or four-pass search used, with parameters varying for each estimation zone, but generally up to 20 composites per block estimate.
- Dynamic anisotropy: Orientation of variogram models and search ellipsoids varies according to the influence of the interpreted major mineralisation-controlling structures.

The block model was validated visually and statistically against the original input data and against the estimation composites. This validation included preparation of swath plots.

Density

Block model volumes are converted to tonnages based on a dry bulk density factor of 2.41 for oxide mineralised domains, 2.48 for transitional mineralisation, 2.60 for primary mineralisation, and 2.53 for waste. These factors were estimated based on hydrostatic weighing of waxed samples, carried out in 2011 and 2012. Reconciliation since mining began in 2017 has confirmed the oxide and waste factors as reasonable.

Classification

The classification categories are assigned based primarily on drillhole spacing (Figure 4-4). The portion of the deposit covered by 20 x 20 m drilling is classified as Measured. The Indicated classification applies to the portion of the deposit covered by drilling up to 80 x 80 m spacing, and in some cases 80 x 160 m spacing (where high mineralisation continuity is interpreted along the lower bounding fault structure). The remaining part of the Mineral Resource is classified as Inferred. There is no defined drillhole spacing limit on Inferred, but the grade shell contouring settings effectively constrain extrapolation to not more than 150 m from drillholes.

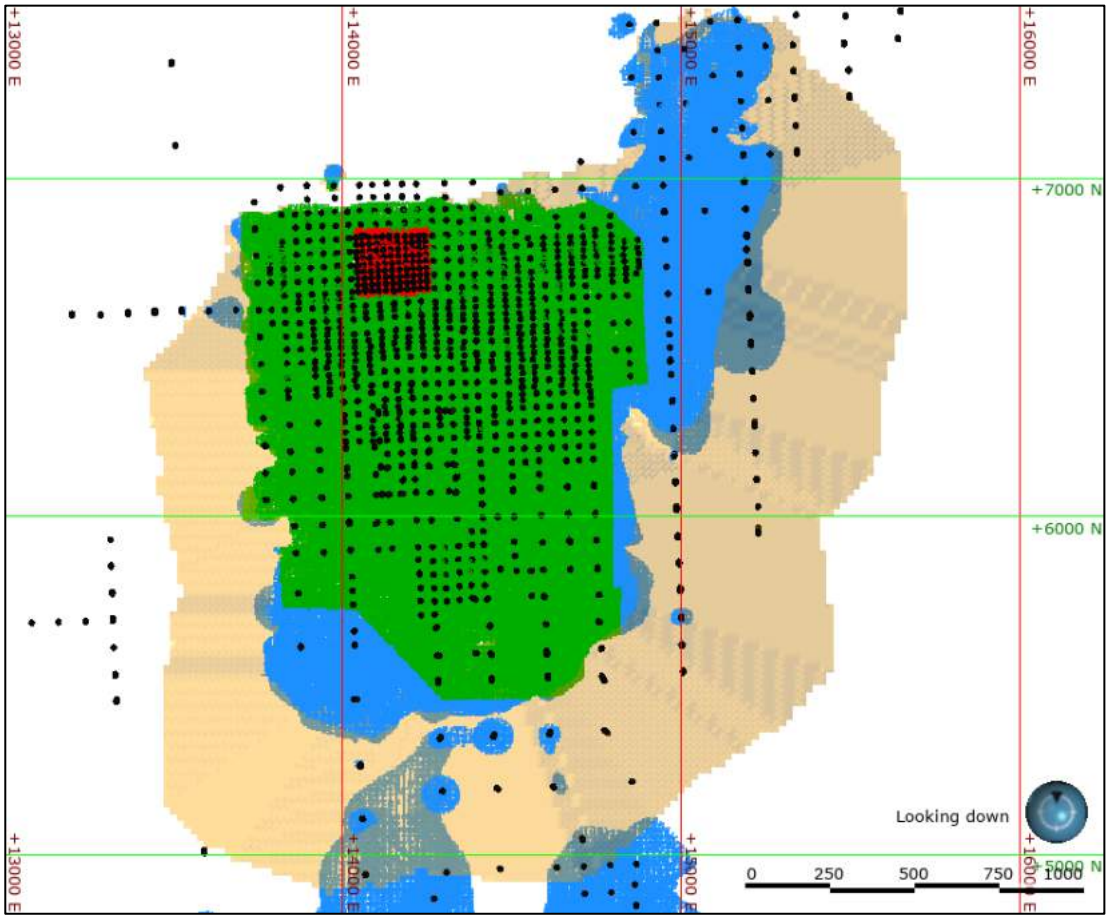


Figure 4-4: Gross Plan View of Resource Estimation Drilling, and Classification Categories Applied to the Gross Block Model.

Note: Red = Measured; Green = Indicated; Blue=Inferred; Orange = USD1750/oz pit shell

Reconciliation

Since mining commenced in 2017, ore has generally been classified into two classes:

- 0.2 to 0.4 g/t Au; and
- >0.4 g/t Au.

Reconciliation of the >0.4 g/t Au portion of the Mineral Resource estimate shows that the estimate has performed within acceptable uncertainty limits, given the Mineral Resource classifications applied, when tonnes, grade and metal are compared against the grade control model (from blast hole sampling), and against Actual (survey of volumes added to heap leach, and belt-sampling of crushed ore grades).

Reconciliation of the 0.2 to 0.4 g/t Au portion of the Mineral Resource estimate shows that the estimate is consistently underestimating the tonnes and metal in this category, and the grade control model has 40-50% more of this material type. For this grade class, the average grade of the resource model during the reconciliation period is 0.29 g/t Au, and the average grade of the grade control model is 0.30 g/t Au. To date, the lower grade ore has generally been stockpiled instead of added to the heap leach, so a meaningful comparison against actual is not possible for this material type.

4.4.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Gross (Table 4-2) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction ("RPEEE"), as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 4-2, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.27 g/t Au cut-off grade ("CoG") based on a long term Au price of USD1,750/oz. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 105% dilution and 95% recovery, and 50-82% processing recovery depending on material type and grade, open pit mining cost of USD0.88/t, processing cost of USD4.10 or 5.30/t_{ore} dependent on crushed or truck dumped, G&A at USD1.20/t_{ore}.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

Table 4-2: Gross Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Gross	Gross	0.27	751	0.44	11	581,056	0.55	10,316	581,807	0.55	10,327	125,649	0.46	1,850	707,456	0.54	12,177
	Stockpiles		-	-	-	17,627	0.32	182	17,627	0.32	182	-	-	-	17,627	0.32	182
	Total Gross		**751**	**0.44**	**11**	**598,683**	**0.55**	**10,498**	**599,434**	**0.55**	**10,509**	**125,649**	**0.46**	**1,850**	**725,083**	**0.53**	**12,359**

4.4.5 SRK Comments and Recommendations

SRK accepts the resource model and classification prepared by Nordgold, and the Mineral Resource statement above is reported from this model without adjustment.

In earlier reviews, Nordgold and SRK have identified that the volume of the 0.2-0.3 g/t Au grade shell domain is likely to be underestimated. This conclusion about the resource model appears to be confirmed by the consistent underestimation of tonnes in the low grade (0.2-0.4 g/t Au) class, when the resource model is compared against the grade control model.

The underestimation of low grade tonnes leads to underestimation of metal above 0.4 g/t Au in the regularised Ore Reserve model, because the regularisation process involves weighted averaging of all grade classes from the sub-blocked Mineral Resource model.

Therefore, for the current Mineral Resource and Ore Reserve statements, the underestimation of low grade was addressed by applying a factor of 1.05 to the tonnes and metal reported from all grade classes of the regularised Ore Reserve model. The factor was not applied to the Mineral Resources, because a universal factor applied to the sub-blocked model would have the side effect of increasing the higher grade (>0.4 g/t Au) component of the model, which, in SRK's opinion, is not overestimated.

A more detailed program has been developed to resolve the underestimation of low grade for any future update of the Mineral Resource model. Recommendations made by SRK in separate reports are the basis for this work and suggest that Nordgold could apply alternative methods and parameters for generating the lower grade domain of the Mineral Resource estimate. Potential adjustments include contouring threshold, selection of isovalue (if an indicator approach is used for the grade shell), composite length, and wireframe resolution.

4.5 Mining and Ore Reserves

4.5.1 Current Mining Operations, Operating Strategy and Mining Fleet

Gross is a conventional open pit gold mine which has been operational since September 2018 mining low grade gold ore. Current mining operations at Gross are focused on a single open pit, as shown in Figure 4-5.

The mine is owner operated with a mining cycle consisting of drilling, blasting, loading, hauling, dumping and stockpiling. Primary loading and hauling are largely done by the Komatsu PC 3000 (12 m³) loaders paired with CAT 785 (120 t) dump trucks with average cycle times of 15-22 minutes.

The ore from Gross is fed into a heap leach processing facility on site for the extraction of gold with the current crushing facility designed for a maximum throughput of 12 Mtpa, constrained by primary and secondary crusher capacities. Since 2020, processing throughput was increased by direct "truck dumping" onto the heap leach pads (without crushing) to approximately 16 Mtpa in 2020 and is set to be increased to 18 Mtpa from 2021 onwards (12 Mtpa Crushed + 6 Mtpa Truck dumped). Current productivity rates for the primary fleet are aligned with benchmark data and a ramp up to 18 Mtpa is well underway.

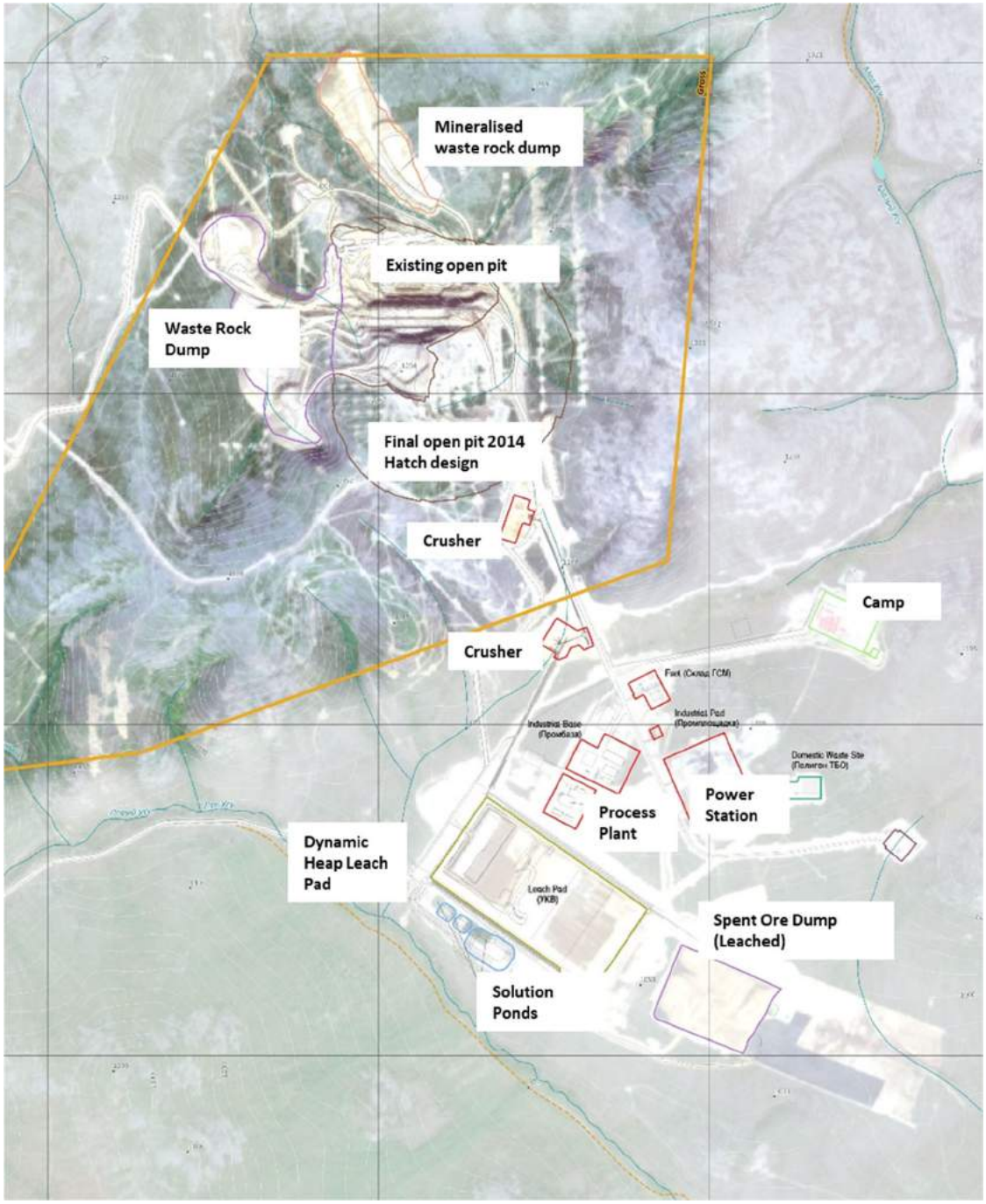


Figure 4-5: Gross Mine Layout (Nordgold 2020*)*

4.5.2 Historical Mining Production

Production has significantly increased since inception in 2016 and is presented in Table 4-3. Based on historical mining production, SRK believes that mining activities is well underway to achieve 18 Mtpa in 2021. Prior to commissioning of the Dynamic Heap Leach Facility in September 2018, ore mined from Gross was trucked to Taborny mine and processed at the Taborny HLF(a total of 6.4 Mt of ore).

Table 4-3: Gross Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Mined	(kt)	5,441	8,383	23,189	44,776	60,540
Waste	(kt)	2,399	5,707	15,216	30,236	44,415
Capital Stripping	(kt)	0	540	7,560	18,798	26,925
Operating Stripping	(kt)	2,399	5,168	7,656	11,438	17,489
Stripping ratio	(t_{waste}:t_{ore})	0.79	2.13	1.91	2.08	2.75
Ore	(kt)	3,043	2,675	7,973	14,540	16,125
	(g/t Au)	0.55	0.62	0.61	0.59	0.54
	(koz Au)	54	53	155	275	279

4.5.3 Open Pit Geotechnical Considerations

The Gross open pit mine is located in a mid-mountainous relief, with flat watersheds and intersected by river valleys. The elevations of the watershed surfaces are up to 1400 mRL, the relative elevations usually do not exceed 300-400 m. Natural topographic slope angles are up to 25°- 30°. The open pit is advancing to the south (cutting into the topographic high point) and at its deepest is some 230 m. The maximum depth of the ore bodies from surface is 450 m. The rock mass of the ore zone and the ore itself is highly fractured, while the host rocks are represented by fine and medium grained red sandstones with this material being less fractured and more competent.

The deposit is located within a series of faulted blocks in addition to thrust faults that dip shallowly to moderately to the south. Bedding is strongly developed and in general dips between 30° and 50° towards 350° to 030°. Bedding dip and dip direction is variable, and in addition to an orthogonal joint set and other variable jointing, blocky conditions are prevalent. Two rock mass domains have been defined as a function of the level of weathering and alteration. Group 1 has a GSI 57 and Group 2 a GSI 48. Figure 4-6 shows an aerial view of the pit (looking south east).

Figure 4-6: Gross Pit looking South East (August 2020)

Pit slope design studies for the open pits have been carried out by SRK Russia in 2020 and the design criteria used to develop the LoM pit designs are summarised in Table 4-4. The pit is defined by three distinct design domains: North and East, South, and West.

Table 4-4: Gross Slope Design Criteria used to Develop 2020 LoM Pit

Pit	Wall	Bench Face Angle (°)	Berm Width (m)	Bench Height (m)	Inter-ramp Angle (°)
Gross	N & E	65	12	27	47.7
	S	60	13	27	43.4
	W	60	12	27	44.4

The South and West walls are dominated by strong and variable bedding planes that control bench scale stability and also have the potential, given their persistence, to control inter-ramp scale stability. Identified major structures are present, although these do not currently intersect the pit at adverse orientations and as such, do not generate major instability. There are areas of the pit where there is berm loss and scree formed on the remnant berms. This has the potential to generate rockfall issues, especially when located above haul roads and working areas.

The slope angles developed in 2020 will be updated using data collected from a specific geotechnical and hydrogeological data collection programme planned for 2021. Given that the lower third of the final pit slope will be located below the permafrost, it is critical that the effects of pore pressure on the final walls are understood, especially given that the lower section of the South wall may also be formed from lower strength Group 2 material.

SRK has been engaged by the Company to develop and implement industry best practice Ground Control Management Plans (“GCMP”), Surface Water Management Plans (“SWMP”) and Ground Water Management Plans (“GWMP”). As such SRK will be working to incorporate the current processes used at the mine into the new plans, define gaps and assist Nordgold to put in place actions plans to resolves these gaps in knowledge.

4.5.4 Mine Water Management

Surface water flow measurements on the mine site are undertaken as legally required, for discharge permits and every five years. The mine’s measurements are limited to spot measurements and a recent study by SRK (SRK, 2020) recommended further surface water flow gauging be carried out in streams and rivers in the vicinity of both pits. Contact surface water run-off from industrial sites will soon be collected prior to discharge from site. Collection facilities are planned and approved in the discharge permit.

The Gross open pit is currently mining at around approximately 150 m below ground level (“bgl”), within the permafrost, working towards a final pit depth of around 450 m. Permafrost depth is variable, being deepest under the ridges and shallowest under the river valleys where taliks are present. The exact depth of permafrost is not fully understood although it is thought that the final Gross pit might extend as far as 250 m below the base of the permafrost. Groundwater inflows are negligible and limited to localised melting. There is a strong correlation between localised seepage in the pit (where groundwater melting has occurred), geological structures, and small-scale failures. One hydrogeological borehole was recently drilled, logged for temperature and pump tested near Gross open pit in 2020. Other groundwater monitoring is limited to some sampling boreholes near the landfill and leached ore dump which have been dry to date.

The Gross open pit is potentially nearing the base of the permafrost. The Company is planning a study to further characterise the hydrogeological and permafrost regime. This will estimate the likely groundwater inflows and pore water pressure implications and will provide input to geotechnical slope-stability design work.

Raw water demand for the mine is around 1.3 Mm^3/year, mainly for the heap leach processing facilities and a coal-fired power station. Potable water demand is around 0.1 Mm^3/year. This demand is not expected to increase based on current plans. Most of the raw water demand is sourced from Lake Usu, located around 10 km to the south of the Gross open pit. Lake Usu is also used to supply water to Taborny. Abstraction for Gross represents around 75% of the total water abstracted from the lake; Taborny abstracts the remaining 25%.

4.5.5 Open Pit Mine Design and Planning

Modifying Factors for Mine Design

The modifying factors for the Gross design are shown in Table 4-5. Based on historical reconciliation, a mining dilution, recovery, and a reconciliation factor was calculated. The reconciliation factor is applied in such a way that mine design ore tonnages are increased by a factor 1.05 at the average grade within the design. The factor is therefore applied to increase ore tonnage and metal content by 5%. SRK notes the following regarding the reconciliation factor:

- Nordgold and SRK have previously recognised that the sub-blocked resource model significantly underestimates the tonnage of the material in the low grade (0.2-0.4 g/t Au category).
- A 2018-2020 comparison of sub-blocked resource model to grade control model, for the low-grade ore, shows that the grade control model consistently estimates 40%- 50% more tonnes with no corresponding reduction in grade.
- Early in 2020, Nordgold requested SRK to examine the underestimation of the low grade as part of separate review project, and SRK made recommendations to adjust the grade shell domain modelling parameters.
- Because of the time-line commitments for the CPR schedule, no changes to the resource modelling methodology were implemented in 2020, and Nordgold prepared the current resource model using the approach that has been in place since 2019.
- In the regularisation process, a sub-celled (xyz 5 x 5 x 2 m) resource model were converted to a reserves model (xyz 10 x 10 x 9 m) based on a selective mining unit ("SMU") approach. The regularisation process implies that high-grade ore blocks are diluted with low grade blocks and zero grade blocks. Once a cut-off grade is applied on diluted grades in the regularised model, metal content is often lost in the due process.
- The reconciliation between the regularised model and actual processing data from 2018-2020 showed that high-grade ore (>0.4 g/t Au) are underestimated by 5% in the reserves model. Historically, only high-grade ore has been processed, so no actual data were available for reconciliation of the low-grade ore with the regularised model.

Whilst the reconciliation factor is applied for the mine design discussed in this CPR, SRK expects that the modelling problem leading to the underestimation of the low grade tonnes will be corrected during the course of 2021 and improved reconciliation between the regularised model, the sub-blocked model and the historical actuals would be realised.

Table 4-5: Gross Modifying Factors

Parameter	Unit	Value
Smallest Mining Unit (xyz)	m	10x10x9
Mining Recovery	%	98
Mining Dilution	%	105
Reconciliation Factor	%	105

Ore Reserve Case Mine Design

The pit design for Gross is shown in Figure 4-7, along with the bench geometry which was incorporated in the design (Table 4-6). The pit has been designed based on the geotechnical parameters recommended by SRK and presented in the previous section and a pit optimisation shell generated from measured and indicated resources only. The ramps have been designed at a gradient of 1:10 and at a width of 40 m for double ramps and 20 m for single ramps. The final mining benches will be 27 m high, to be mined in 9 m flitches.

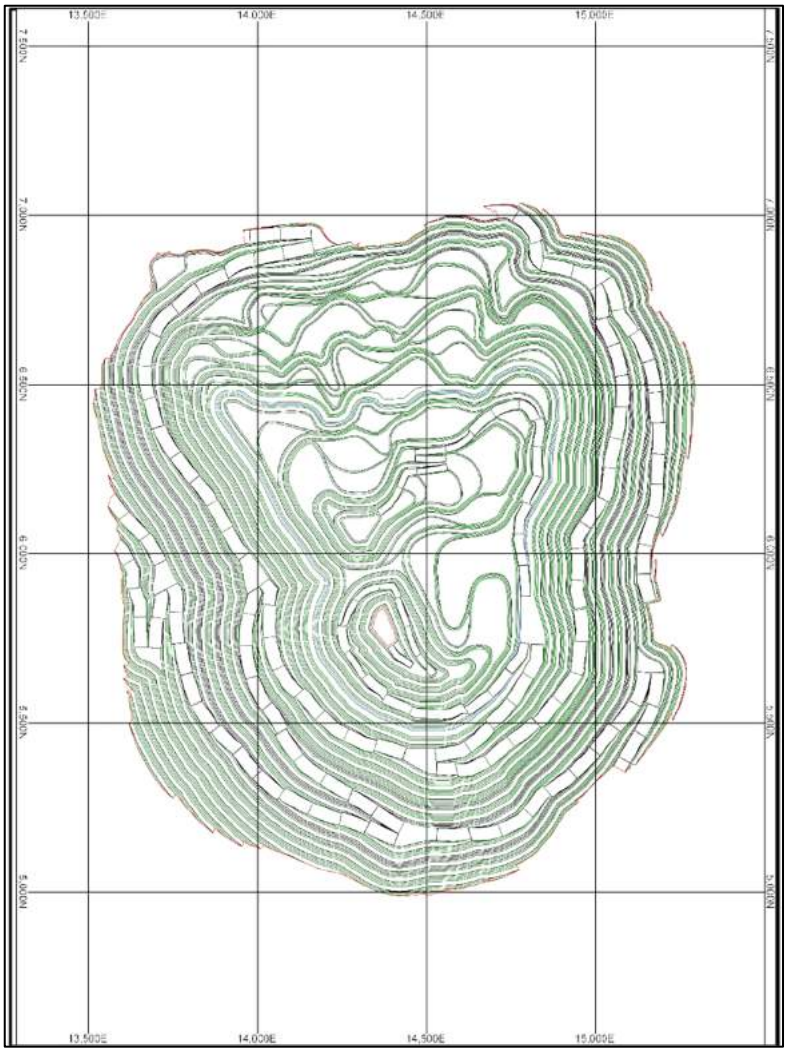


Figure 4-7: Gross Mine Pit Design (Ore Reserve Case) (Nordgold 2021)

Table 4-6: Gross Pit Design Bench Geometry

Parameter	Unit	Value
Bench Height	m	27
Face Angle	°	60-65
Berm Width	m	12-13
Ramp Width – Double Lane	m	40
Ramp Width – Single Lane	m	18
Ramp Gradient	ratio	1:10

Ore Reserve Case Life of Mine Plan

The 2020 Ore Reserve Case LoMp for Gross is Nordgold's mine plan optimised for the extraction of Measured and Indicated Resources and is aligned with the physicals presented in the Ore Reserves statement. The Ore Reserve Case LoMp forecast for the Gross open pit is shown in Table 4-7 for 2021-2026. In the Ore Reserve Case, the processing feed is set at 18 Mtpa to a heap leach processing plant, with 12 Mtpa crushed and stacked using a mechanical system, supplemented by a 6 Mtpa direct truck dumping regime. The overall mined tonnage profile peaks at 84 Mtpa from 2023 onwards and implies a life of mine of 24 years. Based on the historical mining tonnages achieved in 2020, SRK believes Nordgold to be well underway to achieve 18 Mtpa in 2021 and beyond. The 2021, 2022 and 2023 forecast is based on Nordgold's BP, which is a detailed medium-term plan.

Table 4-7: Gross Forecast Mining Production Statistics for Ore Reserve Case LoMp, 2021 to 2025 and for Life of Mine to end of Mining in Q1 2041

Statistics	Units	2021	2022	2023	2024	2025	LoM total (mining to 2041)
Mined	(kt)	83,118	83,590	84,000	84,000	72,663	**1,463,615**
Waste	(kt)	51,624	59,685	57,518	64,675	64,949	**1,061,801**
Ore	(kt)	31,494	23,906	26,482	19,325	7,714	**401,814**
	(g/t Au)	0.41	0.43	0.44	0.44	0.43	**0.50**
	(koz Au)	420	327	375	275	107	**6,401**
Stripping ratio	(t_{waste}:t_{ore})	1.64	2.50	2.17	3.35	8.42	**2.64**

Base Case Life of Mine Plan

The 2020 Base Case LoMp for Gross is Nordgold's operating mine plan and provides the underlying detail that supports the economic assessment of the Ore Reserves in the Ore Reserve Case. Table 4-8 shows the Base Case LoMp forecast for the Gross open pit for 2021-2025 and for the LoM to 2036. Both the Ore Reserve Case and Base Case follow the same production profile as Nordgold's BP for Gross in years 2021 to 2022.

Beyond 2023, the Base Case LoMp is optimised for the inclusion of Inferred material and incorporates a production ramp up to 26 Mtpa Ore to support a processing facility expansion. The expansion will require additional waste stripping with total mined tonnage to increase to approximately 118 Mtpa by 2024. The higher production profile reduces the current LoM to 19 years. The Base Case LoMp is supported by a scoping study level / preliminary economic assessment ("PEA") for the expansion to 26 Mtpa with a Feasibility study due to be completed in 2021. SRK has authored the mining sections of the PEA (optimisation, strategic schedule, design and scheduling) and reviewed the other inputs to the study, as prepared by the Company and other third party engineering companies (metallurgy, recoveries and additional processing infrastructure, and associated operating and capital costs) and believe it is grounded on reasonable and unbiased assumptions and should form a solid basis for the Feasibility Study development.

Table 4-8: Gross Forecast Mining Production Statistics for Base Case LoMp, 2021 to 2025 and for Life of Mine to end of Mining in Q1 2036

Statistics	Units	2021	2022	2023	2024	2025	LoM total (mining to 2036
Mined	(kt)	83,118	83,590	92,082	118,000	118,000	**1,481,164**
Waste	(kt)	51,624	59,685	69,951	85,931	86,365	**1,040,935**
Ore	(kt)	31,494	23,906	22,131	32,069	31,635	**440,229**
	(g/t Au)	0.41	0.42	0.44	0.45	0.54	**0.50**
	(koz Au)	420	326	315	466	554	**7,022**
Stripping ratio	(t_{waste}:t_{ore})	1.64	2.50	3.16	2.68	2.73	**2.36**

4.5.6 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 4-9. The Audited Ore Reserve Estimate as of 31 December 2020 is tabulated in Table 4-10.

In reporting the Ore Reserves as stated in Table 4-10, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.24 g/t Au CoG based on a long term Au price of USD1,400/oz within a final pit design. Applied open pit mining factors are 105% dilution and 95% recovery, 50-82% processing recovery depending on material type and grade, open pit mining cost of USD0.88/t, processing cost of USD4.10 or 5.30/t_{ore} dependent on crushed or truck dumped, G&A at USD1.20/t_{ore}.
3. Ore Reserves have demonstrated economic viability.
4. The pit inventories were constrained within the Company's existing LoM pit designs.
5. The Ore Reserve comprises a mine life of approximately 24 years.
6. Ore Reserves are presented on a 100% basis.

Table 4-9: Cut-off Grade Parameters

Parameter	Value
Gold Price (USD/oz)	1,400
Refining Cost USD/oz)	2.48
Royalty (%)	5.72
Metallurgical Recovery	
Mineralised Waste - Oxides (0.2-0.3 g/t Au) (%)	50
Low Grade - Oxides (0.3-0.4 g/t Au) (%)	66
Medium and High Grade - Oxides (above 0.4 g/t Au) (%)	82.5
Medium and High Grade - Oxides – Truck dumped (above 0.4 g/t Au) (%)	79.6
Transitional (above 0.3 g/t Au) (%)	60
Total Processing Costs – Crushed (USD/t)	3.60
Total Processing Costs – Truck dumped (USD/t)	4.12
General & Admin. (USD/t milled)	1.2
Total Ore Based Costs – Crushed (USD/t milled)	4.80
Total Ore Based Costs – Truck dumped (USD/t milled)	5.32
In situ Cut-off grade (g/t Au)	0.24

Table 4-10: Gross Gold Mine Ore Reserve Statement as at 31 December 2020

			Proved			Probable			Proved + Probable		
Mineral Asset	Deposit	CoG Au (g/t)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Gross	Oxide	0.24	394	0.4	6	373,160	0.5	5,901	373,554	0.5	5,907
	Transitional	0.24	-	-	-	28,260	0.5	494	28,260	0.5	494
	Stockpiles	0.24	3,749	0.3	39	13,878	0.3	143	17,627	0.3	182
	Total Gross		**4,144**	**0.3**	**45**	**415,297**	**0.5**	**6,539**	**419,441**	**0.5**	**6,583**

4.5.7 SRK Comments

Given that the lower third of the final pit at Gross will be located below the permafrost, the Company has engaged SRK to develop industry best practice Surface Water and Ground Water Management plans to ensure that the of pore pressure on the final walls are better understood, as portions within the pit consist of lower strength material. These plans will address the current gaps in groundwater inflows and pore water pressures knowledge, and include the implementation of a robust groundwater monitoring programme for levels (and quality) to characterise the hydrogeological and permafrost regime. Nordgold has stated that the geotechnical investigation and resulting slope angles developed in 2020 will be updated using data collected from a specific geotechnical and hydrogeological data collection programme planned for 2021. SRK believes that sufficient lead time is available for the completion of this investigation prior to mining into the permafrost.

A reconciliation factor was applied as a modifying factor over and above the mining recovery and mining dilution for Gross, which increased the reserves by 5%. This factor was based on the reconciliation between actual data and the reserve model. SRK has recommended changes to the Resources modelling that led to an underestimation of the low-grade tonnes in the reconciliation between actuals and the reserve model, which in turn affected the regularisation process. SRK is aware that Nordgold has commenced with the re-estimation of the resource model and that an updated resource model will be implemented in 2021.

The current waste rock dump ("WRD") design as well as the current heap leach spent ore dump design is based on PFS designs done in 2012 and were submitted to the authorities for permitting. SRK has reviewed these designs and highlighted that insufficient volume is available compared to the volume to be mined in the both the Ore Reserve Case pit design and the Base Case SBP design due to significant increases in the Reserves since 2012. WRD and spent ore dump designs will be updated as part of a Feasibility Study for the Gross 26 Mtpa expansion (Base Case), which will be incorporated in an expansion permit application to the authorities in 2021. SRK considers the lead time available for design and permit application sufficient so as to not run out of capacity within the current designs.

In the opinion of SRK, the Ore Reserve estimate prepared for Gross Open Pit Gold Mine provides a sound and unbiased basis for development of the Ore Reserve Case LoMp.

SRK is not aware of any mining, metallurgical, infrastructure, permitting or other relevant factors that could materially affect the Ore Reserve estimate. In the opinion of SRK, the Ore Reserves estimate prepared for Gross Open Pit Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

4.6 Mineral Processing

4.6.1 Flowsheet Description

The Gross process plant treats low grade non-refractory sandstone hosted gold ore by heap leaching to produce gold doré on site.

The plant commenced production in 2018 with an initial design production rate of 12 Mtpa of ore. In early 2019 new Technical regulations were published in support of an increase in production to 14.5 Mtpa, followed later in 2020 by a further revision to 18 Mtpa.

The key unit processes are:

- Crushing: Ore is crushed to a nominal -40 mm using a single Nordberg (Metso) Superior MkII 50-65 gyratory crusher followed by two Nordberg (Metso) GP500S cone crushers operating in parallel. Ore is direct tipped into the gyratory crusher. Product from this crusher is screened using double deck (75 mm and 40 mm) screens, with the +40 mm then crushed using the cone crushers operating in open circuit.
- Heap Leaching: The crushed ore is transport to the leach pad using a series of overland conveyors, feeding onto mobile grasshopper conveyors and final to a radial stacker. The original maximum lift height was 12 m; this was increased to 22 m in support of the 18 Mtpa expansion. Leach solution is applied using wobbler sprinklers during the warmer months and drip emitters, which are buried just under the surface of the heaps, in the colder months. The average leach cycle is 145 days, longer in winter and shorter in summer. Process solutions are stored using both tanks and ponds, and the system operates a three tank/pond system: barren, intermediate and pregnant solution. Agglomeration is not required for the ore. The barren solution is heated before being transferred to the pads. All thermal power from the Power station is used for heating of the barren solution. This significantly improves the kinetics of the leaching process, shortening the leaching cycle and increasing recovery throughout the year, but especially in winter as the temperature of the solution is maintained above 20ºC.

- The production increases proposed in 2020 are to be achieved by direct dumping run of mine (“RoM”) ore onto the pad; the increase to 14.5 Mtpa using “balance” ore, and the further increase to 18 Mtpa using “off-balance” (low grade) ore.
- Pad Preparation: The heap leach operated in an “on-off” configuration; that is, there is a permanent pad onto which ore is stacked for leaching, then at the conclusion of the leach cycle the leached ore is reclaimed and sent for to a separate tailings storage facility. The impervious permanent pad base consists of a COLETANCHE® five layer membrane laid over a compacted base. The five layers consist of an anti-root film, a glass fleece, a non-woven geotextile, an elastomeric bitumen binder and finally a layer of sand to assist access and coverage of the overlying material.
- Absorption, Elution and Electrowinning: The absorption circuit consisted originally of three parallel trains with each train consisting of three columns operating in series. A fourth train was added for the 18 Mtpa expansion. Metal recovery is via a pressure Zadra elution and electrowinning circuit that processes carbon in batches of 10 t.
- Goldroom: The sludge from electrowinning is filtered then calcined ahead of being smelted into doré.

Proposed Expansion

Nordgold is considering an expansion of the Gross operation to a total processing capacity of 26 Mtpa. A Preliminary Economic Assessment (scoping study) is currently being finalised, with Lycopodium undertaking the plant design selection, engineering and cost estimation. The expansion scenario is to essentially replicate the existing 12 to 14 Mtpa operation, with the following key features:

- The crushing circuit will be duplicated, but in order to provide buffer capacity between the crushing and heap stacking operation, a crushed ore stockpile will be built. Both crushing circuits will feed it, and two sets of feeders beneath it will feed two sets of conveyors and stackers feeding the heap leach pads.
- The leach pad area will be expanded by adding four panels to the existing 10. Additional pregnant, intermediate and run-off ponds will be built.
- Two additional trains of carbon adsorption columns will be added to the existing four.
- The elution and electrowinning circuit will be duplicated, making use of some of the additional tankage being installed as part of the 18 Mtpa expansion.
- The reagent area will not be expanded; rather reagent make-up will be undertaken on a more frequent basis.

4.6.2 Supporting Metallurgical Testwork

Testwork programs undertaken in support of the development of the Gross include work conducted by SGS Vostok in 2010, 2011 and 2012 and by Irgiredmet in 2014 and 2020.

The 2010 SGS Vostok program tested 12 samples of oxide material. The samples had Au head grades of between 0.46 g/t and 1.12 g/t and Ag head grades of between 2.0 g/t and 5.0 g/t. Bond Abrasion Index tests indicated that material to be moderately abrasive, and percolation tests showed the material to be highly permeable, with no need for agglomeration or binder addition. Diagnostic leach tests showed between 84% and 90% of the gold to be cyanide-

recoverable, and leach recoveries from bottle roll tests conducted on ground ore ranged from 83.4% to 89.1%. Bottle roll tests conducted on material crushed to -5 mm reported recoveries ranging from 86.0% to 92.6%. Column leach tests were conducted on the samples crushed to -40, -20 and -10 mm. Column test leach recoveries showed a slight variation with crush size, more so between -20 mm and -40 mm than between -20 mm and -10 mm, and there was a slight variation in recovery with head grade for the -40 mm samples. Recoveries varied from 83% to 92% at -40 mm, and from 88% to 93% at -10 mm. Leach kinetics also increased with decreasing crush size, again more particularly between -20 mm and -10 mm than between -20 mm and -40 mm. Additional testwork included investigations into the possible presence of passive films for samples where the recovery on the ground material was lower than on the crushed (-5 mm) material, carbon-in-leach tests on certain samples to test for the presence of preg-robbing constituents, and carbon loading isotherm tests.

The 2011 SGS Vostok program tested a further four oxide samples as well as two samples of transition ore and two of fresh (sulphide) ore. The samples had Au head grades of between 0.56 g/t and 1.07 g/t and Ag head grades of between 1.6 g/t and 6.6 g/t. Percolation tests showed the material to be highly permeable, with no need for agglomeration or binder addition, and preg-robbing tests indicated no significant degree of preg-robbing in the samples. Diagnostic leach tests 80-81% of the gold to be cyanide-recoverable for the oxide samples. 68-69% for the transition samples and 27-29% for the fresh samples. Leach recoveries from bottle roll tests conducted on ground ore reported recoveries ranging from 80.0% to 90.5% for the oxide samples, 64.8% to 73.9% for the transition samples and 25.7% to 38.0% for the fresh samples. Bottle roll tests conducted on the samples crushed to -5 mm, -10 mm and -20 mm reported recoveries ranging from 76.3% to 87.9% for the oxide samples, 55.3% to 65.2% for the transition samples and 22.3% to 29.4% for the fresh samples, with little variation with crush size. Column leach tests were conducted on the samples crushed to -20, -10 and -5 mm (all samples) and to -40 mm (most samples). Agglomeration was tested in parallel at the -5 mm crush size for four of the samples. The only notable variation with crush size in the column test leach recoveries was at the -5 mm crush size for the transition samples, and at the -40 mm crush size for the fresh samples. There was essentially no variation in recovery with head grade. Recoveries varied from 80% to 83% for the oxide samples, 64% to 72% for the transition samples and 23% to 30% for the fresh samples. The greatest difference in leach kinetics was between the -20 mm and -10 mm crush sizes. Additional testwork included carbon loading isotherm tests and cyanide detoxification testwork. Other testwork included gravity separation, cyanidation of gravity tailings and for the transition and fresh samples, flotation concentrate oxidation (pressure leaching), cyanidation of flotation and oxidation products and thickening and filtration testwork. The results of this testwork are not detailed here as they are not relevant to a heap leach operation.

In 2012, Nordgold commissioned SGS Vostok to conduct bottle roll tests on just under 3000 drillhole interval samples. The samples were taken from 11 drillholes lying along a single drill line to the east of where the samples for the previous testwork had been taken. The samples also included material from greater depth than had been sampled previously. While the majority of the samples reported recoveries in excess of 80%, there were numerous lower recoveries reported. These were interpreted as being from transitional or fresh material, and there were general trends that a greater proportion of these lower recoveries were from deeper in the drillholes, and that they were more commonly associated with the more altered lithology types.

In 2014, Irgiredmet conducted column leach tests on a sample with a head assay of 0.68 g/t Au, at crush sizes of -40 mm, -170 mm and -700 mm. The column leach recoveries were 78.2% for the -700 mm sample, 86.8% for the -170 mm sample and 85.5% for the -40 mm sample.

In 2020, Irgiredmet tested a sample of "off-balance" ore, with a head grade of 0.34 g/t Au and 0.9 g/t Ag. A diagnostic leach test showed 81% of the gold to be cyanide recoverable. Column leach tests were conducted on the sample at two crush sizes: -60 mm and -200 mm. The column recoveries were 69.9% for the -60 mm crush size and 60.1% for the +200 mm crush size. The results of the column leach tests from these programs are summarised in Table 4-11.

Table 4-11: Gross Column Leach Test Results Summary

Laboratory	Year	Sample Name	Sample Type	Au Head Grade (g/t)	Au Recovery (%) at crush size (mm)							
					-5	-10	-20	-40	-60	-170	-200	-700
SGS Vostok	2010	T-1	Oxide	0.88		92.4	91.1	83.1				
		T-2	Oxide	0.68		92.8	91.5	86.8				
		T-3	Oxide	0.82		93.3	92.8	90.9				
		T-4	Oxide	0.69		92.7	92.7	91.5				
		T-5	Oxide	0.72		89.9	89.2	85.3				
		T-6	Oxide	0.93		91.4	90.4	86.6				
		T-7	Oxide	1.08		93.1	93.1	91.1				
		T-8	Oxide	1.12		89.2	88.1	87.0				
		T-9	Oxide	0.89		91.3	90.8	90.3				
		T-10	Oxide	0.66		92.3	90.7	87.6				
		T-11	Oxide	0.94		88.1	87.2	86.3				
		T-12	Oxide	0.46		90.8	89.9	85.6				
SGS Vostok	2011	T-15	Oxide	0.60	82.2	82.8	81.3					
		T-16	Oxide	0.80	80.4	81.9	81.0					
		T-17	Oxide	0.56	80.6	81.6	81.4	80.3				
		T-18	Oxide	0.71	82.2	82.7	81.7	81.5				
		T-19	Transition	1.07	68.9	66.2	65.4	65.2				
		T-20	Transition	0.90	71.5	65.1	65.0	64.0				
		T-21	Fresh	0.78	26.2	27.2	23.4	23.1				
		T-22	Fresh	0.83	30.2	30.2	29.8	25.6				
Irgiredmet	2017		Oxide	0.68				85.5		86.8		78.2
Irgiredmet	2020		Oxide	0.34					69.9		60.1	

Nordgold also tested the response of Gross ore under production conditions by processing ore from Gross at the Taborny heap leach plant beginning in 2014 and running into the first four months of 2018.

Technical Regulations for the project specify a leach recovery of 82.6% for Au and 20.0% for Ag for "balance" ore, and 60.1% for Au and 15.8% for Ag for "off-balance" ore.

4.6.3 Historical Operating Data

Annual plant operating data for the period 2018-2020 is shown in Table 4-12. SRK notes that prior to commission of Gross' plant facilities in 2018, a total of 6.4 Mt of ore was processed at the neighbouring Taborny heap leach facilities over 2016-2018, statistics for this are included under Section 5.6.3.

Table 4-12: Gross Historical Processing Data (at Gross Heap Leach Facilities)

Item	Unit	2016	2017	2018	2019	2020
Processing Feed	(kt)	-	-	5,345	14,525	16,459
Gold Grade	(g/t Au)	-	-	0.60	0.59	0.54
	(koz Au)	-	-	103	274	285
Gold Recovery	(%)	-	-	83.2%	84.6%	87.5%
Doré Produced	(kg)	-	-	1,958	8,029	8,543
	(koz Au)	-	-	63	258	275

4.6.4 Forecast Operating Data

Summary processing data for the Ore Reserve Case and Base Case schedules are presented in Table 4-13. The Ore Reserve Case has a steady state ore feed to the HLF of 18 Mtpa from 2022 to depletion of the Reserves at end-2040, ramping up from 16.5 Mt planned in 2021. The Base Case ramps up to 26 Mtpa in 2023 as a result of the planned expansion project, with a total mine life of just over 18 years (to Q1 2039). In the Base Case, recoveries are reduced in the later years to around 55%, as a result of processing more low grade transitional material from stockpiles.

Table 4-13: Gross Forecast Processing Summary for Ore Reserve and Base Case

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	419,441	457,856
Gold Grade	(g/t Au)	0.49	0.49
	(koz Au)	6,586	7,206
Gold Recovery	(%)	76.9%	75.1%
Doré Produced	(kg)	157,523	168,478
	(koz Au)	5,064	5,417

4.6.5 Discussion

The Gross processing circuit represents a conventional heap leach format in terms of the feed preparation and metal recovery elements, although the use of a permanent pad and on-off operation is less common for a heap leach. The project built on the experience of the Taborny operation with respect to cold climate operation.

The expansion from the original 12 Mtpa to 18 Mtpa for the Ore Reserve Case, through the addition of direct dumped RoM is reasonable, and the impact of the lower recovery for the RoM material on overall performance will not be too detrimental given the relative insensitivity of recovery to crush size and the only incremental ore addition. Similarly, the proposed expansion to 26 Mtpa for the Base Case where all material will be crushed, and off-balance ore will be used to maintain leach feed production, is a logical move and which is currently the subject of an ongoing Feasibility Study.

The historical operating data for 2014 through to 2017 is for Gross ore leached at the Taborny operation. The reported recovery figures appear to be assumptions, and the operating costs, being identical to those reported for Taborny, are therefore obviously not specific to the processing of the Gross ore at Taborny. The recoveries reported for 2018 and 2019 are slightly higher than the figure of 82.6% as specified in the Technical Regulations, a figure which itself is slightly conservative when compared to the column leach test results.

The column leach test results show very little sensitivity of recovery to crush size, certainly up to -40 mm, and the 2020 testwork program confirmed the trend between crush size and recovery, especially above 40mm. These results have formed the basis of choosing crushing over the RoM stacking option for the 26 Mtpa Base Case. While based on only a small sample size, there is a clear step down in recovery moving from oxide to transitional ore, followed by a much greater step down to fresh ore, which clearly has a significant refractory component. Both the reduction in recovery at coarse sizes and with decreased weathering have been confirmed in testwork conducted in 2020 but for which final results are not yet available.

Figure 4-8 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as estimated recoveries based on the testwork results for oxide ore. The historical and forecast data are annual figures for 2014 and 2015 and for 2022 onwards, and monthly figures for 2016-2021 inclusive. The testwork results shown are for the -40 mm or -60 mm crush sizes. The recovery per "grade bin" assumed in the MPA spreadsheet supporting the 2022 SBP is also shown.

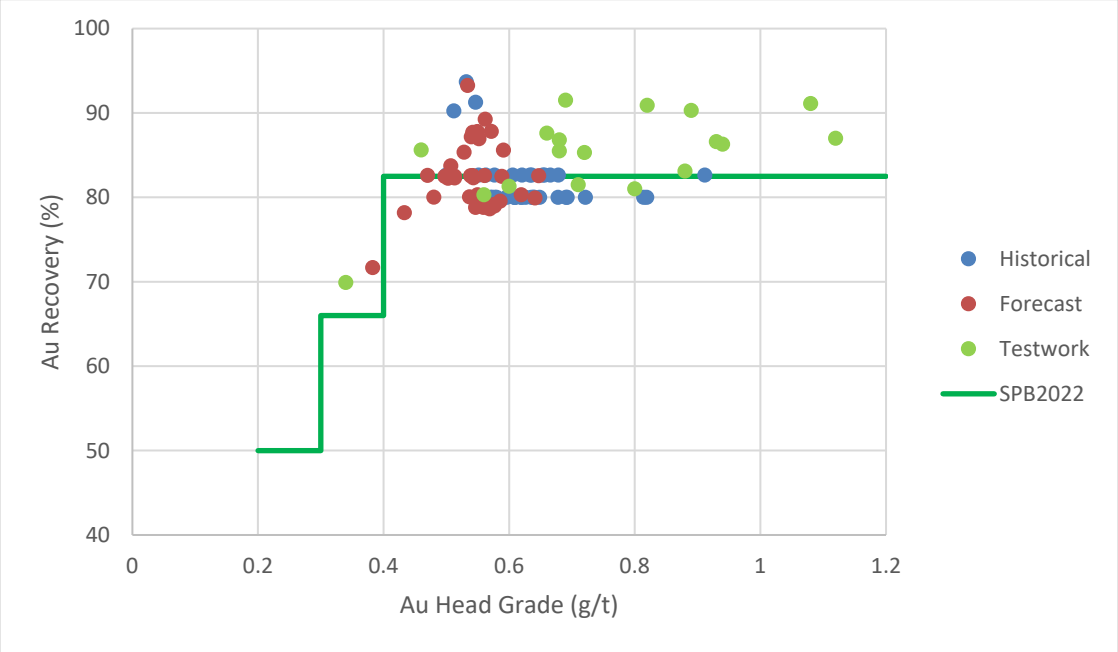


Figure 4-8: Gross Gold Recovery versus Head Grade

The historical recoveries were generally in the range 80-82.6%, except for the last three months of 2019, which were above 90%. The recoveries for the first 8 months of 2020 are also quite high, before they reduce to values at or around those specified in the Technical Regulations. The annual forecast recoveries from 2021 onwards are split into HG/MG, with recoveries ranging from 81.1% to 82.5%, and LG, with a fixed recovery of 66.0%. By contrast, the recoveries for 2020 are 87% for HG/MG and 50% for LG. Above a head grade of the order of 0.5 g/t Au, the data shows no variation with head grade.

The recoveries assumed in the MPA are reasonable for the each of the defined grade bins. The MPA also lists recoveries for oxide ore that is direct leached, transition ore (both crushed and direct leached) and fresh ore. For the direct leached oxide ore, the recoveries are the same for Min Waste and LG and are reduced to 79.6% for MG and HG. This latter value is slightly higher than the column leach test recovery reported by Irgiredmet for coarse (-700 mm) crushed sample (78.2%). The recoveries for transition ore are fixed at 60% for all scenarios; this value is in accord with the SGS Vostok testwork results, although probably optimistic for lower head grades. A similar comment applies to the single value of 25% used for fresh ore.

The operating cost estimates are reasonable if not slightly high for a plant of its configuration and scale. The costs do not change with the production expansion to 26 Mtpa; given that the expansion essentially involves a duplication of the plant, there is limited scope for economies of scale.

4.7 Heap Leach Facility

The Gross Dynamic Heap Leach Facility (“HLF”) was commissioned in 2018 and has been designed to hold a total of 12.5 Mt of ore, comprising five cells with capacity of 2.5 Mt each. Leached ore is then transported to a leached ore dump, which has currently been designed to hold 129 Mt of ore. Approximately 35 Mt of ore has been mined since 2018, so allowing for approximately 12.5Mt on the pad, this results in existing capacity in the current design of 94 Mt, which only covers operations to Q1 2026 in the Ore Reserve Case (18 Mtpa) and to end-2023 in the Base Case (26 Mtpa expansion). A recent satellite image of the HLF and leached ore dump, plus an aerial photo of the HLF in July 2019 are presented in Figure 4-9 and Figure 4-10, respectively.

The HLF receives ore via an overland conveyor from the crusher, which is transferred onto a mobile stacking system. Mobile conveyors and radial stackers place ore across the facility. SRK has not reviewed any design documentation related to the HLF existing facilities.

The HLF has been designed as a dynamic heap leach, with leached ore material being reclaimed, conveyed and stacked on the leached ore dump, which is located immediately to the southeast of the facility (Figure 4-9). A conceptual design for the leached ore dump was prepared by Hatch in 2014 and updated by Severstal in 2017, which comprised a prepared foundation with liner and comprised multiple lifts to maximum height of approximately 150 m. Nordgold recognises that new leach pads and a new, larger leached ore dump will be required for both the Ore Reserve Case and the 26 Mtpa Base Case.

Figure 4-9: Gross HLF/Leached Ore Dump (Satellite Imagery 2020)

Figure 4-10: Gross Dynamic HLF Looking West (July 2019)

4.7.1 Leached Ore Dump Design

The original Hatch/Severstal dump design considered raising of the facility in a series of lifts, ranging in height between 10-25 m, to a final maximum elevation of 150 m above the existing valley floor. The external slopes of the dump were designed to form a benched slope with overall slope gradient of 1V:3H. A starter embankment was to be formed using waste rock material plus local sourced (fine grained) borrow materials from stripping of the footprint area. Leached ore was to be placed on the dump by means of a conveyor system, mobile conveyors ("grasshoppers"), and radial stackers. Also, perimeter ditches were designed to divert stormwater flows around the facility.

The site is located in a region of high seismicity, 8 point on the Russian MSK scale (which equates to 0.1-0.2g for 1:475 year event). The facility is designed Russian Class IV (high hazard).

The current operating rectangular leached ore dump will be expanded to the east and north and upwards, broadly following the Hatch/Severstal design initially, but then further extended to the east and north in order to contain the Base Case tonnage of approximately 460 Mt leached ore. The proposed footprint in relation to the current facility is shown in Figure 4-11, and conceptual volumetrics have been calculated by Nordgold.

There will need to be a full feasibility-level design for the leached ore dump as part of the ongoing Feasibility Study for the Base Case expansion to 26 Mtpa.

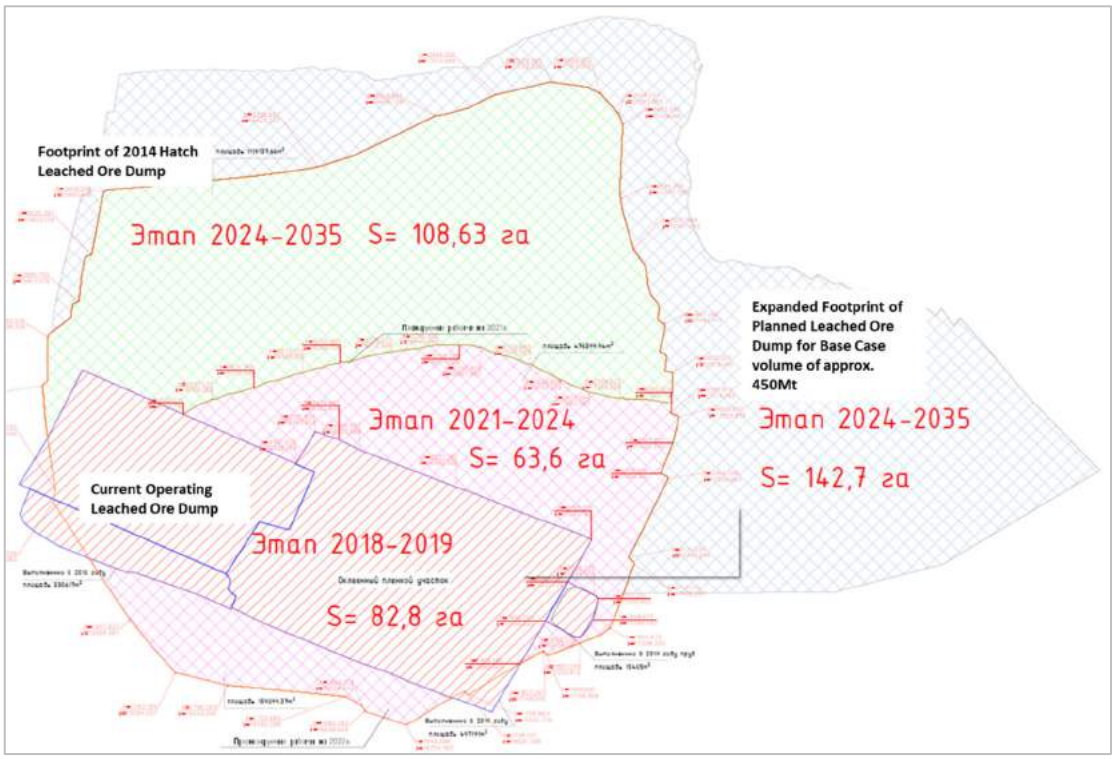


Figure 4-11: Conceptual Plan for the Leached Ore Dump Footprint for the Base Case

4.7.2 Stability Analysis

Effective Strength Analysis ("ESA") was undertaken covering the leached ore dump. A parametric assessment was also completed to establish suitable slope angles for the dynamic heap leach facility. The report states that all calculated Factors of Safety ("FOS") exceeded 1.2, which is in line with Russian Standards. SRK recommends these values are checked against International Best Practice (FOS 1.3 for operations and 1.5 for closure). It is noted that the design of the leached ore dump has been recently expanded to incorporate the larger volume of ore that is planned to be processed under the Base Case. SRK recommends that stability analysis is updated to incorporate this design modification.

4.7.3 Hazards and Risks Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External
  - Meteorological events: **Low.** Diversion channels appear to have designed around the HLF (future raise design), however sizing should be compared against design storm.
  - Seismic events: **High** (area of high seismicity).
  - Human Ingress: **Low** (remote site, unlikely to have significant ingress from local population).
- Internal:
  - Slope Stability: **Moderate.** Limited stability analysis has been provided for the current HLF (parametric assessment only). The stability of the HLF should be assessed, using as-built slope geometries to confirm that they meet required FOS values specified in International Guidelines. Stability analyses completed for the leached ore dumps should also be updated to reflect the latest modelled geometry for the planned 26 Mtpa expansion (Base Case).
  - Electrical and mechanical, including automation, protection and controls, communications: **Low.** A remote site so communication is likely to be challenging, however no specific issues recorded. Operation of conveyors and mobile stacker systems between the HLF and leached ore dumps will be challenging.

The following key risks have been identified following completion of this review:

- Existing HLF and Leached Ore Dump Designs: **High.** To allow continued stacking on the existing facilities past 2025, a detailed design for raising of the leached ore pad will be necessary, such that leached ore material can be removed from the active HLF. SRK recommends that old leached ore dump designs are updated as a matter of priority, such that ore processing can continue on the current HLF in a timely manner.
- Future Planned HLF Designs: **Moderate.** Development of the leached ore dump to the east of the facility as planned will involve excavation and liner installation on hillslope areas (as opposed to relatively flat ground to date). SRK recommends that conceptual designs for all HLF and associated dumps are progressed as a matter of priority, such that suitable sites can be identified for subsequent design and permitting activities. SRK has commented on suggested capital cost adjustments related to this activity in the following section.

- Slope instability/loss of strength: **Moderate.** No stability analysis has been provided for existing HLF/leached ore dump. As the final design geometry of the facility has yet to be confirmed, it is unclear if the external slopes will meet the required minimum FOS values set out in international guidelines. Development of future HLF and leached ore dumps on steep terrain could prove challenging, as basal liner systems (such as HDPE geomembranes) represent a low shear strength interface layer, which could impact on overall slope stability. Careful consideration of slope preparation (re-grading) and liner specifications will be required during design of future facilities. There is a risk that re-grading and slope preparation prior to HLF development could increase project costs significantly.
- Contaminated seepage: **Moderate.** No as-built records of the basal liner system have been provided for existing facilities; it is therefore not possible to verify that the basal liner system is functioning as intended. Nordgold has clarified that there are monitoring provisions around the facility (groundwater monitoring installations), which are being checked by the Gross Environmental Team to ensure that groundwater quality is not being negatively impacted by operations.

4.7.4 Other Risks

No specific closure costs have been allocated for engineered cover systems for either the existing or proposed future HLF areas. Nordgold has committed to undertaking additional geochemistry test work (kinetic testing) and seepage modelling to confirm the current assumption that the risk of ARDML conditions over the long term can be discounted. Once this work has been completed, the risk of the requirement for additional earthworks and capital to install engineered covered systems across the relatively large footprint area of the HLF/leached ore dump can be evaluated.

4.8 Infrastructure and Logistics

The Gross mine is an operating asset and as such, has the support infrastructure already established, or which are in the final stages of construction, to support the mining and processing operation. This includes:

- equipment maintenance workshop (due for completion 2021), warehousing, and administrative functions;
- accommodation camp (due for completion 2021);
- heating and hot water supply (via the coal fired boiler house);
- waste and wastewater management facilities;
- water supply from a lake to the south of the Project; and
- site roads, communications, and security infrastructure.

The fuel and explosives storage facilities at Taborny are currently utilised for Gross; however, once the Gross fuel storage facility is completed, which is due to be 2021, fuel storage for Gross will transfer to this new facility. Once commissioned the combined storage capacity will provide significant risk mitigation for any fuel supply shortages.

The mine is easily accessed from the airport at Chara and supplies are delivered to a rail logistics siding at Ikabya Station, which is on the BAM railway prior to road transport to site via an all-weather access road.

Power is generated by a Coal fired powerplant. Electrical power, heating and hot water are generated. Coal is purchased from in-country suppliers and arrives by rail to Ikabya Station.

A number of expansion projects are being considered, however, the expansion project incorporated into the reserve case for this CPR is the expansion to 18 Mtpa. This will be achieved primarily through expansion of the mobile equipment fleet (additional units) and upgrading of the heap leach stacker and water pumping system. Although the detailed design is still underway, and while there will be a moderate increase in power demand, the capacity of the current powerplant is considered likely to be adequate. The main additional requirements on infrastructure is for additional facilities for the increase in maintenance activities, and operational and maintenance labour.

A 26 Mtpa expansion project, which is currently at PEA level, is considered in the Base Case. Considerable capital investment will be required for extension of maintenance and support facilities, expansion of power supply systems, and construction of a dedicated railway siding and logistics area on the BAM railway.

4.9 Human Resources

Nordgold has provided the following breakdown of staff at the Gross Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2039. A significant increase in staff is planned for the current expansion of production.

Table 4-14: Gross Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Gross	1,128	1,057	1,265	1,258	20	20	20	19

4.10 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Gross mine has a health and safety management system that is being aligned with ISO 45001:2018 and is targeting certification by the end of 2021.

A register of incidents is maintained on the Gross mine and includes cases involving employees, contractors and third parties. The database includes investigation, estimation of damage, analysis of root causes and lessons learned. Table 4-15 summarizes the key health and safety indicators for Gross mine.

Table 4-15: Gross Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	499/265	549/84
Lost time injury frequency rate ("LTIFR")*	0.43 /0.19	0.08 /0.00
Total recordable injury frequency rate ("TRIFR")**	4.25/0.95	2.91 /0.00
Lost Time Accident Days (LTAD)	27/0	101 /0
Fatalities	1/0	0/0
Lost Time Incidents ("LTI")	3/1	1/0
Medical Treatment Incidents ("MTI")	4/0	6 /0
First Aid Incidents ("FAI")	5/2	10 /2
Near Misses	1/0	0/0
Unsafe Conditions, Fixed	76/0	127/0

*LTIFR is calculated for 200,000 man-hours

**TRIFR is calculated per 1,000,000 man-hours

4.11 Environmental and Social Matters

4.11.1 Environmental and Social Setting

Administratively, the Gross mine is in the Tyanya National Nasleg within the Olekminsky District of the Republic of Sakha (Yakutia). The deposit is remote from the settlements, the nearest settlement is adjacent to the railway 80 km to the south.

The Tyanya National Nasleg is officially defined as a territory for traditional land use by indigenous minorities. The traditional land uses include hunting, fishing and reindeer breeding. Much of territory is hard-to-reach, with seasonal road access. The only officially registered residential settlement in the Nasleg is Tyanya village with about 500 residents, 155 km north of Gross mine. Traditional forms of land use play an important role and are sometimes the principal source of income for local population.

All "Neryungri-Metallic" LLC land plots are located on the Forestry Fund lands (Neryungri Forestry), mainly of the "reserve forest" category. The surrounding forests are not used for industrial timber harvesting.

There are no specially protected natural territories or cultural heritage landmarks within the limits of licence sites.

The deposit area is characterized by low degree of anthropogenic impact represented, primarily by activities of "Neryungri-Metallic" LLC (geological exploration and mining). The area has mid-mountain, well-dissected terrain with flat watersheds and cut-in river valleys. Absolute elevations reach 1,400 m above mean sea level (mamsl). The steepness of the slopes reaches 25-30º.

Groundwaters are represented by supra-permafrost waters of seasonal thawing layer and by waters of non-through and through taliks (unfrozen lenses) with mineralization 40-70 mg/l.

The Gross mine is in the catchment area of the Usu River within the Olekma River basin. The site area is drained by the Usu River tributaries: Levy Usu, Grebeshok, Levy Gross, Pravy Gross and other unnamed streams.

The streams are charged by snow and by rainwater. After spring flooding, the discharge drops significantly during the summer. In winter, the rivers freeze completely. There are numerous lakes in the deposit area, formed by glaciations and thermokarst processes. The largest Usu Lake is 5 km south-west of Gross industrial site.

The streams and water bodies of the area have low importance for commercial fishing. There are no settlements downstream of the Usu River and there are no evidences that it is actively used for amateur fishing.

Vegetation around the mine is of mountainous taiga type with a typical vertical zoning and predominance of larch taiga. Fauna this area is not as diverse, which is due to the high-mountain location and the absence of permanent water streams, as well as mining impacts. There are no large-scale animal-migration routes in the area.

According to the reference data, some species listed in Yakutia and Russian Federation Red Books may be present in the deposit area: one species of plants, one species of fish and four species of birds. No rare or endangered species were found during the OVOS field surveys.

4.11.2 Approach to Environmental and Social Management

Management System

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Gross mine has an environmental management system that is being aligned with ISO 14001:2015. The mine is targeting certification of conformance to this standard by the end of 2021.

The environmental management system includes job descriptions with the definition of responsibilities, corporate policies, environmental monitoring and control, and periodic audits from the corporate office. One environmental specialist supports environmental management practices at Gross and Taborny mines. This specialist reports to the Director for Health, Safety and Environment, who in turn reports to the Executive Director of Neryungri-Metallic LLC.

In 2019, "Neryungri-Metallic" LLC updated its environmental monitoring and control programs and obtained approval for the update. The monitoring program includes:

- Analysis of ambient air quality at the border of sanitary protection zone, near shift camp and around waste disposal sites.
- Control of emission sources (by estimate).
- Analysis of surface waters in Pravy Gross, Levy Uss and Unnamed streams before and after possible impact of production activities.
- Analysis of wastewater at the discharge location.
- Analysis of groundwater near the landfill and waste rock dump.
- Control of soils near the landfill, leached ore dump and waste rock dump.

The ongoing environmental monitoring is generally in line with the approved program. Environmental monitoring data is used as a basis for emissions payments to the government, which are made in accordance with tax regulation in the country. Table 4-16 shows the payments in the last three years. The Company's fees for emissions recently increased correlating with the increased power output of the coal power plant. This will continue until the emissions permit is renewed and updated in 2021.

Table 4-16: Gross Environmental Payments

	2017*		2018*		2019	
	Under limit RUBk	Over limit RUBk	Under limit RUBk	Over limit RUBk	Under limit RUBk	Over limit RUBk
Emissions	84.4	0	96.8	0	246.6	1,260.2
Discharge	0.3	0	0.71	10.5	0.1	28.7
Wastes	2 570.4	34.5	5 065.2	203.4	13 265.3	0.4

* - Payments for 2017 and 2018 also included Taborny and Temny deposits.

Stakeholder Engagement

Nordgold engages with regional land users, which include reindeer herders, hunters and fishermen of Tyanya National Nasleg. The engagement process is organised within the frame of social and economic agreements; community needs and concerns are discussed and then actions to be taken are formalised by the agreement. Nordgold meets with community leaders periodically to review agreements and community development projects.

Nordgold representatives participate in customary events of the indigenous communities, like the Reindeer Day and other traditional events.

The main communications channel with the Company are:

- direct contact with the dedicated persons within the Company;
- official communication via the local authorities;
- email, phone, hotline, social media.

Representatives of the community, district, nasleg and Tyanya National Nasleg can directly contact the social manager, head of the sustainable development and the legal team of Nordgold. The mine has a hotline and official website that allows stakeholder to address their complaints or requests to the Company by means of telephone or online communication.

Community Development

Targeted financial assistance has been provided to Olekminsky District for 10 years as part of social-economic agreements with Olekminsky District administration, nomadic tribal community Tyanya, and Tyanya National Nasleg (settlement). The agreements are updated annually and are signed by "Neryungri-Metallic" LLC. From 2013 to 2019, RUB33.2m were transferred under the agreements. In addition to the agreements, the Company provides targeted support for events and celebrations.

Initiatives to Reduce the Carbon Intensity of Operations

Nordgold has several initiatives in place to reduce the carbon intensity of operations as outlined in Section 3.5. A specific initiative at Gross mine is the establishment of a three-year power plant improvement programme at the Gross mine, which is expected to decrease coal consumption by 8% and reduce greenhouse gas emissions by approximately 57,700 tonnes per year (CO_2-eq).

4.11.3 Technical Issues

The following technical issues were noted:

- As the construction works are not finished, the storm runoff from the production sites and roadside trays is currently discharged into the nearest ravine without treatment. Collection facilities and two discharge points have been designed and approved but they have not been built yet.
- The Usu River is not included into the surface water monitoring program; however, it should be as the mine infrastructure is in the catchments of Usu River tributaries.
- Studies of acid rock drainage and metal leaching ("ARDML") potential have not been undertaken yet. The mine intends to undertake ARDML studies. It is not expecting that acid rock drainage will be an issue as oxide ore is being mined but recognises the need to understand metal leaching potential. Undertaking ARDML studies to plan for closure and protect water sources is a requirement of the Responsible Gold Mining Principles, a standard that Nordgold is aligning with (Section 3.5).

4.11.4 Closure

A proposal for closure of Gross mine is presented in the mine design documentation and is complemented with LoM closure cost estimate by "SPb-GIPROSHAKHT" LLC (2020). The estimate is for the making the Gross pit safe, dismantling of buildings and structures and waste removal offsite, covering of leaching pads, waste dumps, ore stockpiles and all solid surfaces with ground without dismantling. This estimate amounts to USD3.7m.

Nordgold recognises that the above-mentioned estimate is low and has prepared an updated estimate of USD15.9m, which has been included in the financial model for the Ore Reserve Case and Base Case.

There is a risk that the actual closure costs will be higher. The closure legislation in Russia could become stricter, following global norms, and ARDML studies may reveal a need for more stringent closure measures such as capping of mine waste facilities.

The above-mentioned closure cost estimate excludes retrenchment costs.

Gross mine is not obliged to provide the State with financial assurance for closure.

Nordgold intends to review the Company's mine closure practices against the Responsible Gold Mining Principles and other international industry standards. Products of this review will be a Nordgold closure framework and updates to closure plans and cost estimates.

4.11.5 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Gross mine:

- Continues with the development of the environmental management system and obtains certification for this as planned.
- Expands the existing surface water monitoring program to include sampling in the Usu River upstream and downstream from the site.
    - After the construction works are finished, ensures that surface runoff from production sites is collected, treated, and monitored.
- Conducts ARDML studies as planned.
- Updates the closure plans and cost estimates in accordance with the new group closure framework when this has been established.
- Maintains a proactive and continuous community stakeholder engagement process.

4.12 Economic Assessment

The following section includes discussion and comment on the financial modelling assumptions as these relate to the Gross mine, and specifically includes the annual projections of the post-tax pre-finance cashflow model inputs and outcomes. The projected technical economic parameters as included in these projections include production, operating expenditures, capital expenditures, and corporate income taxation (“CIT”). SRK has reviewed the Company’s models and adjustments have been made in discussion with the Company were deemed appropriate. SRK notes that the Company does not allocate its corporate overheads to the various Mineral Assets, and this is reported separately in Section 3.3.

Furthermore, this section also includes the determination of unit metrics for activity-based costs and in addition the following benchmarks:

- Total Cash Costs reported by the Company on a per ounce of gold produced basis, and include mining, processing, site general and administration, royalty and property tax, and in country overheads (inclusive of refining and freight charges). Capitalised stripping expenditures are excluded, in addition to corporate overheads.
- All in Sustaining Costs (“AISC”) as defined by the World Gold Council, inclusive of mining, processing, site general and administration, royalty and property taxes, retrenchment, other side overheads, capitalised operating expenditures, other sustaining capital and closure costs. SRK notes that corporate overheads are not allocation to the Mineral Assets.
- At the request of the Company, and in line with their reporting, SRK has also presented an AISC (excluding closure) unit cost, which specifically excludes closure and retrenchment related costs.

Furthermore, it is important to note that these cash costs are presented on a forward-looking cash basis and as such may not be directly comparable to historical unit cash cost reported by the Company in the public domain, specifically where these may incorporate other accounting related adjustments.

SRK has relied on the Company with regards to calculation of corporate income taxes specifically. At the request of the Company, no Net Present Values will be presented herein. All revenues, operating costs, capital expenditures and hence cashflows are based on 100% (or unattributable basis). The Company's ownership of each Mineral Asset is presented in Table 3-1. Nordgold owns 100% of the Gross gold mine.

4.12.1 Financial Model Assumptions

Comments in this section with regards to exchange rates, gold prices and working capital/VAT movements, are applicable to all of the Company's Mineral Assets. Gross specific commentary is also provided below.

Macro-Economic Assumptions

All financial models as prepared by Nordgold and reviewed by SRK are presented in real money terms, and in United States Dollars. Going forward the following flat exchange rates are assumed:

- 75 RUB: 1 USD;
- 420 KZT: 1 USD;
- 580 XOF: 1 USD;
- 10,200 GNF: 1 USD;
- 1.13 EUR: 1 USD.

Commodity Prices

Gold prices as applied in the Company's financial models are from a consensus market forecast as provided by the Company's financial advisors, in both real and nominal terms. The median of the real terms forecasts over 2021-2025 has been applied; however, a long term price of USD1,400/oz has been applied in line with the Ore Reserve price assumption. It is noted that the long term price from the consensus market forecast stated USD1,500/oz. The price profile as applied in the cashflows as presented below is as shown in Table 4-17. Whilst some of the operations are noted to produce some silver, none is stated in the Company's Mineral Resources and Ore Reserves, and are hence not derived in the financial models.

Table 4-17: Gold Price Assumptions

Applied Prices		2021	2022	2023	2024	2025	LTP
Gold	(USD/oz)	1,905	1,791	1,710	1,579	1,500	1,400

Working Capital/VAT Movement

SRK notes that apart from a minor working capital allowance for 2021, this has not been further included in the assessment of the cases below. This impact is deemed to be immaterial.

Gross Specific Assumptions

SRK notes the following assumptions included for the Gross cashflow analysis:

- Royalty rate of 1.2% during 2021, 3.6% during 2022 and the base rate of 6.0% thereafter. The reduced royalty rate during the first five years of operations is due to a tax incentive.

- Corporate income tax rate of 10% during 2021, 15% during 2022 and the base rate of 20% thereafter, with the reduced rate due to the tax incentive for the new operation.
- Property tax payable at approximately USD1.5m per annum.
- Closure cost allowance of USD15.9m and retrenchment costs of USD1.0m (Ore Reserve Case) / USD0.9m (Base Case) have been allowed for in the economic assessment.

4.12.2 Production

Processing at the Gross heap leach facilities commenced in September 2018. Prior to this, ore mined during the ramp up period was processed at the nearby Taborny heap leach. Historical processing statistics over 2016-2020 are presented in Table 4-18. Material mined and processed prior to commissioning of the Gross heap leach facilities is included under the Taborny operations (Section 5.12.3). Current processing capacity of 16 Mtpa was reached in 2020. The remaining life of mine for the Ore Reserve Case is 24 years (21 years of mining plus a further three years of stockpile processing), and 19 years for the Base Case (16 years of mining plus a further three years of stockpile processing).

Table 4-18: Gross Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	-	-	21,734	44,776	60,540
Waste	(kt)	-	-	14,265	30,236	44,415
Capital Waste	(kt)	-	-	7,560	18,798	26,925
Operating Waste	(kt)	-	-	6,706	11,438	17,489
Ore	(kt)	-	-	7,469	14,540	16,125
Gold Grade	(g/t Au)	-	-	0.60	0.59	0.54
Gold Contained	(koz Au)	-	-	143	275	279
Surface Haulage	(kt)	-	-	-	-	-
Processing Feed	(kt)	-	-	5,345	14,525	16,459
Gold Grade	(g/t Au)	-	-	0.60	0.59	0.54
	(koz Au)	-	-	103	274	285
Gold Recovery	(%)	-	-	83.2%	84.6%	87.5%
Doré Produced	(kg)	-	-	1,958	8,029	8,543
	(koz Au)	-	-	63	258	275
Sales						
Doré	(koz Au)	-	-	56	259	275
Commodity Prices						
Gold	(USD/oz)	-	-	1,224	1,409	1,793
Sales Revenue						
Gold	(USDm)	-	-	68.5	364.3	493.0

4.12.3 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 4-19. Operating costs related to material mined and processed prior to commissioning of the facilities at Gross are captured under Taborny. These numbers exclude capitalised waste stripping (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

The determination of operating expenditure forecasts at Gross (as presented in Section 4.12.5) includes a combination of the detailed one-year budget (Business Plan) and in addition the outputs from the LoM cost modelling analysis (Strategic Business Plan). The outputs from the latter are largely focused on the site cost elements; that is to say, the operating expenditures for the mining, processing and site based general and administration. These activity-based costs are also reported on an element basis for each activity and then aggregated for site-based reporting purposes.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Gross, this cost amounts to approximately USD2.50/oz.

The Company has noted that for the Russian Mineral Assets, in general, approximately 50% of the operating costs incurred are denominated in local currency, 30% in USD and 20% in EUR.

Table 4-19: Gross Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	-	-	9.4	21.9	27.4
Surface Haulage	(USDm)	-	-	-	-	-
Processing	(USDm)	-	-	7.7	45.6	52.4
Other Production	(USDm)	-	-	(11.1)	2.7	(11.1)
Overheads	(USDm)	-	-	3.1	10.0	15.9
General Site	(USDm)	-	-	2.7	8.7	13.9
SG&A	(USDm)	-	-	0.4	1.3	2.0
Royalties/Other Taxes	(USDm)	-	-	4.7	0.7	2.2
Other Operating	(USDm)	-	-	(0.1)	(0.1)	0.1
Total Cash Cost	**(USDm)**	**-**	**-**	**13.8**	**80.6**	**86.9**

4.12.4 Capital Expenditure

Table 4-20 presents a summary of the historical (2016 through 2020) capital expenditures. The majority of the capital expenditure to date is related to construction of the heap leach and other processing facilities, mine fleet and capitalised stripping.

The Company has noted that for the Russian Mineral Assets, in general, approximately 20% of capital expenditure incurred are denominated in local currency, 40% in USD and 40% in EUR. The term PCR (processing capital replacement) refers to generic equipment replacement/sustaining expenditures.

Table 4-20: Gross Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	**(USDm)**	**42.5**	**141.7**	**162.9**	**47.4**	**51.0**
Exploration	(USDm)	-	-	-	-	1.8
Dev/New Technology	(USDm)	-	-	-	12.8	40.0
New Mine Construction	(USDm)	42.5	141.7	162.9	34.7	9.2
Sustaining	**(USDm)**	**-**	**-**	**11.1**	**23.8**	**41.9**
Exploration	(USDm)	-	-	0.1	0.4	0.6
Maintenance	(USDm)	-	-	4.6	7.8	19.6
Capital Stripping/Dev	(USDm)	-	-	6.4	15.6	21.7
PCR	(USDm)	-	-	-	-	-
Total Capital Expenditure	**(USDm)**	**42.5**	**141.7**	**174.0**	**71.3**	**92.9**

4.12.5 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The Ore Reserve Case assumes production to be ramp up to 18 Mtpa in line with the currently undergoing expansion. The Base Case assumes a further expansion to 26 Mtpa by 2023 by primarily expanding the crushing facilities.

The post-tax pre-finance cashflow tables for Gross, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 4-21) and unit cost assessments (Table 4-22);
- For the Ore Reserve Case, annual detailed cashflows (Table 4-23) and annual unit cost assessment (Table 4-24); and
- For the Base Case, annual detailed cashflows (Table 4-25) and annual unit cost assessment (Table 4-26).

Both cases present technically feasible and economically viable plans.

Table 4-21: Gross LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	1,463,615	1,481,164
Waste	(kt)	1,061,801	1,040,935
Capital Waste	(kt)	558,357	498,708
Operating Waste	(kt)	503,444	542,227
Ore	(kt)	401,814	440,229
Gold Grade	(g/t Au)	0.50	0.50
Gold Contained	(koz Au)	6,401	7,022
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	419,441	457,856
Gold Grade	(g/t Au)	0.49	0.49
Gold Contained	(koz Au)	6,586	7,206
Gold Recovery	(%)	76.9%	75.1%
Doré Produced	(kg)	157,523	168,478
	(koz Au)	5,064	5,417
Sales			
Doré	(koz Au)	5,064	5,417
Commodity Prices			
Gold	(USD/oz)	1,466	1,470
Sales Revenue			
Gold	(USDm)	7,422	7,965
Operating Expenditure			
Mining	(USDm)	926	880
Surface Haulage	(USDm)	-	-
Processing	(USDm)	1,420	1,598
Other Production	(USDm)	(4)	(4)
Overheads	(USDm)	293	226
Royalties/Other Taxes	(USDm)	437	475
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**3,071**	**3,175**
Cashflow			
EBITDA	(USDm)	4,351	4,790
CIT	(USDm)	545	630
Working Capital	(USDm)	(6)	(6)
Interest/Other	(USDm)	-	-
Operating Cashflow	**(USDm)**	**3,812**	**4,166**
Capital Expenditure			
Project	**(USDm)**	**186**	**348**
Exploration	(USDm)	3	3
Development/New Technology	(USDm)	182	344
New Mine Construction	(USDm)	2	2
Sustaining	**(USDm)**	**971**	**843**
Exploration	(USDm)	7	6
Maintenance	(USDm)	241	219
Capital Stripping/Development	(USDm)	544	414
PCR	(USDm)	180	204
Closure/Retrenchment	**(USDm)**	**17**	**17**
Total Capital Expenditure	**(USDm)**	**1,175**	**1,208**
Free Cashflow	**(USDm)**	**2,638**	**2,958**

Table 4-22: Gross LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	606	586
AISC	(USD/oz)	802	745
AISC (excluding closure)	(USD/oz)	798	742
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	1.02	0.90
	(USD/t_{ore})	2.30	2.00
Mining Capitalised	(USD/$t_{capitalised}$)	0.97	0.83
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	3.39	3.49
Overheads	(USD/t_{feed})	0.70	0.49

Table 4-23: Gross Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Production										
Total Material Mined	(kt)	1,463,615	83,118	83,590	84,000	84,000	72,663	84,000	84,000	83,944
Waste	(kt)	1,061,801	51,624	59,685	57,518	64,675	64,949	62,419	62,185	64,071
Capital Waste	(kt)	558,357	15,877	30,407	9,758	29,336	49,131	18,166	39,611	59,545
Operating Waste	(kt)	503,444	35,747	29,278	47,760	35,340	15,818	44,253	22,573	4,525
Ore	(kt)	401,814	31,494	23,906	26,482	19,325	7,714	21,581	21,815	19,873
Gold Grade	(g/t Au)	0.50	0.41	0.43	0.44	0.44	0.43	0.51	0.50	0.51
Gold Contained	(koz Au)	6,401	420	327	375	275	107	354	353	329
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	419,441	16,450	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Gold Grade	(g/t Au)	0.49	0.52	0.50	0.53	0.45	0.36	0.55	0.55	0.57
Gold Contained	(koz Au)	6,586	275	287	306	263	207	318	318	328
Gold Recovery	(%)	76.9%	81.9%	79.6%	80.1%	78.7%	72.4%	79.6%	79.9%	78.5%
Doré Produced	(kg)	157,523	7,058	7,108	7,632	6,440	4,668	7,881	7,913	8,012
	(koz Au)	5,064	227	229	245	207	150	253	254	258
Sales										
Doré	(koz Au)	5,064	227	229	245	207	150	253	254	258
Commodity Prices										
Gold	(USD/oz)	1,466	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	7,422	432.3	409.3	419.6	326.9	225.1	354.7	356.2	360.6
Operating Expenditure										
Mining	(USDm)	926	50.2	42.6	53.8	45.3	19.4	59.8	42.3	24.5
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-
Processing	(USDm)	1,420	55.4	58.7	58.8	58.5	64.1	58.8	58.9	58.9
Other Production	(USDm)	(4)	(4.0)	-	-	-	-	-	-	-
Overheads	(USDm)	293	12.8	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Royalties/Other Taxes	(USDm)	437	7.4	16.2	26.6	21.1	14.9	22.6	22.7	23.1
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,071**	**121.8**	**130.7**	**152.5**	**138.1**	**111.6**	**154.5**	**137.2**	**119.7**
Cashflow										
EBITDA	(USDm)	4,351	310.5	278.6	267.1	188.8	113.5	200.3	218.9	241.0
CIT	(USDm)	545	26.5	30.8	42.1	22.5	4.6	27.4	27.8	28.7
Working Capital	(USDm)	(6)	(6.1)	-	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**3,812**	**290.0**	**247.8**	**225.0**	**166.3**	**108.9**	**172.8**	**191.1**	**212.3**
Capital Expenditure										
Project	**(USDm)**	**186**	**62.4**	**16.3**	**50.0**	**9.5**	**5.9**	**15.6**	**18.5**	**7.3**
Exploration	(USDm)	3	2.9	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	182	57.7	16.3	50.0	9.5	5.9	15.6	18.5	7.3
New Mine Construction	(USDm)	2	1.7	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**971**	**31.7**	**40.0**	**28.7**	**45.5**	**67.0**	**49.1**	**65.4**	**106.1**
Exploration	(USDm)	7	0.5	0.5	0.5	1.0	0.5	0.5	1.0	0.5
Maintenance	(USDm)	241	12.3	8.4	9.8	9.8	10.4	17.3	17.7	39.5
Capital Stripping/Dev	(USDm)	544	11.9	21.2	6.8	23.0	40.4	15.6	31.5	49.2
PCR	(USDm)	180	7.0	10.0	11.5	11.7	15.6	15.7	15.1	16.9
Closure/Retrenchment	**(USDm)**	**17**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**1,175**	**94.1**	**56.3**	**78.7**	**55.1**	**72.9**	**64.7**	**83.9**	**113.4**
Free Cashflow	**(USDm)**	**2,638**	**195.8**	**191.5**	**146.3**	**111.3**	**36.0**	**108.1**	**107.2**	**98.9**

Table 4-23: Gross Ore Reserve Case LoMp continued

Statistic	Units	Total LoM	2029	2030	2031	2032	2033	2034	2035	2036
Production										
Total Material Mined	(kt)	1,463,615	77,512	78,517	84,533	84,000	81,299	75,615	72,975	84,000
Waste	(kt)	1,061,801	65,702	62,952	56,812	62,220	64,222	63,829	66,000	61,914
Capital Waste	(kt)	558,357	61,309	20,862	11,030	47,682	61,057	62,525	42,060	-
Operating Waste	(kt)	503,444	4,393	42,089	45,783	14,538	3,165	1,303	23,940	61,914
Ore	(kt)	401,814	11,810	15,565	27,721	21,780	17,077	11,786	6,975	22,086
Gold Grade	(g/t Au)	0.50	0.65	0.46	0.45	0.50	0.57	0.58	0.48	0.49
Gold Contained	(koz Au)	6,401	247	229	400	352	311	220	108	347
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	419,441	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Gold Grade	(g/t Au)	0.49	0.53	0.44	0.53	0.55	0.55	0.48	0.36	0.53
Gold Contained	(koz Au)	6,586	306	256	309	318	321	278	211	308
Gold Recovery	(%)	76.9%	75.2%	73.7%	80.8%	80.7%	78.6%	70.8%	65.0%	79.2%
Doré Produced	(kg)	157,523	7,157	5,871	7,774	7,991	7,843	6,123	4,259	7,598
	(koz Au)	5,064	230	189	250	257	252	197	137	244
Sales										
Doré	(koz Au)	5,064	230	189	250	257	252	197	137	244
Commodity Prices										
Gold	(USD/oz)	1,466	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	7,422	322.2	264.2	349.9	359.7	353.0	275.6	191.7	342.0
Operating Expenditure										
Mining	(USDm)	926	18.6	73.1	85.9	39.0	19.9	12.7	39.6	106.1
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-
Processing	(USDm)	1,420	63.4	62.6	59.0	58.6	60.7	64.0	64.7	58.7
Other Production	(USDm)	(4)	-	-	-	-	-	-	-	-
Overheads	(USDm)	293	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Royalties/Other Taxes	(USDm)	437	20.8	17.2	22.3	22.8	22.4	17.6	12.5	21.4
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,071**	**116.0**	**166.2**	**180.5**	**133.7**	**116.2**	**107.5**	**130.0**	**199.5**
Cashflow										
EBITDA	(USDm)	4,351	206.1	98.0	169.5	226.0	236.8	168.1	61.7	142.5
CIT	(USDm)	545	17.8	5.3	22.5	26.8	25.5	11.4	-	22.7
Working Capital	(USDm)	(6)	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**3,812**	**188.4**	**92.7**	**147.0**	**199.3**	**211.3**	**156.6**	**61.7**	**119.9**
Capital Expenditure										
Project	**(USDm)**	**186**	**0.4**	**0.3**	**0.0**	**0.0**	**-**	**-**	**-**	**-**
Exploration	(USDm)	3	-	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	182	0.4	0.3	0.0	0.0	-	-	-	-
New Mine Construction	(USDm)	2	-	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**971**	**112.8**	**49.9**	**35.3**	**70.0**	**84.1**	**84.7**	**61.8**	**5.5**
Exploration	(USDm)	7	0.5	0.7	0.5	0.5	-	-	-	-
Maintenance	(USDm)	241	29.8	12.1	9.9	8.2	4.9	5.7	6.5	5.0
Capital Stripping/Dev	(USDm)	544	66.7	21.4	10.2	48.3	69.2	74.3	53.9	-
PCR	(USDm)	180	15.8	15.7	14.7	13.0	10.0	4.7	1.5	0.6
Closure/Retrenchment	**(USDm)**	**17**	**0.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**1,175**	**113.2**	**50.2**	**35.3**	**70.0**	**84.1**	**84.7**	**61.8**	**5.5**
Free Cashflow	**(USDm)**	**2,638**	**75.2**	**42.5**	**111.7**	**129.2**	**127.2**	**71.9**	**(0.1)**	**114.4**

Table 4-23: Gross Ore Reserve Case LoMp continued

Statistic	Units	Total LoM	2037	2038	2039	2040	2041	2042	2043	2044
Production										
Total Material Mined	(kt)	1,463,615	74,191	36,092	27,953	27,486	127	-	-	-
Waste	(kt)	1,061,801	44,756	13,183	6,191	6,896	-	-	-	-
Capital Waste	(kt)	558,357	-	-	-	-	-	-	-	-
Operating Waste	(kt)	503,444	44,756	13,183	6,191	6,896	-	-	-	-
Ore	(kt)	401,814	29,435	22,909	21,762	20,590	127	-	-	-
Gold Grade	(g/t Au)	0.50	0.44	0.51	0.59	0.66	0.71	-	-	-
Gold Contained	(koz Au)	6,401	418	377	415	434	3	-	-	-
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	419,441	18,000	18,000	18,000	18,000	18,000	18,000	18,000	6,991
Gold Grade	(g/t Au)	0.49	0.52	0.57	0.65	0.71	0.28	0.28	0.30	0.27
Gold Contained	(koz Au)	6,586	304	332	379	409	161	159	171	60
Gold Recovery	(%)	76.9%	79.6%	80.0%	78.4%	77.5%	66.3%	66.0%	66.0%	66.0%
Doré Produced	(kg)	157,523	7,519	8,260	9,226	9,849	3,325	3,273	3,509	1,234
	(koz Au)	5,064	242	266	297	317	107	105	113	40
Sales										
Doré	(koz Au)	5,064	242	266	297	317	107	105	113	40
Commodity Prices										
Gold	(USD/oz)	1,466	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	7,422	338.4	371.8	415.3	443.3	149.7	147.3	157.9	55.5
Operating Expenditure										
Mining	(USDm)	926	88.6	43.1	31.0	30.1	0.5	-	-	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-
Processing	(USDm)	1,420	58.9	59.0	59.2	59.2	66.7	66.7	64.5	22.1
Other Production	(USDm)	(4)	-	-	-	-	-	-	-	-
Overheads	(USDm)	293	13.3	13.3	13.3	13.3	13.3	6.6	6.6	1.5
Royalties/Other Taxes	(USDm)	437	21.1	23.0	25.5	27.1	9.4	9.2	9.7	0.1
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,071**	**181.8**	**138.4**	**129.0**	**129.6**	**89.8**	**82.5**	**80.8**	**23.7**
Cashflow										
EBITDA	(USDm)	4,351	156.7	233.4	286.3	313.7	59.8	64.8	77.1	31.9
CIT	(USDm)	545	26.2	42.1	52.5	57.8	6.8	7.5	9.6	-
Working Capital	(USDm)	(6)	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**3,812**	**130.5**	**191.3**	**233.8**	**255.9**	**53.1**	**57.3**	**67.6**	**31.9**
Capital Expenditure										
Project	**(USDm)**	**186**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Exploration	(USDm)	3	-	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	182	-	-	-	-	-	-	-	-
New Mine Construction	(USDm)	2	-	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**971**	**5.8**	**5.6**	**4.2**	**4.4**	**4.0**	**4.1**	**3.8**	**1.7**
Exploration	(USDm)	7	-	-	-	-	-	-	-	-
Maintenance	(USDm)	241	5.8	5.6	4.2	4.4	4.0	4.1	3.8	1.7
Capital Stripping/Dev	(USDm)	544	-	-	-	-	-	-	-	-
PCR	(USDm)	180	-	-	-	-	-	-	-	-
Closure/Retrenchment	**(USDm)**	**17**	**-**	**0.2**	**0.0**	**-**	**0.1**	**0.0**	**-**	**16.5**
Total Capital Expenditure	**(USDm)**	**1,175**	**5.8**	**5.8**	**4.2**	**4.4**	**4.2**	**4.2**	**3.8**	**18.1**
Free Cashflow	**(USDm)**	**2,638**	**124.7**	**185.6**	**229.6**	**251.5**	**48.9**	**53.1**	**63.8**	**13.7**

Table 4-24: Gross Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Standard Statistics										
Total Cash Cost	(USD/oz)	606	537	572	622	667	744	610	539	465
AISC	(USD/oz)	802	676	747	738	887	1,190	803	796	877
AISC (excluding closure)	(USD/oz)	798	676	747	738	887	1,190	803	796	877
Unit Costs										
Mining (excl capitalised)	(USD/t_{mined})	1.02	0.75	0.80	0.72	0.83	0.82	0.91	0.95	1.00
	(USD/t_{ore})	2.30	1.60	1.78	2.03	2.35	2.51	2.77	1.94	1.23
Mining Capitalised	(USD/$t_{capitalised}$)	0.97	0.75	0.70	0.70	0.78	0.82	0.86	0.80	0.83
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	3.39	3.37	3.26	3.27	3.25	3.56	3.26	3.27	3.27
Overheads	(USD/t_{feed})	0.70	0.78	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Statistic	**Units**		**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
Standard Statistics										
Total Cash Cost	(USD/oz)		504	881	722	520	461	546	949	816
AISC	(USD/oz)		995	1,145	863	793	795	977	1,401	839
AISC (excluding closure)	(USD/oz)		994	1,145	863	793	795	977	1,401	839
Unit Costs										
Mining (excl capitalised)	(USD/t_{mined})		1.15	1.27	1.17	1.07	0.98	0.97	1.28	1.26
	(USD/t_{ore})		1.58	4.70	3.10	1.79	1.16	1.08	5.68	4.80
Mining Capitalised	(USD/$t_{capitalised}$)		1.09	1.03	0.92	1.01	1.13	1.19	1.28	-
Surface Haulage	(USD/$t_{ransported}$)		-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})		3.52	3.48	3.28	3.26	3.37	3.55	3.59	3.26
Overheads	(USD/t_{feed})		0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Statistic	**Units**		**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**
Standard Statistics										
Total Cash Cost	(USD/oz)		752	521	435	409	840	784	716	597
AISC	(USD/oz)		776	543	449	423	879	824	750	1,054
AISC (excluding closure)	(USD/oz)		776	542	449	423	878	823	750	639
Unit Costs										
Mining (excl capitalised)	(USD/t_{mined})		1.19	1.19	1.11	1.09	3.96	-	-	-
	(USD/t_{ore})		3.01	1.88	1.42	1.46	3.96	-	-	-
Mining Capitalised	(USD/$t_{capitalised}$)		-	-	-	-	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)		-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})		3.27	3.28	3.29	3.29	3.70	3.71	3.58	3.16
Overheads	(USD/t_{feed})		0.74	0.74	0.74	0.74	0.74	0.37	0.37	0.21

Table 4-25: Gross Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Production									
Total Material Mined	(kt)	1,481,164	83,118	83,590	92,082	118,000	118,000	112,230	118,000
Waste	(kt)	1,040,935	51,624	59,685	69,951	85,931	86,365	92,095	87,806
Capital Waste	(kt)	498,708	15,877	30,407	28,756	38,723	45,352	62,459	64,499
Operating Waste	(kt)	542,227	35,747	29,278	41,195	47,209	41,013	29,636	23,307
Ore	(kt)	440,229	31,494	23,906	22,131	32,069	31,635	20,135	30,194
Gold Grade	(g/t Au)	0.50	0.41	0.42	0.44	0.45	0.54	0.51	0.52
Gold Contained	(koz Au)	7,022	420	326	315	466	554	331	508
Surface Haulage	(kt)	-	-	-	-	-	-	-	-
Processing Feed	(kt)	457,856	16,450	18,000	26,000	26,000	26,000	26,000	26,000
Gold Grade	(g/t Au)	0.49	0.52	0.50	0.42	0.49	0.60	0.46	0.56
Gold Contained	(koz Au)	7,206	275	287	354	414	504	387	471
Gold Recovery	(%)	75.1%	81.9%	79.6%	72.0%	78.7%	80.1%	73.7%	79.1%
Doré Produced	(kg)	168,478	7,058	7,108	7,932	10,120	12,569	8,856	11,593
	(koz Au)	5,417	227	229	255	325	404	285	373
Sales									
Doré	(koz Au)	5,417	227	229	255	325	404	285	373
Commodity Prices									
Gold	(USD/oz)	1,470	1,905	1,791	1,710	1,579	1,500	1,400	1,400
Sales Revenue									
Gold	(USDm)	7,965	432.3	409.3	436.1	513.8	606.2	398.6	521.8
Operating Expenditure									
Mining	(USDm)	880	50.2	42.4	45.5	60.5	57.2	40.3	45.6
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-
Processing	(USDm)	1,598	55.4	61.9	89.3	87.7	87.9	90.7	88.2
Other Production	(USDm)	(4)	(4.0)	-	-	-	-	-	-
Overheads	(USDm)	226	12.8	13.3	13.3	13.3	13.3	13.3	13.3
Royalties/Other Taxes	(USDm)	475	7.4	16.4	28.1	32.8	38.3	25.7	33.1
Other Operating	(USDm)	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,175**	**121.8**	**133.9**	**176.2**	**194.4**	**196.6**	**170.0**	**180.2**
Cashflow									
EBITDA	(USDm)	4,790	310.5	275.4	259.9	319.4	409.6	228.6	341.6
CIT	(USDm)	630	26.5	30.4	35.4	43.3	61.3	23.0	44.9
Working Capital	(USDm)	(6)	(6.1)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**4,166**	**290.0**	**244.9**	**224.5**	**276.0**	**348.3**	**205.6**	**296.7**
Capital Expenditure									
Project	**(USDm)**	**348**	**50.9**	**106.0**	**109.4**	**14.8**	**4.8**	**23.1**	**25.5**
Exploration	(USDm)	3	2.9	-	-	-	-	-	-
Dev/New Technology	(USDm)	344	46.2	106.0	109.4	14.8	4.8	23.1	25.5
New Mine Construction	(USDm)	2	1.7	-	-	-	-	-	-
Sustaining	**(USDm)**	**843**	**35.2**	**42.3**	**43.5**	**54.0**	**67.0**	**84.8**	**113.1**
Exploration	(USDm)	6	0.5	0.7	0.7	1.6	0.7	0.7	0.7
Maintenance	(USDm)	219	15.8	11.0	9.2	8.1	13.4	17.5	41.6
Capital Stripping/Dev	(USDm)	414	11.9	21.1	20.6	29.6	35.7	50.6	55.0
PCR	(USDm)	204	7.0	9.5	13.0	14.8	17.2	16.0	15.8
Closure/Retrenchment	**(USDm)**	**17**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**1,208**	**86.1**	**148.3**	**153.0**	**68.8**	**71.8**	**107.8**	**138.5**
Free Cashflow	**(USDm)**	**2,958**	**203.9**	**96.6**	**71.5**	**207.2**	**276.5**	**97.8**	**158.2**

Table 4-25: Gross Base Case LoMp continued

Statistic	Units	Total LoM	2028	2029	2030	2031	2032	2033
Production								
Total Material Mined	(kt)	1,481,164	118,000	118,000	118,000	118,000	116,386	76,835
Waste	(kt)	1,040,935	85,435	86,870	86,372	86,439	89,115	49,461
Capital Waste	(kt)	498,708	40,510	42,538	47,582	50,360	31,647	-
Operating Waste	(kt)	542,227	44,925	44,331	38,790	36,080	57,467	49,461
Ore	(kt)	440,229	32,565	31,130	31,628	31,561	27,272	27,374
Gold Grade	(g/t Au)	0.50	0.53	0.45	0.47	0.53	0.52	0.44
Gold Contained	(koz Au)	7,022	558	455	480	539	458	388
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	457,856	26,000	26,000	26,000	26,000	26,000	26,000
Gold Grade	(g/t Au)	0.49	0.58	0.51	0.52	0.58	0.54	0.45
Gold Contained	(koz Au)	7,206	486	422	432	486	449	376
Gold Recovery	(%)	75.1%	80.5%	77.5%	79.1%	79.6%	75.8%	74.1%
Doré Produced	(kg)	168,478	12,178	10,183	10,628	12,028	10,588	8,675
	(koz Au)	5,417	392	327	342	387	340	279
Sales								
Doré	(koz Au)	5,417	392	327	342	387	340	279
Commodity Prices								
Gold	(USD/oz)	1,470	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue								
Gold	(USDm)	7,965	548.1	458.4	478.4	541.4	476.6	390.5
Operating Expenditure								
Mining	(USDm)	880	67.1	65.4	60.9	62.0	79.9	83.6
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	1,598	87.7	88.3	87.9	88.0	89.0	90.4
Other Production	(USDm)	(4)	-	-	-	-	-	-
Overheads	(USDm)	226	13.3	13.3	13.3	13.3	13.3	13.3
Royalties/Other Taxes	(USDm)	475	34.8	29.3	30.4	34.0	30.0	24.9
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,175**	**202.9**	**196.2**	**192.5**	**197.3**	**212.2**	**212.0**
Cashflow								
EBITDA	(USDm)	4,790	345.3	262.1	285.9	344.1	264.4	178.4
CIT	(USDm)	630	49.0	32.4	37.2	48.7	36.7	26.1
Working Capital	(USDm)	(6)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**4,166**	**296.3**	**229.7**	**248.8**	**295.5**	**227.7**	**152.3**
Capital Expenditure								
Project	**(USDm)**	**348**	**12.8**	**0.8**	**0.3**	**0.0**	**0.0**	**-**
Exploration	(USDm)	3	-	-	-	-	-	-
Dev/New Technology	(USDm)	344	12.8	0.8	0.3	0.0	0.0	-
New Mine Construction	(USDm)	2	-	-	-	-	-	-
Sustaining	**(USDm)**	**843**	**77.7**	**69.5**	**70.5**	**74.7**	**60.0**	**14.2**
Exploration	(USDm)	6	0.7	-	0.1	-	-	-
Maintenance	(USDm)	219	25.1	13.5	10.5	10.3	15.4	4.4
Capital Stripping/Dev	(USDm)	414	35.1	36.9	41.2	46.2	29.8	-
PCR	(USDm)	204	16.9	19.2	18.6	18.1	14.8	9.8
Closure/Retrenchment	**(USDm)**	**17**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**1,208**	**90.5**	**70.4**	**70.8**	**74.7**	**60.0**	**14.2**
Free Cashflow	**(USDm)**	**2,958**	**205.7**	**159.3**	**177.9**	**220.8**	**167.6**	**138.1**

Table 4-25: Gross Base Case LoMp continued

Statistic	Units	Total LoM	2034	2035	2036	2037	2038	2039
Production								
Total Material Mined	(kt)	1,481,164	47,326	35,000	8,597	-	-	-
Waste	(kt)	1,040,935	11,979	6,663	5,146	-	-	-
Capital Waste	(kt)	498,708	-	-	-	-	-	-
Operating Waste	(kt)	542,227	11,979	6,663	5,146	-	-	-
Ore	(kt)	440,229	35,347	28,337	3,451	-	-	-
Gold Grade	(g/t Au)	0.50	0.51	0.64	0.52	-	-	-
Gold Contained	(koz Au)	7,022	583	583	58	-	-	-
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	457,856	26,000	26,000	26,000	26,000	26,000	7,407
Gold Grade	(g/t Au)	0.49	0.58	0.67	0.32	0.29	0.28	0.32
Gold Contained	(koz Au)	7,206	486	558	268	243	232	77
Gold Recovery	(%)	75.1%	80.6%	76.0%	55.3%	53.2%	50.0%	57.3%
Doré Produced	(kg)	168,478	12,179	13,172	4,610	4,024	3,611	1,365
	(koz Au)	5,417	392	424	148	129	116	44
Sales								
Doré	(koz Au)	5,417	392	424	148	129	116	44
Commodity Prices								
Gold	(USD/oz)	1,470	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue								
Gold	(USDm)	7,965	548.2	592.9	207.5	181.1	162.5	61.4
Operating Expenditure								
Mining	(USDm)	880	59.0	46.9	13.1	-	-	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	1,598	88.3	89.4	99.3	100.0	98.9	29.9
Other Production	(USDm)	(4)	-	-	-	-	-	-
Overheads	(USDm)	226	13.3	13.3	13.3	8.8	4.4	1.2
Royalties/Other Taxes	(USDm)	475	34.2	36.7	13.3	11.5	10.2	3.8
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**3,175**	**194.7**	**186.2**	**138.9**	**120.4**	**113.5**	**34.9**
Cashflow								
EBITDA	(USDm)	4,790	353.5	406.7	68.6	60.7	49.0	26.6
CIT	(USDm)	630	60.6	70.9	2.7	0.7	-	-
Working Capital	(USDm)	(6)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**4,166**	**292.9**	**335.8**	**65.8**	**60.0**	**49.0**	**26.6**
Capital Expenditure								
Project	**(USDm)**	**348**	**-**	**-**	**-**	**-**	**-**	**-**
Exploration	(USDm)	3	-	-	-	-	-	-
Dev/New Technology	(USDm)	344	-	-	-	-	-	-
New Mine Construction	(USDm)	2	-	-	-	-	-	-
Sustaining	**(USDm)**	**843**	**10.3**	**10.0**	**6.5**	**5.1**	**3.8**	**0.8**
Exploration	(USDm)	6	-	-	-	-	-	-
Maintenance	(USDm)	219	3.8	5.0	4.6	5.1	3.8	0.8
Capital Stripping/Dev	(USDm)	414	-	-	-	-	-	-
PCR	(USDm)	204	6.5	5.0	1.9	-	-	-
Closure/Retrenchment	**(USDm)**	**17**	**-**	**-**	**-**	**0.0**	**0.1**	**16.7**
Total Capital Expenditure	**(USDm)**	**1,208**	**10.3**	**10.0**	**6.5**	**5.1**	**3.8**	**17.5**
Free Cashflow	**(USDm)**	**2,958**	**282.6**	**325.9**	**59.3**	**54.9**	**45.2**	**9.0**

Table 4-26: Gross Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	586	537	586	691	597	486	597	483
AISC	(USD/oz)	745	692	771	862	763	652	895	787
AISC (excluding closure)	(USD/oz)	742	692	771	862	763	652	895	787
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	0.90	0.75	0.80	0.72	0.76	0.79	0.81	0.85
	(USD/t_{ore})	2.00	1.60	1.77	2.05	1.89	1.81	2.00	1.51
Mining Capitalised	(USD/$t_{capitalised}$)	0.83	0.75	0.69	0.72	0.76	0.79	0.81	0.85
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	3.49	3.37	3.44	3.44	3.37	3.38	3.49	3.39
Overheads	(USD/t_{feed})	0.49	0.78	0.74	0.51	0.51	0.51	0.51	0.51
Statistic	**Units**		**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Standard Statistics									
Total Cash Cost	(USD/oz)		518	599	563	510	623	760	497
AISC	(USD/oz)		717	812	770	703	800	811	523
AISC (excluding closure)	(USD/oz)		717	812	770	703	800	811	523
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})		0.87	0.87	0.87	0.92	0.94	1.09	1.25
	(USD/t_{ore})		2.06	2.10	1.93	1.96	2.93	3.05	1.67
Mining Capitalised	(USD/$t_{capitalised}$)		0.87	0.87	0.87	0.92	0.94	-	-
Surface Haulage	(USD/$t_{ransported}$)		-	-	-	-	-	-	-
Processing	(USD/t_{feed})		3.37	3.40	3.38	3.38	3.42	3.48	3.40
Overheads	(USD/t_{feed})		0.51	0.51	0.51	0.51	0.51	0.51	0.51
Statistic	**Units**		**2035**	**2036**	**2037**	**2038**	**2039**		
Standard Statistics									
Total Cash Cost	(USD/oz)		440	937	931	978	795		
AISC	(USD/oz)		463	981	970	1,011	1,194		
AISC (excluding closure)	(USD/oz)		463	981	970	1,010	813		
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})		1.34	1.52	-	-	-		
	(USD/t_{ore})		1.66	3.79	-	-	-		
Mining Capitalised	(USD/$t_{capitalised}$)		-	-	-	-	-		
Surface Haulage	(USD/$t_{ransported}$)		-	-	-	-	-		
Processing	(USD/t_{feed})		3.44	3.82	3.85	3.80	4.03		
Overheads	(USD/t_{feed})		0.51	0.51	0.34	0.17	0.16		

5 TABORNY OPEN PIT GOLD MINE

5.1 Introduction

5.1.1 Location

The Taborny mine is located in the Olekminsky District of the far south-west of the Republic of Sakha (Yakutia), 5 km west of Nordgold's Gross mine. The location of the mine is shown in Figure 3-8, Section 3.3, and in Figure 5-1. The nearest settlement is Tyanya, 155 km to the north. The distance to the regional centre (Olekminsk city) is approximately 300 km.

The mine is within the taiga forest biome on state-owned Forestry Fund lands (Neryungri Forestry) and in the territory of the Tyanya National Nasleg, which is a traditional land use area for indigenous minorities. Nomadic tribal communities use land in this territory for hunting and reindeer breeding.

The Taborny mine is operated by "Rudnik Taborny" LLC [10], and comprises open pits mining the Taborny and Temny deposits (Figure 5-1). The ore is crushed and transported to the heap leach facility ("HLF"), where it is treated with sodium cyanide solution. The pregnant solution is taken to a processing plant to produce the final product (gold doré). Waste rock material is disposed in waste dumps.

From 2021, the Company is planning to start the development of the nearby Vysoky deposit, and also the Vrezanny satellite deposit approximately 5 km to the West in the Tokko licence area from 2023. The ore from these satellite deposits will be transported to the existing mine for further processing.

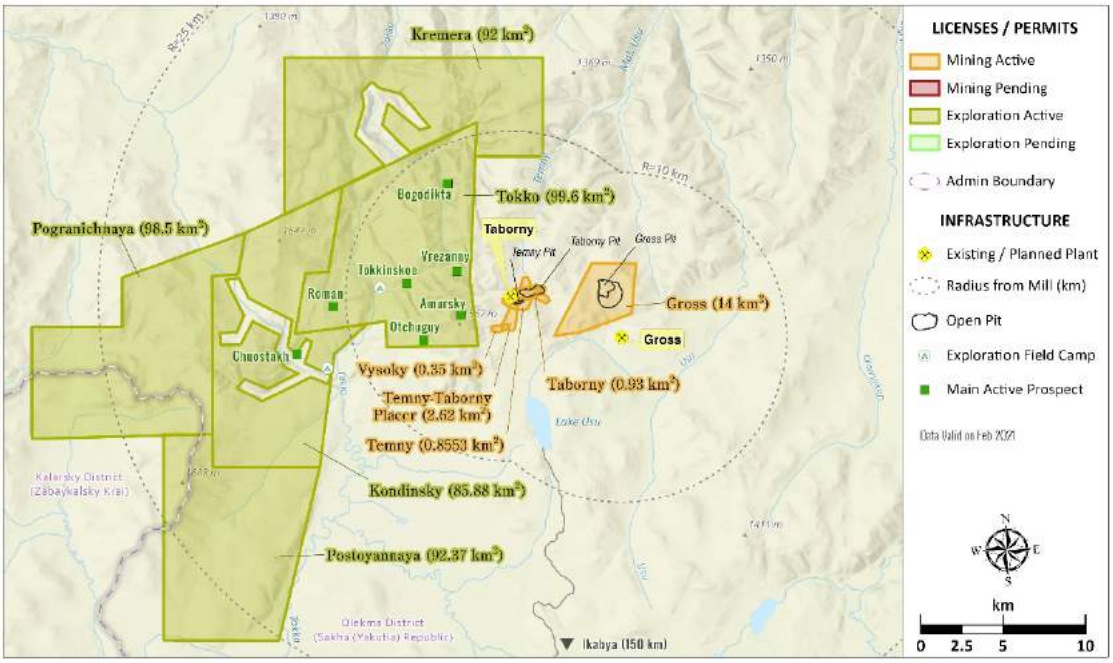


Figure 5-1: Taborny Licence Area and the Neighbouring Nordgold Assets. (Nordgold 2020)

[10] *Previously Taborny was part of "Neryungri-Metallic" LLC. Since 2019, the mine has been a separate legal entity, "Rudnik Taborny" LLC.*

To the west of Taborny are located the exploration licences of Tokko, Kondinsky, Kremera, Postoyannaya and Pogranichnaya, where geological exploration is being carried out by "Rudnik Taborny" LLC. Apart from the Vrezanny deposit, which is described in this section, the Tokko licence contains two deposits which have been assessed separate to Taborny and have been the subject of more detailed exploration and technical studies, as described in Section 12 of this CPR.

5.1.2 Access

The BAM railway passes 80 km south of the deposits. Supply to the sites is by rail to the Ikabya station, where the trans-shipment facility of "Neryungri-Metallic" LLC is located. Further, transportation is along the 70 km part of regional road Ikabya – Khani and then via a 90 km access road operated by Nordgold[11].

5.1.3 Climate

The climate of the region is sharply continental with large daily and annual fluctuations of air temperatures. The area has long cold winters (down to -55°C in December-January) and short warm summers (up to +35°C in July). The maximum temperature range is up to 90°C. The prevailing wind direction is north-west, with an average speed of 2.2 m/s. The average annual precipitation is 365 mm, most of which (about 80%) occurs during the warm season. There is continuous permafrost up to 400-450 m thick in the deposit area.

5.2 Mineral Rights and Primary Approvals

5.2.1 Mineral Rights Held

The mining and exploration licences held by "Rudnik Taborny" LLC for the Taborny mine are listed in Table 5-1. The mining and exploration areas are shown in Figure 5-1.

Table 5-1: Taborny ("Rudnik Taborny" LLC) Mining and Exploration Licences

Tenement Name	Licence		Validity	
	Type	Number	From	To
Taborny	BR	YaKU 05732 BR	2001-03-30	2021-12-31
Temny	BE	YaKU 05733 BE	2016-11-17	2027-12-31
Temny-Taborny	BE	YaKU 05596 BE	2017-07-11	2025-07-31
Vysoky	BE	YaKU 05886 BE	2018-08-15	2025-12-31
Kondinsky	BP	YaKU 06097 BP	2019-09-04	2024-09-30
Tokko	BP	YaKU 05595 BP	2016-08-18	2021-08-31

* BP - Exploration Licence; BR - Combined Licence (Mining and Exploration); BE – Production Licence

In general, the licences of "Rudnik Taborny" LLC have no special environmental or social requirements. The licence agreements define general requirements to comply with the Russian environmental and mineral resource legislation, and to develop a (temporary) closure program one year before the planned closure date. An exception is the licence agreement for the alluvial gold deposit (Temny-Taborny deposit[12]), which contains a requirement to preferentially select national contractors.

[11] *The land plot for the access road is federally owned and leased by the "Rudnik Taborny" LLC.*
[12] *According to the provided data, the Company does not mine this placer deposit.*

5.2.2 Land Tenure

The Company has leased 26 land plots covering 1,335 ha (forestry fund lands) for development of the Taborny and Temny deposits and for geological exploration of the Tokko and Vysoky sites. Forest management projects have been developed and approved for the leased forest lands in compliance with the Forestry legislation requirements. The leasing agreement for Vysoky which currently covers exploration only is being revised to include mining and is expected to be in place before the deposit development starts in 2021.

Most of the leasing agreements expire on 31 December 2029. Leasing agreements for the access road and part of the northern waste rock dump are being renewed, having recently expired.

The Company is currently applying for additional leases in response to a recent review of the current project infrastructure areas against existing lease boundaries. This shows minor encroachment on these boundaries in a few places, specifically at the production base, low grade ore stockpile, and heap leaching site.

Compensatory reforestation is required for any forest clearance. The Company plans to undertake compensatory reforestation in 2021 for the forest clearances for the Gross mine and Taborny mine expansion. The Federal Forest Agency has given preliminarily approval for the reforestation on a 109 ha plot.

The land for the Kondinsky licence area has not been leased yet; however, it may also include some specially protected forest sites[13].

5.2.3 Environmental Approvals

Table 5-2 summarises the environmental permits that “Rudnik Taborny” LLC had in December 2020.

Table 5-2: “Rudnik Taborny” LLC Permitting Documentation

Aspect	Permit	Validity	
		From	To
Waste management	Document # 19/15: approval of waste generation rates and waste disposal limits	2019-25-01	2024-04-23
	Licence 14#00417* for collection, transportation, processing, utilization, neutralization, and disposal of wastes of I-IV hazard categories	2011-12-11	Unlimited
	Contracts for the transfer of waste to third parties (mercury lamps, ferrous metals, used batteries, oils, tires, etc.)	Signed/extended annually	
Air emissions	Air emissions permit # PDV-18/182	2018-12-06	2025-12-05
	Air emission rates # 1124 dated 2018-12-06	Until 2025 inclusive	
Water consumption	Water Use Agreement 14-18.03.04.002-O-ДЗВХ-С-2019-07627/00*	2019-03-14	2020-12-31 (Update in progress)
	Water Use Agreement 14-18.03.04.002-O-ДЗИО-С-2020-08606/00 (Tokko River) – water intake for the needs of geological exploration at the Tokko project	2020-07-31	2021-12-31

[13] *There are no data on specially protected forest sites in public domain. Usually the information becomes available at documentation of a leasing agreement for a forest site.*

Aspect	Permit	Validity	
		From	To
Water discharge	Decision to permit the usage of water body # 14-18.03.04.002-P-PCBX-C-2019-08234 / 00 (issue # 1 and issue # 2 for the Temny stream)[14]	2019-11-19	2024-04-01
	Permit for discharge of substances and microorganisms into water bodies (issue No. 1 and issue # 2 for the Temny stream)	2019-06-03	2024-04-23

* - The documents were issued to “Neryungri-Metallic” LLC and transferred by the Company to “Rudnik Taborny” LLC.

The waste dumps (Taborny #2, Northern, South-Eastern, and Western) and heap leach pads (KV-1, KV-2 and KV-3) are registered in the State Register of Waste Disposal Facilities (“GRORO”).The Company intends to update its permits before the development of Vysoky deposit starts in 2021.

The mine is inspected by state authorities. Inspections in 2018-2020 did not find any significant violations.

5.3 Geology

The Taborny deposit is a structurally controlled zone of potassic metasomatism, hosted by Proterozoic sandstones. The mineralised zone dips moderately to the south and south-southeast. Parallel to Taborny, and approximately 500 m south, is the smaller Temny deposit. Between Taborny and Temny are mineralised linking structures, and both deposits are covered by the same block model and one pit design, therefore “Taborny-Temny” is often referred to as a single entity.

Mineralisation at Taborny-Temny is associated with iron and manganese oxides, that follow from primary sulphides, particularly pyrite.

Approximately 1.5 km southwest of Taborny, and hosted by the same Proterozoic sandstone succession, is the Vysoky deposit. The Vrezanny deposit, 4 km west-northwest of Taborny, is also included as a satellite of Taborny, although the geological setting is different from Taborny, being hosted by granite-gneisses of the Archaean basement.

The Taborny, Temny and Vysoky deposits are situated in the western part of the Aldan shield, in the southwestern corner of the Uguskiy Graben. The graben is filled with Lower Proterozoic sediments of the Olonnokonskiy Formation, which discordantly overlie early Archaean gneisses and a later Archaean intrusive complex.

The major regional structural features are: 1) the N-S striking Tokkinsky Fault Zone (along the western margin of the Uguskiy Graben); and 2) WSW-ENE striking faults of the Kondinsky Fault System, which cut across the Tokkinsky Fault Zone, and are broadly parallel to the southern margin of the graben. The Vrezanny deposit is within the Tokkinsky Fault Zone.

In the vicinity of the Taborny-Temny, Vysoky and Vrezanny deposits, the thickness of alluvial and glacial Quaternary cover sediments is negligible; usually no more than 5 m.

[14] *Discharge #1: discharge of treated pit (rainstorm) waters. According to the data provided by the Company representatives, waters of this type have not been discharged since 2018. Discharge #2: domestic sewage of the rotation crew camp after biological purification station.*

The main geological features of the Uguisky Graben are shown on the geological map for Gross in Figure 4-2.

Taborny-Temny

Taborny-Temny mineralisation is hosted by the Olonnokonskiy Formation, and in the project area this formation comprises up to 20-30 m of basal conglomerates and gravels, overlain by 300-400 m of fine to medium grained sandstones. The sediments are shallow-dipping to the north, northeast or east.

The Olonnokonskiy Formation host rocks have undergone multiple tectonic and magmatic activation events, dominated by deformation and metasomatism associated with the intrusion of Mesozoic dykes and sills.

The main Taborny and Temny mineralised zones correspond to fault zones which dip moderately towards the south-southeast. The Taborny and Temny fault zones are regarded as part of the Kondinsky Fault System. The intersection of these two fault zones with a third fault zone, dipping steeply to the southeast, and interpreted as a splay from the Tokkinsky Fault Zone, appears to be a key control on mineralisation at the deposit-scale.

Vysoky

The steeply southeast-dipping fault zone that intersects the Taborny-Temny fault zones continues to the southwest. Vysoky, 1.5 km from Taborny, is located close to the intersection of two branches of this fault zone.

As at Taborny-Temny, sandstones and conglomerates of the Olonnokonskiy Formation host mineralisation at Vysoky. Some Vysoky mineralisation is also hosted by syenite sills.

Vrezanny

Vrezanny is within the Tokkinsky Fault Zone, near the eastern edge. The host rocks to mineralisation are granite-gneisses of the Archaean basement. Mineralisation occurs near the intersection of a south-west dipping strand of the Tokkinsky Fault Zone, with an east-west striking fault of the Kondinsky system.

Mineralisation

The following description applies to Taborny-Temny. Mineralisation at Vysoky and Vrezanny has not been described in detail, but key characteristics are assumed to be similar to Taborny-Temny.

Mineralisation was introduced by potassic metasomatism. Gold is the only element of economic significance, and is strongly correlated with potassium and arsenic. The dominant sulphide mineral appears to have been pyrite. On average, primary sulphide content appears to have been less than 1%; the sulphides have since been oxidised to limonite to a depth of approximately 400 m.

The gold is seldom visible, and mainly occurs as micron-scale particles.

SRK Comments

SRK considers that the geology, style and distribution of mineralisation is well understood for Taborny-Temny and Vysoky, and that this knowledge of the controls on mineralisation provides a solid foundation for resource estimation.

Vrezanny is less well understood, and this uncertainty is accounted for in the Inferred classification applied to the Mineral Resources of this deposit.

5.4 Mineral Resources

5.4.1 Introduction

The Mineral Resources presented herein are based on review of estimates prepared internally by Nordgold effective as at 31 December 2020. The key aspects are summarised below.

5.4.2 Exploration History

Taborny-Temny was discovered and defined from campaigns by various state exploration parties in the period 1960 to 2001. This work included mapping, geochemical sampling, airborne and ground geophysics (electromagnetics, gamma-ray spectrometry), trenching, and percussion and core drilling.

Drilling

All exploration information used to prepare the Mineral Resource estimate was collected since 2001 by “Neryungri-Metallik” LLC, which is fully owned by Nordgold. The databases for the three deposits are summarised in Table 5-3.

The core drilling was conducted using Boart Longyear LF90 and Atlas Copco CS14 rigs, and is mostly HQ diameter (63.5 mm), with core diameter reduced to NQ core (47.6 mm) for some deeper holes. The RC holes were drilled using an Atlas Copco LY55N drill rig equipped with XRVS466 compressor. RC drilling diameter was 122-124 mm.

Diamond core recovery is reported as typically high (95% to 100%). No correlation is apparent between recovery and grade, therefore potential biases related to core loss are not considered to be a material risk to confidence in the Mineral Resource estimate.

Table 5-3: Taborny Summary of Drillhole Databases

Deposit	Database	Hole Spacing	Hole Orientation	Grade Control
Taborny-Temny	1,539 diamond core holes (172,375 m) and 169 RC holes (12,957 m)	20 x 20 m, to 80 x 80 m	Most holes designed to be vertical	Commenced 2002. Blast hole sampling. Not used for Mineral Resource estimation
Vysoky	135 diamond core holes (17,505 m)	mostly 40 m (north-south) and either 40 m or 80 m (east-west)	Most holes designed to be vertical	Not yet mined
Vrezanny	85 diamond core holes (13,666 m) and 48 RC holes (950 m)	Mostly 80 x 80 m	Most holes designed to be vertical	Not yet mined

Sampling and Assays

Sampling was mostly on fixed 1 m intervals. The entire lengths of holes were sampled, as visual identification of mineralisation is difficult. For the diamond core holes, half core was sampled, and the other half stored. Rock chips from RC drilling were split, using a cyclone splitter, to produce 4-5 kg samples.

Crushing, splitting, and grinding of core and RC samples was done on site, to prepare 200 g subsamples (with a particle size of <0.074 mm) for shipment to SGS Laboratories in Chita. Samples were analysed for gold by fire assay with an AAS finish (SGS method FAA515). Core samples that produced gold results above the lower detection limit were also analysed for silver (SGS method AAS12E). Gold or silver analyses that reach the upper detection limit were reanalysed by fire assay with gravimetric finish (SGS methods FAG3030, FAG313).

QA/QC

Quality control sampling included resubmitting duplicate pulps, and analysis of duplicate pulps by an umpire laboratory, blank samples, and analysis of certified reference materials. Each category of quality control sampling was carried out at a proportion of 2 to 5% of the primary samples. Overall, the results of the quality control sampling reveal no problems with accuracy or precision significant enough to cause material concerns about the quality of assay information supporting the Mineral Resource estimate.

The databases are stored in Geobank (one of the Micromine software tools). During loading of data, Nordgold validated approximately 5% of the database against original paper logbooks, and found no materially significant level of errors. Checks for internal consistency, during loading and analysis in other software (Datamine, Leapfrog), further confirmed the overall cleanliness of the database.

5.4.3 Mineral Resource Estimation

Geological Modelling

Geological modelling for the various deposits is undertaken in Leapfrog. The mineralisation is variable in geometry and orientation, depending upon the host lithology and dominant control. The methodology used to derive the mineralisation models is given in Table 5-4. A representative section from Taborny-Temny is presented in Figure 5-2.

Table 5-4: Taborny Deposits Geological Modelling

Deposit Name	Geological Modelling Methodology	Deposit Dimensions
Taborny-Temny	Leapfrog indicator modelling, using 2 m composites. The compositing is a two-stage process. First, Leapfrog Economic Composites are generated, using the rules of minimum grade 0.2 and minimum length 5 m (with allowances to use shorter lengths if the grade-thickness product is at least 1). Then the Economic composites are composited downhole to the fixed 2 m length.	The Taborny mineralised zone begins at surface and dips moderately to the south-southeast, with a strike length of 2000 m, a down-dip extent of up to 600 m, and a thickness of up to 300 m.
	Separate domains for Taborny, Temny, and “South” (which is mostly south of Taborny, and east of Temny). Two grade shells for each domain, a lower grade shell at 0.2 g/t Au threshold, and a higher grade shell at 0.35 g/t Au threshold (Taborny and Temny) or 0.30 g/t Au (South).	The Temny mineralised zone also begins at surface and dips moderately to the south-southeast, with a strike length of 1500 m, a down-dip extent of up to 300 m, and a thickness of up to 150 m.
	For all domains and grade shells: structural trend based on 5 surfaces, spheroidal interpolant, 50 m range, isovalue 0.4, 5 m resolution.	

Deposit Name	Geological Modelling Methodology	Deposit Dimensions
	All defined mineralisation is interpreted as oxide, no transitional or fresh material modelled.	
Vysoky	Leapfrog vein modelling tools used to construct volumes for 7 mineralised domains and one syenite domain, within the host sandstone. The mineralised intersections for the vein domains were generated from the Leapfrog Economic Compositing tools, with conditions of minimum length 5m and minimum overall grade 0.3 g/t Au. All defined mineralisation is interpreted as oxide.	The mineralised zone is planar, dipping moderately south, with a strike length of 600 m, a down-dip extent of 150 m, and a thickness of 25 to 35 m
Vrezanny	Leapfrog vein modelling tools used to construct volumes for 16 mineralised domains. The mineralised intersections for the vein domains were generated from the Leapfrog Economic Compositing tools, with conditions of minimum length 5 m and minimum overall grade 0.2 g/t Au. Surfaces modelled from logging data to separate deposit into oxide, transitional and fresh zones. Within the pit shell used to constrain Mineral Resource reporting, approximately 85% of mineralised tonnes are oxide, and 15% transitional.	The deposit consists of several mineralised bodies, of varying size and orientation, but generally shallow or moderately dipping. The defined extents of the two largest bodies are: 1) moderately south-southwest dipping, approximately 300 m strike length, 250 m extent down dip (from surface), and up to 35 m thick; 2) moderately west-southwest dipping, approximately 300 m strike length, 200 m extent down dip (beginning 50 m below surface), and up to 20 m thick

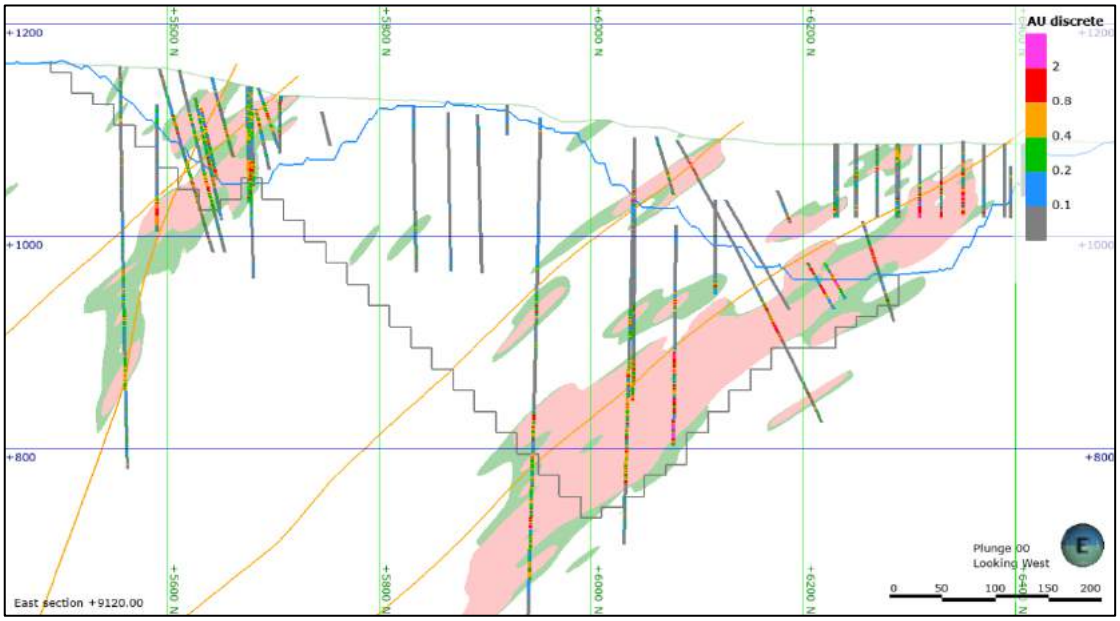


Figure 5-2: Taborny-Temny Cross Section looking West, on 9120E

Note: Temny mineralisation on the left, Taborny on the right. Green trace = original topography. Blue trace = mining topography at end of 2020. Grey trace = USD1750/oz Mineral Resource pit shell. Orange traces = Structures controlling the anisotropy of grade shell modelling and estimation. Red shading = higher grade mineralisation domain. Green shading = lower grade mineralisation domain.

Geostatistical Estimation

For each of the three deposits, the estimation approach is summarised in Table 5-5.

Table 5-5: Taborny Grade and Tonnage Estimation Parameters

Deposit Name	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density Values	Block model validation methodology
Taborny-Temny	2 m	Capping thresholds range from 1.69 g/t Au to 12 g/t Au	Grade shell domains are hard boundaries. Three structural domains, with soft boundaries between these domains.	Block size 20 x 20 x 5 m, with sub-blocking to 4 x 4 x 1 m. No rotation	Ordinary Kriging in Datamine with dynamic anisotropy: Orientation of variogram models and search ellipsoids vary according to the influence of the interpreted major mineralisation-controlling structures. Variogram models with two structures. For all domains, the range of the first structure in the major and semi-major directions approximately matches the common 40 x 40 m hole spacing. Nugget proportion varies from 10% in Taborny, to 37% in Temny, but together, for each domain, the nugget and first structure represent 84-88% of variability. Three- or four-pass search approach used, with parameters varying for each estimation zone, but generally minimum of 8 composites per estimate, maximum 20 composites, and maximum four composites per drillhole.	Constant density of 2.40 g/cm^3, based on 158 hydrostatic weight measurements of core.	Visual checks Swath plots Statistical analysis
Vysoky	1 m	Capping threshold 5 g/t Au	The seven modelled zones of mineralisation were combined and estimated as a single domain. This domain acts as a hard boundary.	Block size 20 x 20 x 5 m, with sub-blocking to 4 x 4 x 5 m.	Ordinary Kriging in Leapfrog EDGE with dynamic anisotropy: Orientation of variogram models and search ellipsoids vary according to the influence of the interpreted major mineralisation-controlling structures. Variogram model with nugget of 38% and one structure. Range in major and semi-major directions is similar to the 40 x 40 m hole spacing. Three-pass search used, with minimum of four composites per estimate, maximum 20 composites. First pass 50 x 50 x 10 m. Second pass is double these dimensions, and third pass is triple these dimensions.	Vysoky: Density of 2.41 g/cm^3 for mineralised domains, 2.50 g/cm^3 for waste, based on 60 and 73 measurements respectively	Visual checks Swath plots Statistical analysis
Vrezanny	1 m	Capping threshold 2.8 g/t Au	One combined mineralised domain formed from all modelled zones of mineralisation. This domain acts as a hard boundary.	Block size 30 x 30 x 5 m, with sub-blocking to 5 x 5 x 5 m.	Ordinary Kriging in Leapfrog EDGE with dynamic anisotropy: Orientation of variogram models and search ellipsoids vary according to the influence of the interpreted major mineralisation-controlling structures. Variogram model with nugget of 47% and two structures. The second structure, with 41% of the variance, is dominant, and has ranges 166 x 87 x 10 m. Two-pass search used, with minimum of 4 composites per estimate, maximum 15 composites, and maximum of 4 composites per hole. First pass ellipsoid radii are 140 x 40 x 6 m. Second pass is 280 x 80 x 20 m.	Vrezanny: Constant density of 2.40 g/cm^3, based on the Taborny-Temny factor.	Visual checks Swath plots Statistical analysis

Classification

The classification approach varies by deposit, as summarised below:

- Taborny-Temny (Figure 5-3): Areas with up to 80 m (east-west) x 40 m (north-south) drill spacing classified as Indicated. Areas covered by wider spacing, up to 80 x 80 m, classified as Inferred, where domain modelling settings generally limit extrapolation to no more than 80 m from drilling.
- Vysoky: Areas with average drill spacing coverage of 40 x 40 m classified as Indicated. Areas covered by wider spaced drilling, up to 80 m (east-west) x 40 m (north-south) classified as Inferred.
- Vrezanny: All material captured within the 0.2 g/t Au grade shell classified as Inferred, which broadly represents a drill spacing of 80 x 80 m.

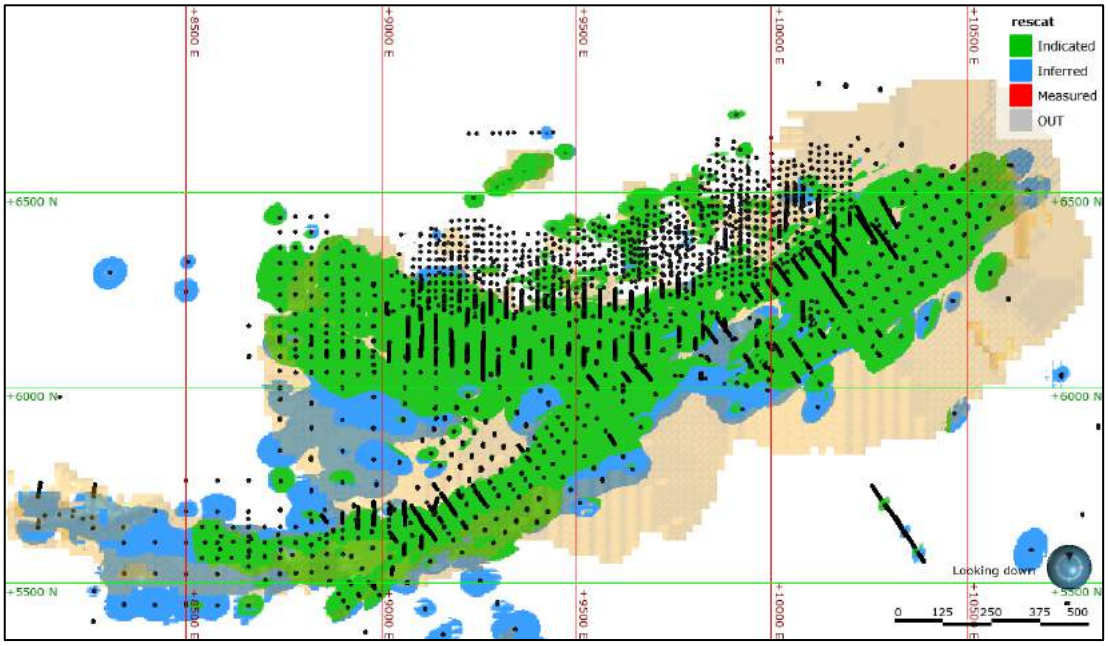


Figure 5-3: Taborny-Temny Plan View of Resource Estimation Drilling, and Classification Categories Applied to Block Model.

Note: Green = Indicated; Blue=Inferred; Orange = USD1750/oz pit shell

Reconciliation

For Taborny-Temny, Nordgold compiled reconciliation information for 2018, 2019, and the first nine months of 2020, comparing the resource block model to the grade control block model, and to actual production ("Actual"). The Actual tonnes are based on truck weightometer data, and the Actual grade is from grab sampling of dumped loads.

For both the resource model versus grade control model comparison, and the resource model versus Actual comparison, the reconciliation information shows that the resource model is overestimating tonnes and metal for the >0.4 g/t Au material, and underestimating tonnes, grade and metal for the lower grade mineralised material; however these two effects appear to partially balance. Table 5-6 shows the comparison of the resource block model, regularised to 10 x 10 x 5 m, against Actual results for 2020. Vysoky and Vrezanny have not yet been mined.

Table 5-6: Taborny-Temny Regularised Block Model versus Actual Results, First Nine Months 2020

Material type	Block Model Tonnes (Mt)	Block Model Grade (g/t Au)	Block Model Metal (koz Au)	Actual Tonnes (Mt)	Actual Grade (g/t Au)	Actual Metal (koz Au)	Actual / BM Tonnes factor	Actual / BM Grade factor	Actual / BM Metal factor
>0.40 g/t Au	3.1	0.63	62	2.5	0.59	48	0.82	0.94	0.77
0.25 to 0.4 g/t Au	2.4	0.31	24	3.0	0.32	31	1.27	1.03	1.31
Total	5.4	0.49	85	5.5	0.44	79	1.02	0.90	0.92

5.4.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Taborny (Table 5-7) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 5-7, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.20 g/t Au CoG based on a long term Au price of USD1,750/oz. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 105% dilution and 95% recovery, and 60-75% processing recovery depending on material type and grade, open pit mining cost of USD1.21/t, processing cost of USD2.49 or 4.18/t_{ore} dependent on crushed or truck dumped, G&A at USD1.24/t_{ore}. Sustaining capital of USD0.34/t_{ore} planned for HL.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

.

Table 5-7: Taborny Mineral Resource Statement as at 31 December 2020 in Accordance with the Guidelines of the JORC Code (2012)

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Taborny	Taborny	0.2	-	-	-	84,272	0.49	1,331	84,272	0.49	1,331	23,822	0.43	336	108,094	0.48	1,667
	Temny	0.2	-	-	-	7,829	0.49	124	7,829	0.49	124	2,213	0.60	31	10,041	0.48	155
	Vysoky	0.2	-	-	-	1,167	1.17	44	1,167	1.17	44	541	0.82	17	1,708	1.10	61
	Vrezanny	0.2	-	-	-	-	-	-	-	-	-	9,623	0.61	188	9,623	0.61	188
	Stockpiles		-	-	-	3,766	0.30	37	3,766	0.30	37	-		-	3,766	0.30	37
	Total Taborny		**-**	**-**	**-**	**97,033**	**0.49**	**1,535**	**97,033**	**0.49**	**1,535**	**36,198**	**0.49**	**572**	**133,231**	**0.49**	**2,107**

5.4.5 SRK Comments and Recommendations

SRK has reviewed the resource model and classification prepared by Nordgold, and considers the approaches and resultant estimate to be in line with industry best practices.

After reviewing the reconciliation results, SRK accepted the Taborny-Temny model without applying any further adjustments for Mineral Resource reporting. Although there is reasonably strong evidence that the model is overestimating the high grade tonnes, and underestimating the low grade tonnes, these two effects appear to partially balance. For the total Mineral Resources above the 0.20 g/t Au reporting cut-off, the difference between model and Actual is of a magnitude that can be accepted for Indicated Mineral Resources. Furthermore, the Actual information used for this comparison, and in particular the grade information, is itself somewhat uncertain, because of the sampling method (grab sampling).

SRK recommends that the latest reconciliation information for Taborny-Temny should be used to guide adjustments of the modelling parameters, in particular the Leapfrog settings relating to generating the grade shell domains. An earlier review by SRK, based on information available up to the end of 2019, made such recommendations. With adjustments to the modelling settings, SRK expects that the tendencies to overestimate high grade tonnes and underestimate low grade tonnes could be reduced, thereby improving the local accuracy of the model. Abrupt changes in slope of the grade-tonnage curve, at about 0.3 and 0.4 g/t Au CoG, are probably artefacts, and further evidence that the accuracy of the model could be improved.

5.5 Mining and Ore Reserves

5.5.1 Current Mining Operations, Operating Strategy and Mining Fleet

Taborny is a low-grade gold deposit of which the production cycle includes conventional drilling, blasting, loading, hauling, dumping of waste and stockpiling of ore. Current mining operations at Taborny are mostly focused on a single open pit, as shown in Figure 5-4, supplemented by production of the adjacent Temny and nearby Vysoky pit. The nearby Vrezanny deposit consists mostly of inferred ore and was not included in the reserves.

Taborny's primary production fleet comprises of the Komatsu PC 2000 (12 m^3 bucket) loaders paired with Komatsu HD 785 (90 t payload) dump trucks, achieving average cycle times of 20-35 minutes. Ore mining is fed into a combination of truck dumped and crushing and autostacking onto a static heap leach pad. Selective ore crushing is done based on the ore characteristics to achieve the required processing rate of 7 Mtpa placed on the HL pads.

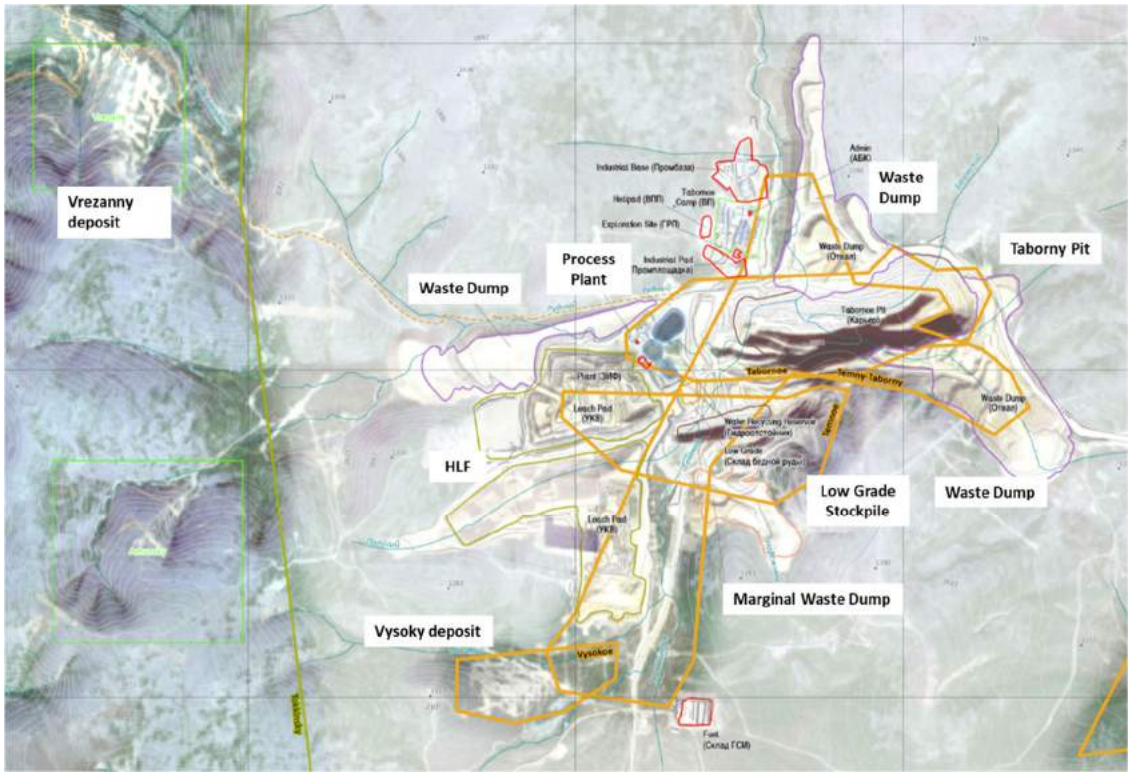


Figure 5-4: Taborny Mine Layout (Nordgold 2020)

5.5.2 Historical Mining Production

Nordgold has operated the Taborny mine since 2007, with a steady increase in production since 2016 to a total of approximately 30 Mtpa total material moved in 2020, as shown in Table 5-8. SRK notes that the production statistics as noted in Table 5-8 are for the Taborny mine solely. During 2016-2018, prior to the commissioning of the Gross heap leach facility, ore mined from the Gross open pit was processed at the Taborny heap leach facilities, and all costs associated with the mining and processing of this material was borne by the Taborny operation. For completeness sake, the combined material mined from the Gross and Taborny operations over the period 2016-2018, as captured under Taborny's cost structure, are presented in Table 5-9.

Table 5-8: Taborny Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Open pit						
Mined	(kt)	13,335	14,210	15,833	20,774	30,048
Waste Mined		11,215	11,159	11,114	15,670	22,541
Waste (Capital Stripping)	(kt)	3,308	2,497	1,925	10,942	13,208
Waste (Operating Stripping)	(kt)	7,907	8,661	9,189	4,728	9,333
Stripping ratio	(t_{waste}:t_{ore})	5.29	3.66	2.4	3.07	3.00
Ore	(kt)	2,121	3,051	4,720	5,104	7,507
	(g/t Au)	0.80	0.65	0.78	0.52	0.46
	(koz Au)	54.9	63.9	117.7	85.9	110.2

Table 5-9: Historical (2016 to 2018) Mining Production Statistics: Taborny plus Gross Combined

Statistics	Units	2016	2017	2018
Open pit – Taborny plus Gross				
Mined	(kt)	18,776	22,593	17,288
Waste Mined	(kt)	13,613	16,866	12,065
Waste (Capital Stripping)	(kt)	3,308	3,037	1,925
Waste (Operating Stripping)	(kt)	10,305	13,829	10,139
Stripping ratio	(t_{waste}:t_{ore})	2.6	2.9	2.3
Ore	(kt)	5,163	5,727	5,224
	(g/t Au)	0.66	0.64	0.77
	(koz Au)	109.0	117.2	129.4

5.5.3 Open Pit Geotechnical Considerations

The Taborny deposit is located in a mid-mountainous relief, with flat watersheds and intersected by river valleys. The elevations of the watershed surfaces are up to 1400 mRL, the relative elevations usually do not exceed 300-400 m. Natural topographic slope angles are up to 25°-30°. The thickness of the ore zones is up to 300 m and the ore bodies within the ore zones having thicknesses from a few metres to tens of metres. The maximum depth of the ore bodies from surface is 370 m. The rock mass of the ore zone and the ore itself is highly fractured while the host rocks are represented by fine and medium grained red sandstones with this material being less fractured and more competent.

The Taborny deposit is entirely located within sandstones of the Olonnokonskaya Suite and as such, the entire site had initially an almost uniform lithological structure. Very intensive bedrock fracturing is observed at the deposit, alongside with a high degree of rock weathering on the upper levels (10-20 m thick) represented by random frequent fractures and frequent branching clay zones with the thickness of up to tens of centimetres. Three geotechnical domains have been defined: Zone I, a zone of unaltered or slightly altered sandstones in the northern pit wall; Zone II, the central part of the open pit consisting of the ore zone which is highly fractured; and Zone III, a zone of altered sandstones in the southern pit wall with bedding structure that dips out the slope to the north.

Figure 5-5 shows an aerial view of the pit (looking west).

Pit slope design studies for the open pits have been carried out by SRK Russia in 2020 and the design criteria used to develop the LoM pit designs are summarised in Table 5-10. The pit is defined by two distinct design domains: North and South.

Figure 5-5: Taborny Pit looking West (August 2020)

Table 5-10: Taborny Slope Design Criteria used to Develop 2020 LoM Pit

Pit	Wall	Bench Face Angle (°)	Berm Width (m)	Bench Height (m)	Inter-ramp Angle (°)
Taborny	N	70	15	30	49
	S	65	16	30	45

Whilst no major instabilities were noted in the current pit, adherence the design criteria on a bench and berm scale could be improved, with catch berms lost or filled with loose material. Given the tight working area at the base of the pit, the risk from rockfall can be considered high. SRK recommended that the maximum stack height should be between 120 m and 150 m; however, it should be noted that the final reserve pit does not contain any additional geotechnical berms or ramps on the South wall. This results in approximately 370 m of uninterrupted slope.

Geotechnical and hydrogeological data collection is planned for 2021. On the basis of this, rock mass, structural and hydrogeological models should be developed, and the proposed slope angles updated. Given that the lower third of the final pit slope will be located below the permafrost, it is critical that the effects of pore pressure on the final walls are understood and taken account of in any proposed slope design. SRK has been engaged by the Company to develop and assist in the implementation of industry best practice Ground Control Management Plans (GCMP), Surface Water Management Plans (SWMP) and Ground Water Management Plans (GWMP) which will address many of the geotechnical and water related recommendations.

5.5.4 Mine Water Management

Surface water flow monitoring at Taborny is sufficient to support applications for permission to discharge in accordance with Russian legislation. It comprises spot measurements, although SRK understands that the Company is planning to undertake more comprehensive surface water flow monitoring over the coming year. This will be required to support the design of additional surface water management infrastructure as the mine develops.

Taborny pit is currently mining at around 150 to 200 m bgl, within the permafrost, working towards a final pit depth of around 300 m. Groundwater inflows are negligible and limited to localised melting. There is a strong correlation between localised seepage in the pit (where groundwater melting has occurred), geological structures, and small-scale failures. A hydrogeological borehole was drilled near Taborny pit in 2020 as part of a hydrogeological investigation program with oversight from SRK (SRK, 2020). Pumping tests were undertaken within the permafrost sections, with respective permeabilities close to zero. No temperature logging was conducted.

Permafrost occurs across the mine site but the depth is variable, being deepest under the ridges and shallowest under the river valleys where taliks are present. The exact depth of permafrost is not fully understood. It is possible, however, that Taborny pit might extend well below the base of the permafrost and no estimates have been made as to likely groundwater inflows and pore water pressure implications when this happens. The Company is planning a study to further characterise the hydrogeological and permafrost regime. In the case that the base of the permafrost is found to be above the base of the current pit design, then the study will consider groundwater inflows and pore water pressure implications as well as providing input to geotechnical slope-stability design work.

Taborny raw water demand is around 0.4 Mm^3/year. Potable water demand is around 0.05 Mm^3/year. This demand is not expected to increase based on current plans. The majority of raw water demand is sourced from Lake Usu, located around 8 km to the south of the Taborny open pit. Lake Usu is also used to supply water to Gross. Abstraction for Taborny represents around 25% of the total water abstracted from the lake (with Gross abstracting the remaining 75%).

5.5.5 Open Pit Mine Design and Planning

Modifying Factors for Mine Design

The modifying factors for the Taborny mine are based on a reconciliation of historical mining actuals with mining geological models for the respective pit areas and are shown in Table 5-11. The mining models were regularised according to a SMU approach. All modifying factors for the Taborny was applied as global modifying factors.

Table 5-11: Taborny Modifying Factors

Parameter	Unit	Value
Taborny & Temny SMU (xyz)	m	10x10x5
Vysoky SMU (xyz)	m	5x5x5
Taborny & Temny		
Mining Recovery	%	97.30
Mining Dilution	%	1.05
Vysoky		
Mining Recovery	%	95
Mining Dilution	%	1.05

Ore Reserve Case Mine Design

The Ore Reserve Case pit designs for Taborny are shown in Figure 5-6. The pit has been designed based on the geotechnical parameters presented in Section 5.5.3. The ramps have been designed at a gradient of 1:10 at 20 m width for double ramps and 10 m width for single ramps. The mining benches are 30 m high.

Table 5-12: Taborny Open Pit Design Criteria

Parameter	Unit	Value
Bench Height	m	30
Face Angle	°	60-65
Berm Width	m	15
Ramp Width – Double Lane	m	20
Ramp Width – Single Lane	m	10
Ramp Gradient	ratio	1:10

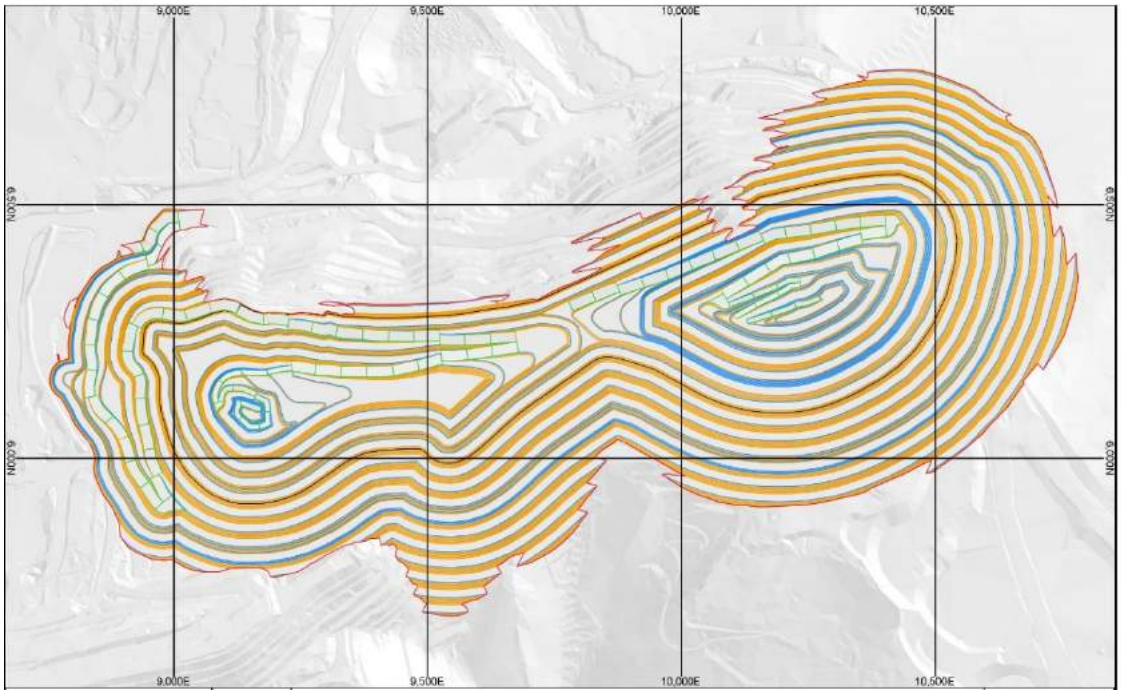


Figure 5-6: Taborny Mine Pit Design (Ore Reserve Case) (Nordgold 2021)

Ore Reserve Case Life of Mine Plan

The 2020 Ore Reserve Case LoMp for Taborny is Nordgold's mine plan optimised for the extraction of measured and indicated ore and aligned with the physicals presented in the reserve statement.

Ore Reserve Case LoMp has a life of just under 10 years (to 2030), processing approximately 7 Mtpa at an average grade of 0.44 g/t Au as shown in Table 5-13. The Taborny pit comprises 98% of the inventory in the schedule, comprising three East Wall pushbacks and three West Wall pushbacks, with a further 2% of the inventory from the nearby Temny and Vysoky deposits.

Table 5-13: Taborny Forecast mining production for the Ore Reserve Case LoMp, 2021 to 2025 and LoM total to 2030

Statistics	Units	2021	2022	2023	2024	2025	LoM total to 2030
Mined	(kt)	34,002	30,654	38,915	34,301	31,536	**256,407**
Waste	(kt)	28,586	24,476	31,714	26,388	21,910	**191,055**
Ore	(kt)	5,416	6,179	7,201	7,913	9,626	**65,352**
	(g/t Au)	0.52	0.45	0.40	0.34	0.38	**0.44**
	(koz Au)	91	90	92	87	118	**920**
Stripping ratio	(t_{waste}:t_{ore})	**5.28**	**3.96**	**4.40**	**3.33**	**2.28**	**2.92**

Planning Process, Philosophy and Design Cases

For future planning and operations at Taborny, Nordgold uses its Base Case Design and LoMp, which is considered the operational LoMp. A description of Nordgold's planning process is presented in Section 2.4 "Nordgold Technical Study Standards and Planning Process".

Base Case Life of Mine Plan

The 2020 Base Case LoMp provides the underlying detail that supports the Ore Reserves in the Ore Reserve Case. The Base Case Design and schedule is comprised of the 2021 Business Plan (BP) (as prepared in Q3 2020) for the first year, and the Strategic Business Plan for 2022 onwards (as prepared in Q4 2020 and Q1 2021).

The Base Case Design is optimised for the inclusion of inferred ore and the LoMp includes the processing 99.417 Mt of ore over a period of 14 years at a rate of 7 Mtpa. For the Base Case, the Taborny pit comprises approximately 87.5% of the inventory in the schedule, with a more significant contribution from the adjacent Temny deposit (3.5 Mt in 2021 and 2030-2032), the neighbouring Vysoky deposit (1.142 Mt in 2021-2023), and also from the Vrezanny satellite deposit approximately 5 km to the West in the Tokko licence area (7.12 Mt of Inferred material from 2023 to 2038).

Table 5-14 shows the Base Case LoMp forecast for the Taborny operation.

Table 5-14: Taborny Forecast mining production for the Base Case LoMp 2021 to 2025 and LoM total to end of Mining in Q1 2034

Statistics	Units	2021	2022	2023	2024	2025	LoM total to 2034
Mined	(kt)	34,002	34,402	34,442	34,436	34,462	**392,826**
Waste	(kt)	28,586	26,497	26,408	27,139	28,179	**297,174**
Ore	(kt)	5,416	7,905	8,034	7,297	6,283	**95,651**
	(g/t Au)	0.59	0.40	0.43	0.45	0.47	**0.43**
	(koz Au)	102	101	112	105	96	**1,329**
Stripping ratio	(t_{waste}:t_{ore})	5.28	3.35	3.29	3.72	4.48	**3.11**

5.5.6 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 5-15. The Audited Ore Reserve Estimate as of 31 December 2020 is tabulated in Table 5-16.

In reporting the Ore Reserves as stated in Table 5-16, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.20 g/t Au cut-off grade based on a long term Au price of USD1,400/oz within a final pit design. Applied open pit mining factors are: 105% dilution and 95% recovery, 60-75% processing recovery depending on material type and grade, open pit mining cost of USD1.21/t, processing cost of USD2.49 or 4.18/t_{ore} dependent on crushed or truck dumped, G&A at USD1.24/t_{ore}. Sustaining capital of USD0.34/t_{ore} planned for HL.
3. Ore Reserves have demonstrated economic viability.
4. The pit inventories were constrained within the Company's existing LoM pit designs.
5. The Ore Reserve comprises a mine life of approximately 10 years.
6. Ore Reserves are presented on a 100% basis.

Table 5-15: Cut-off Grade Parameters - Taborny

Parameter	Value
Gold Price (USD/oz)	1400
Refining Cost USD/oz)	2.48
Royalty (%)	6.0
Metallurgical Recovery	
Mineralised Waste - Oxides (0.2-0.3 g/t Au) (%)	60
Low Grade - Oxides (0.3-0.4 g/t Au) (%)	60
Medium and High Grade - Oxides (above 0.4 g/t Au) (%)	75
Medium and High Grade - Oxides – Truck dumped (above 0.4 g/t Au) (%)	75
Transitional (above 0.2 g/t Au) (%)	27.04
Total Processing Costs – Crushed (USD/t)	2.74
Total Processing Costs – Truck dumped (USD/t)	1.39
General & Admin. (USD/t milled)	1.24
Total Ore Based Costs – Crushed (USD/t milled)	4.18
Total Ore Based Costs – Truck dumped (USD/t milled)	2.49
In-situ Cut-Off grade (g Au/t)	0.20

Table 5-16: Taborny Gold Mine Ore Reserve Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Proved			Probable			Proved + Probable		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Taborny	Oxide	0.2	35	0.5	0.5	65,318	0.4	920	65,352	0.4	920
	Stockpiles		-	-	-	3,766	0.3	37	3,766	0.3	37
	Total Taborny		**35**	**0.5**	**0.5**	**69,083**	**0.4**	**957**	**69,118**	**0.4**	**957**

5.5.7 SRK Comments

For the current Ore Reserve Case design, it should be noted that the final pit design does not contain any additional geotechnical berms or ramps on the South wall, resulting in approximately 370 m of uninterrupted slope and could pose a risk of slope failure. SRK recommends that based on data to be collected in 2021, rock mass, structural and hydrogeological models should be developed, and the proposed slope angles updated. Given that the lower third of the final pit slope will be located below the permafrost, it is critical that the effects of pore pressure on the final walls are understood and taken account of in any proposed future slope design. These areas are included in the Ground Control Management Plan and Ground Water Management Plans. As mining in this region will only take place towards the latter years in the LoMp, Nordgold is on track to address these risks prior to excavation.

The Ore Reserves are currently largely contained within the Taborny pit pushbacks and this drives the Base Case schedule, as can be seen when the Ore Reserve Case and Base Case pit designs are compared. The inclusion of Inferred material in the Base Case pushbacks increases the overall size of the Taborny pit only marginally and does not affect the overall practical mining. The addition of higher-grade material from the satellite Temny and Vysoky deposits, and especially the separate Vrezanny deposit, needs to be further proven through conversion of Inferred Resources to Indicated through further drilling. In particular, it has been identified by the Company that further geological and other technical studies on the Vrezanny deposit will be undertaken for permitting under the Russian project development system (TEO Project). An initial TEO was completed in 2020 to define Resources under the Russian reporting system (GKZ) and describe preliminary mining, geotechnical and groundwater conditions.

In the opinion of SRK, the Ore Reserves Estimate and Ore Reserve Case Design prepared for Taborny Open Pit Gold Mine provides a sound basis for development of the Base Case LoMp.

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

5.6 Mineral Processing

5.6.1 Flowsheet Description

The Taborny process plant treats low grade non-refractory sandstone hosted gold ore by heap leaching to produce gold doré on site.

The plant commenced production in 2002 and has been upgraded in several stages, with expansion of the metal recovery circuit and simplification of the feed preparation circuit. The nominal design capacity of the plant is now 7 Mtpa based on a high proportion of direct dumped ore.

The key unit processes are:

- Crushing: Ore designated for crushing is crushed to a nominal -100 mm using two mobile crushers operating in parallel. Both crushers are based on Metso/Nordberg C120 jaw crushers; one unit is a Nordberg NW120 and the other is a Lokotrack LT120. The Nordberg unit is powered by a 160 kW electric motor and is fitted with a 90 mm scalping screen. The Lokotrack unit is powered by a 310 diesel generator and is fitted with a 75 mm scalping screen. Both crushers operate in open circuit.
- Heap Leaching: The crushed ore is transported to the leach pads using a series of overland conveyors, feeding onto mobile grasshopper conveyors and final to a radial stacker. Direct dumped ore is delivered to the pads by the mine haul trucks. The maximum lift height is 12 m. Leach solution is applied using wobbler sprinklers during the warmer months and drip emitters, which are buried just under the surface of the heaps, in the colder months. Due to the prevailing climatic conditions, the barren and pregnant solutions are stored in tanks inside the elution building rather than in open ponds. During winter the barren solution is heated before being transferred to the pads.
- Historically, a two stage crushing circuit was used to crush the ore to a nominal -40 mm and the ore was agglomerated with cement using a drum agglomerator before stacking. As the project developed, however, testwork showed that the ore was less sensitive to crush size than was initially thought, and so as production was expanded, the crushing circuit was simplified to the current -100 mm nominal crush size and agglomeration was discontinued. Further operational experience has shown that omitting crushing completely results in little additional loss in recovery.
- Pad Preparation: The foundation of each pad consists of a compacted base over which is laid 0.3 m of medium grained sandy soil. This is overlaid by a 2 mm HDPE geomembrane, a 600 g/m^2 geotextile and a geogrid. A 1.5 m drainage layer laid over this consists of a 0.8 m layer of 40-70 mm crushed rock, a 0.4 m layer of 20-60 mm crushed rock over which is laid another geogrid, and finally a 0.3 m layer of 5-20 mm crushed rock.

- Absorption, Elution and Electrowinning: The absorption circuit consists of ten parallel trains with each train consisting of two columns operating in series. . Three of the trains are operated under pressure and the same columns are used as the elution columns as part of a pressure Zadra elution and electrowinning circuit. The other trains are configured more conventionally with the carbon transferred from the adsorption columns to an elution circuit where the carbon is desorbed and the gold electrowon under pressure.
- Goldroom: The sludge from electrowinning is filtered then calcined ahead of being smelted into doré.

5.6.2 Supporting Metallurgical Testwork

A number of testwork programs for the Taborny project have been conducted subsequent to the first program undertaken by Irgiredmet in 1998. These include work conducted by Tula NIGP in 2009, SGS Vostok in 2010, 2012 and 2017 and Irgiredmet in 2017 and 2018.

The sample tested by Irgiredmet in 1998 had a head grade of 2.02 g/t Au. Diagnostic leach tests showed 90% of the gold to be cyanide-recoverable. A column leach test was undertaken with material crushed to -20 mm and agglomerated with 5 kg/t cement. After a 75 day leach cycle, the Au extraction was 80.0%.

The two samples tested by Tula NIGP had head grades of 1.70 g/t Au and 0.62 g/t Au. The respective Ag head grades were 1.39 g/t and 0.78 g/t. Diagnostic leach tests showed 89% and 86% of the gold to be cyanide-recoverable for the respective samples, and the respective leach recoveries from bottle roll tests conducted on ground ore were 90.0% and 88.4%. Bottle roll tests were followed by column leach tests on the samples crushed to -40, -30, -20 and -10 mm. Column test leach recoveries varied with crush size; for the higher grade sample from 62% at -40 mm to 88% at -10 mm, and for the lower grade sample from 57% at -40 mm to 77% at -10 mm.

The 2010 SGS Vostok program tested two samples from the Temny deposit. The samples had head grade of 1.39 g/t Au and 0.63 g/t Au. The respective Ag head grades were 1.1 g/t and 1.8 g/t. Bond Abrasion Index tests indicated that material to be moderately abrasive, and percolation tests showed the material to be highly permeable, with no need for agglomeration or binder addition. Diagnostic leach tests showed 93% and 86% of the gold to be cyanide-recoverable for the respective samples, and the respective leach recoveries from bottle roll tests conducted on ground ore were 92.9% and 85.7%. Bottle roll tests conducted on material crushed to -5 mm reported recoveries less than 1% lower than for the ground material. Column leach tests were conducted on the samples crushed to -40, -20 and -10 mm. Column test leach recoveries varied with crush size; for the higher grade sample from 76% at -40 mm to 93% at -10 mm, and for the lower grade sample the degree of variation was less, from 86% at -40 mm to 88% at -10 mm.

The sample tested at SGS Vostok in 2012 had a head grade of 0.69 g/t Au and 1.0 g/t Ag. Percolation tests showed the material to be highly permeable, with no need for agglomeration or binder addition. Bottle roll leach recoveries were 90.2% for ground ore and 88.4% for material crushed to -5 mm. Column leach tests were conducted on the sample crushed to -100 and -40 mm. Column test leach recoveries showed limited variation with crush size; the recovery for the -100 mm crush size was 88.6% and for the -40 mm crush size it was 89.2%.

Irgiredmet tested two further samples from the Temny deposit in 2017. The samples had head grade of 1.84 g/t Au and 0.59 g/t Au. The respective Ag head grades were 0.4 g/t and 1.4 g/t. Diagnostic leach tests showed 98% and 92% of the gold to be cyanide-recoverable for the respective samples. Bottle roll tests conducted on material crushed to -5 mm reported recoveries of 91% and 83%. At a crush size of -40 mm, the recovery for the higher grade sample was only slightly lower at 84%; however, for the lower grade sample, it was much lower at 69%.

SGS Vostok tested two samples from the Vysoky deposit in 2017. The samples had head grade of 0.92 g/t Au and 0.45 g/t Ag, and 1.05 g/t Au and 0.66 g/t Ag. Diagnostic leach tests showed 89% and 90% of the gold to be cyanide-recoverable for the respective samples. Bottle roll tests were conducted on material crushed to -40, -20, -10 and -5 mm. Recoveries were variable with crush size, ranging from 35% at -40 mm to 88% at -5 mm for the first sample, and 51% at -40 mm to 92% at -5 mm for the second sample. Column leach tests were conducted at the same crush sizes. Recoveries were less variable with crush size; ranging from 75% at -40 mm to 92% at -5 mm for the first sample, and from 85% at -40 mm to 92% at -5 mm for the second sample.

In 2018 Irgiredmet tested a sample of “off-balance” ore, with a head grade of 0.29 g/t Au and 0.33 g/t Ag. A diagnostic leach test showed 93% of the gold to be cyanide recoverable. Column leach tests were conducted on the sample spit into +40 mm and -40 mm factions (the top size was approximately 100 mm). The column recoveries were 91.1% for the -40 mm fraction and 68.1% for the +40 mm fraction, giving an overall weighted recovery of 83.6%.

In 2019, Irgiredmet tested a further five low grade samples, three from Temny and two from Taborny. The head grades ranged from 0.34 g/t to 0.82 g/t Au. Diagnostic leach tests showed between 85% and 91% of the gold to be cyanide recoverable. Percolation tests showed the samples to be highly permeable. Column leach tests were conducted on material crushed to -40 mm. Leach extractions ranged from 70.6% to 81.9%.

The results of the column leach tests from all of these programs are summarised in Table 5-17. Earlier versions of the Technical Regulations for the project specified a leach recovery of 75%. The most recent Technical Regulations list Au recovery of 73.9% and Ag recovery of 10% for material with a head grade of 0.74 g/t Au and 0.56 g/t Ag.

Table 5-17: Taborny Summary of Column Leach Test Results

Laboratory	Year	Sample Name	Deposit	Au Head Grade (g/t)	Au Recovery (%) at crush size (mm)					
					-5	-10	-20	-30	-40	-100
Irgiredmet	1998		Taborny	2.02			80.0			
Tula NIGP	2009	LTP-1	Taborny	1.70		87.8	81.6	79.5	62.4	
		LTP-2	Taborny	0.62		77.0	70.2	67.8	57.2	
SGS Vostok	2010	T-13	Temny	1.39		92.6	85.1		76.3	
		T-14	Temny	0.63		87.9	87.0		86.0	
SGS Vostok	2012	LTP-1	Taborny	0.69					89.2	88.6
SGS Vostok	2017	B-1	Vysoky	0.92	92.4	90.2	88.9		74.8	
		B-2	Vysoky	1.05	91.9	90.0	90.1		85.4	
Irgiredmet	2018	Z-1	Taborny	0.29						83.6
Irgiredmet	2019	TP-1	Temny	0.34					70.6	
		TP-2	Taborny	0.82					81.9	
		TP-3	Temny	0.34					73.7	
		TP-4	Taborny	0.35					70.8	
		TP-5	Temny	0.50					78.7	

5.6.3 Historical Operating Data

Annual plant operating data for the period 2016 to 2020 is shown in Table 5-18, this includes the combined Taborny-Gross statistics presented over 2016-2018, as processed at Taborny. After 2018, all Gross ore was processed at its own facilities.

Table 5-18: Taborny Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	4,742	5,590	5,622	6,065	7,939
Au Head Grade	(g/t)	0.70	0.64	0.73	0.52	0.46
Au Recovery	(%)	76.5	77.1%	75.2%	70.6	69.2
Au Produced	(koz)	79.8	68.4	97.6	77	78
Operating Cost	(USD/t)	2.03	2.40	2.54	2.62	1.96

5.6.4 Forecast Operating Data

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 5-19. Both cases have a steady state ore feed to the HLF of 7 Mtpa from 2022 to depletion of the Reserves in 2030 for the Ore Reserve case, and continuing to Q1 2035 for the Base Case (14 years LoM). In the Base Case, recoveries gradually reduce from around 70% to 60% in the last three years as a result of processing more low grade material from stockpiles.

Table 5-19: Taborny Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	69,118	99,417
Gold Grade	(g/t Au)	0.43	0.43
	(koz Au)	957	1,367
Gold Recovery	(%)	70.5%	70.7%
Doré Produced	(kg)	21,005	29,899
	(koz Au)	675	961

5.6.5 Discussion

The Taborny processing circuit represents a conventional heap leach format in terms of the feed preparation, pad design and metal recovery elements, although the use of a single stage of open circuit crushing and no agglomeration together with direct dumped ROM ore is somewhat simpler than typical for a heap leach. The project is also well adapted to cold climate operation.

The simplification of the crushing circuit was undertaken both in response to more recent testwork and as part of an expansion from the previous level of 2.6 Mtpa to the current 7 Mtpa design figure. The 2018 and 2019 operating data shows that the expected production increase has been met with no significant decrease in performance; the lower recovery in 2019 is likely to be a function of the lower head grade. The historical recoveries have been close to the figure of 74-75% as specified in the Technical Regulations, values which seem slightly conservative when compared to the column leach test results.

The column leach test results do show some degree of sensitivity of recovery to crush size, as would be expected, with the exception of the T-14 sample tested by SGS Vostok in 2010 and the LTP-1 sample also tested by SGS Vostok in 2012. With the exception of the two samples tested by Tula NIGP in 2009, however, the testwork results do generally support the recovery as specified in the 2020 Technical Regulations of 74% at the nominal -100 mm crush size.

Figure 5-7 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as estimated recoveries based on a selection of the testwork results. The historical and forecast data are annual figures for 2014 and 2015 and for 2022 onwards, and monthly figures for 2016-2021 inclusive. These testwork results are for the coarsest crush size tested in each case. The recovery per "grade bin" assumed in the MPA spreadsheet supporting the 2022 SBP is also shown.

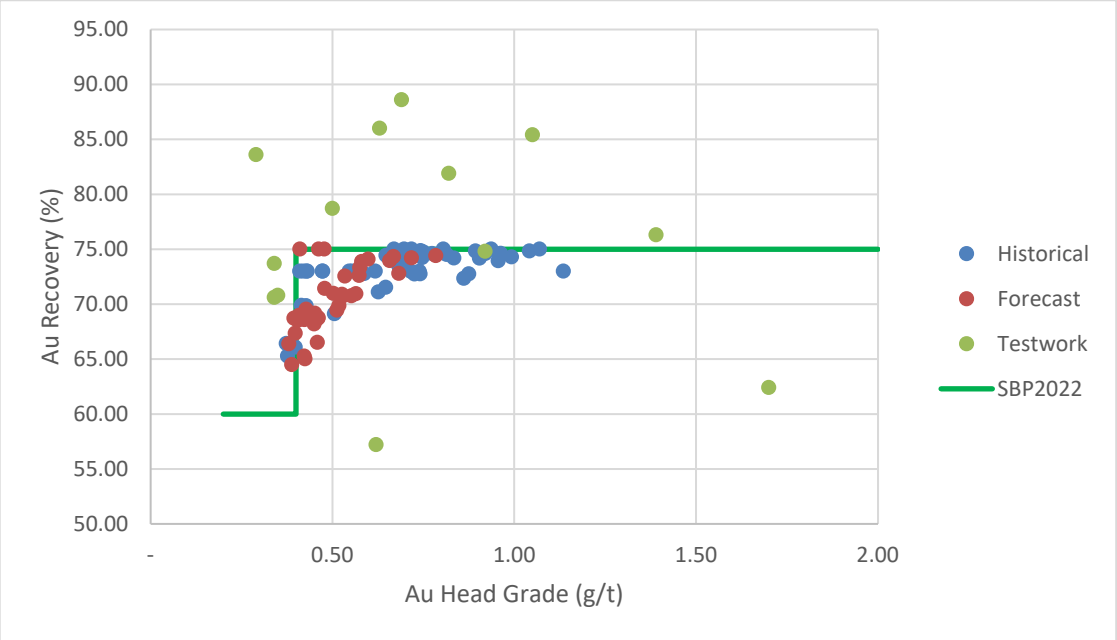


Figure 5-7: Taborny Gold Recovery versus Head Grade

The historical recoveries show a general trend of increasing with increasing head grade, from a figure of the order of 65% at 0.4 g/t Au to no more than 75% at 1.0 g/t Au or higher. For the most part, these values are similar or lower than the testwork values. The forecast values follow the same general trend.

The recoveries assumed in the MPA are possibly even slightly conservative for the "Min Waste" (0.2-0.3 g/t Au) and "LG" (0.3-0.4 g/t Au) grade bins and is appropriate for the "HG" (>0.6 g/t Au) bin, but the figure for the "MG" (0.4-0.6 g/t Au) bin is somewhat optimistic; a value of the order of 70% would seem more in keeping with the historical performance.

The operating cost estimates are reasonable for a plant of its configuration and scale, although there is no appreciable decrease in operating cost accompanying the increase in production since 2017.

The MPA spreadsheet lists processing operating costs of USD2.74/t for ore that is crushed, and USD1.39/t for direct dumped RoM ore. These costs are referenced to 2020 (January-September) actual costs.

5.7 Heap Leach Facility

Taborny has a processing plant with crushing circuit and heap leach pads. Nordgold recently increased the ore processing capacity from 1 Mtpa to 7.5 Mtpa ore by RoM truck stacking and installation of a two-line Metso crusher as well as a telescopic conveyor as part of its capacity expansion initiative at the mine.

A pumping station was also built at the heap leaching site of the mine. This station consists of four Sulzer pumps, each having a capacity of 400 m^3/h.

SRK has received 3D models of the proposed HLF design at Taborny. These will be constructed upon the existing HLF, to a maximum elevation of some 160 m above existing ground level, albeit with a lower average elevation of 80 m. A recent satellite image of the site indicates the location of the HLF, some 500 m SW of the open pit (Figure 5-8).

Future HLF will be required to store approximately 68 Mt and 99 Mt of ore under the Ore Reserve Case and the Base Case, respectively. Currently there are no detailed designs in place for future expansions of the HLF. SRK recommends that stability analysis is carried out to verify that the proposed HLF geometries are feasible at this site, which is located in a region of high seismicity.

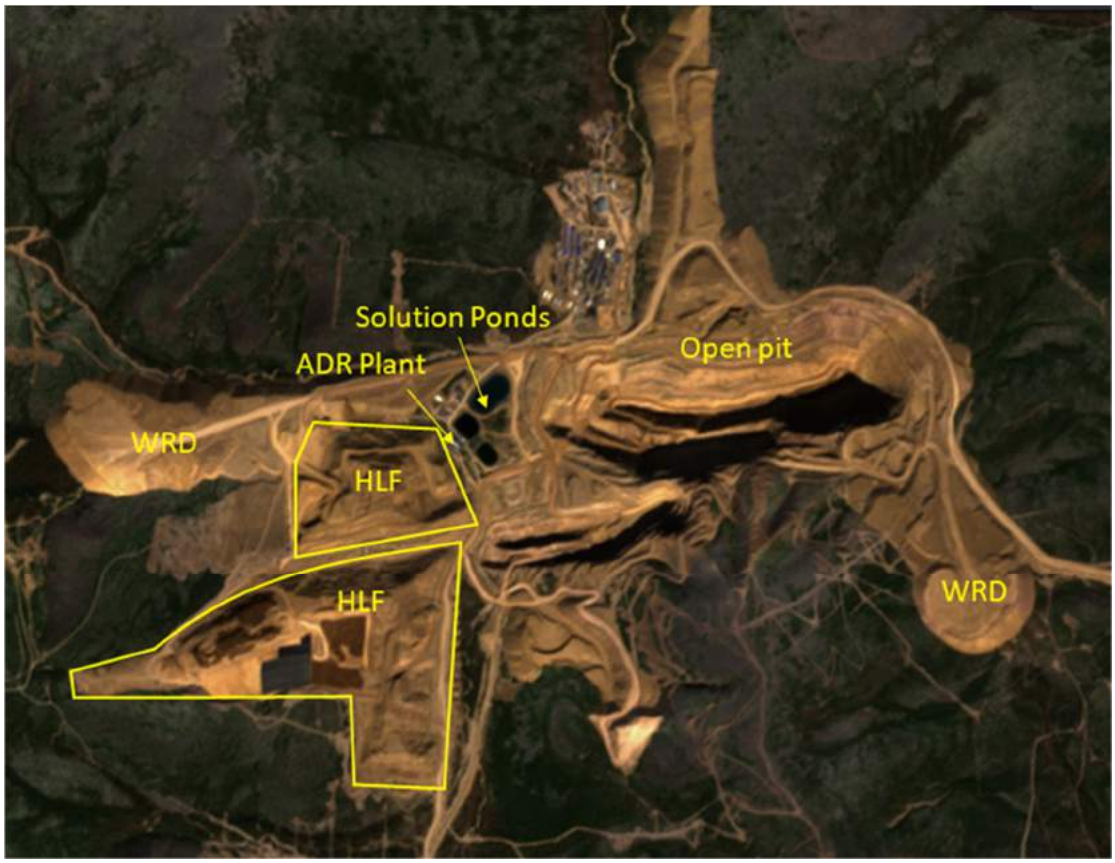


Figure 5-8: Taborny Heap Leach Facility Satellite Imagery (2020)

Nordgold has provided costs for additional HLF construction over the remaining LoM period, which are based upon realised values at current operations. Assuming that the current construction method is maintained, Nordgold does not anticipate that these will increase significantly over the remaining mine life.

Nordgold has committed to undertaking additional geochemistry test work (kinetic testing) and seepage modelling to confirm the current assumption that the risk of ARDML conditions over the long term can be discounted. Once this work has been completed, the risk of the requirement for additional earthworks and capital to install engineered covered systems across the relatively large footprint area of the HLF/leached ore dump can be discounted.

5.8 Infrastructure and Logistics

The Taborny mine is an operating asset and as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- heating and hot water supply (via a coal fired boiler house);
- waste and wastewater management facilities;
- water supply from a lake to the south of Taborny; and
- site roads, communications, and security infrastructure.

The fuel and explosives storage facilities are currently utilised by both Taborny and Gross, however, once the Gross Mine fuel storage facility is completed, which is due to be 2021, fuel storage for Gross will transfer to this new facility.

Power is generated by a diesel powerplant.

The mine is easily accessed from the airport at Chara and supplies are delivered to a rail logistics siding at Ikabya Station, which is on the BAM railway prior to road transport to site via an all-weather access road.

No major capital investment is planned for infrastructure assets.

5.9 Human Resources

Nordgold has provided the following breakdown of staff at the Taborny Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2035. Staff numbers are expected to stay constant over the LoM period.

Table 5-20: Taborny Personnel Breakdown

Business Unit / operation	Total Head Count, FTE				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Taborny	764	746	777	797	11	9	12	12

5.10 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Taborny mine has a health and safety management system that is being aligned with ISO 45001:2018. The mine is targeting certification of conformance to this standard by the end of 2021.

A register of incidents is maintained on the Taborny mine and includes cases involving employees, contractors and third parties. The database has about 25 parameters and includes investigation, estimation of damage, and analysis of root causes and lessons learned.

Table 5-21 summarizes the key health and safety indicators for Taborny mine.

Table 5-21: Taborny Occupational Health and Safety Statistics

Statistic	Own Staff/ Contractors	
	2019	2020
Actual Headcount	391/ 126	387/ 49
Lost time injury frequency rate (“LTIFR”)	0.42/ 0	0.12/ 1.03
Total recordable injury frequency rate (“TRIFR”)	5.64/ 11.05	1.81/ 20.63
Lost Time Accident Days (“LTAD”)	49/ 0	41/ 17
Fatalities	0/ 0	0/ 0
Lost Time Incidents - Severe	2/ 0	0/ 0
Lost Time Incidents - Minor	1/ 0	1/ 0
Medical Treatment Incidents (“MTI”)	5/ 1	2/ 3
First Aid Incidents (“FAI”)	8/ 0	11/ 0
Near Misses	3/ 0	4/0

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

5.11 Environmental and Social Matters

5.11.1 Environmental and Social Setting

Administratively, the Taborny mine is in the Tyanya National Nasleg within the Olekminsky District of the Republic of Sakha (Yakutia). The deposit is remote from the settlements, the nearest settlement is adjacent to the railway 80 km to the south.

The Tyanya National Nasleg is officially defined as a territory for traditional land use by indigenous minorities. The traditional land uses include hunting, fishing and reindeer breeding. Much of territory is hard-to-reach; road access is seasonal. The only officially registered residential settlement in the Nasleg is Tyanya village with about 500 residents, 155 km north of Taborny mine. Traditional forms of land use play an important role and are sometimes the principal source of income for local population.

All licence areas are located on the Forestry Fund lands (Neryungri Forestry), mainly of the “reserve forest” category. The surrounding forests are not used for industrial timber harvesting. Within the Kondinsky licence site, there is a placer gold mining licence held by a third party that separates the site into two parts.

There are no specially protected natural territories or cultural heritage landmarks within the limits of licence sites.

The deposit area is characterized by low degree of anthropogenic impact represented, primarily by activities of “Rudnik Taborny” LLC (geological exploration and mining). The area has mid-mountain, well-dissected terrain with flat watersheds and cut-in river valleys. Absolute elevations reach 1,400 mamsl. The slopes reach angles of 25-30º. Seismic activity of the area is estimated as 9 points by MSK-64 scale.

Soil cover is mainly represented by poorly developed permafrost rocky soils with close occurrence of bedrock. Groundwaters are represented by supra-permafrost waters of seasonal thawing layer and by waters of non-through and through taliks (unfrozen lenses) with mineralization 40-70 mg/L.

The Taborny and Vysoky deposit areas are drained by Rudny and Taborny streams in the catchment of the Temny stream, within the Olekma River basin. The Tokko and Kondinsky sites are in the catchment of the Tokko River and its tributaries.

The streams are charged predominately by rainwater; after spring flooding, the discharge of Temny stream drops significantly and stops altogether in its tributaries. There are numerous lakes in the deposit area, formed by glaciations and thermokarst processes, the largest of which, Usu Lake, is 4.5 km south of Vysoky deposit.

The streams and water bodies of the area have low importance for commercial fishing. There are no settlements on the Tokko River. The Tokko River can be used for amateur fishing by residents of Tyanya and, less often, by tourists.

Vegetation within the work zone is of mountainous taiga type with a typical vertical zoning and predominance of larch taiga. Eleven plants and several animals (mainly birds) entered in Yakutia and Russian Federation Red Book may be present in the deposit area, according to observations made in baseline studies undertaken over the years. Fauna around the deposit is not as diverse as in the region, which is due to the high-mountain location and the absence of permanent water streams, as well as mining impacts. There are no large-scale animal-migration routes in the area.

5.11.2 Approach to Environmental and Social Management

Management System

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Taborny mine has an environmental management system that is being aligned with ISO 14001:2015. The mine is targeting certification of conformance to this standard by the end of 2021.

Environmental management system includes job descriptions with the definition of responsibilities, corporate policies, environmental monitoring and control, and periodic audits from the corporate office. One environmental specialist supports environmental management practices at Gross and Taborny mines. This specialist reports to the Director for Health, Safety and Environment, who in turn reports to the Executive Director of "Neryungri-Metallic" LLC.

In 2020, "Rudnik Taborny" LLC developed environmental monitoring and control programs for the Taborny and Temny deposits, as well as for the Tokko deposit[15]. The monitoring for the Temny and Taborny deposit includes the following activities:

- Analysis of ambient air quality at the border of sanitary protection zone and residential quarters of the rotation crew camp, around waste disposal sites.
- Control of emission sources (by estimate).

[15] *Includes control of air pollution, contamination of surface waters and soils.*

- Analysis of surface waters in Rudny, Temny and Teryaushiysa streams before and after possible impact of production activities.
- Analysis of wastewater at the discharge locations.
- Control of soils around the waste disposal sites and on neighbouring territories.

The ongoing environmental monitoring is generally in line with the approved program. Environmental monitoring data is used as a basis for emissions payments to the government. These are paid in accordance with tax regulation in the country. Table 5-3 summarises the mine's environmental payments in 2017-2019.

Table 5-22: "Rudnik Taborny" LLC Environmental Payments

	2017*		2018*		2019	
	Under limit RUBk	Over limit RUBk	Under limit RUBk	Over limit RUBk	Under limit (RUBk	Over limit RUBk
Emissions	84.36	0	96.83	0	132.8	0
Discharge	0.32	0	0.71	10.46	0.73	6.38
Wastes	2 570.41	34.51	5 065.21	203.429	5 035.46	0

* Payments for 2017 and 2018 are given for "Neryungri-Metallic" LLC, that included Gross deposit along with the Taborny and Temny deposits.

Stakeholder Engagement

The stakeholder engagement practices for Taborny mine are the same as those for Gross mine (Section 4.11.2).

At the public hearings in 2019 for the Vysoky deposit, the stakeholders agreed to approve the project subject to the following conditions and requirements:

- conclusion of socio-economic agreements with the Olekminsky District, the Tyanya National Nasleg and the Tyanya nomadic tribal community;
- discussion of socio-economic measures to compensate for the environmental impact with the participation of local residents and the Tyanya community; and
- employment quotas for residents of the Olekminsky District at "Rudnik Taborny" LLC.

Community Development

Targeted financial assistance has been provided to Olekminsky District for 10 years as part of social-economic agreements with Olekminsky District administration, Tyanya nomadic tribal community, and Tyanya National Nasleg (settlement). The agreements are updated annually[16]. From 2013 to 2019, RUB33.2m were transferred under the agreements. In addition to the agreements, Nordgold provides targeted support for events and celebrations.

5.11.3 Technical Issues

The following technical issues were noted:

[16] *Legally, the agreements are signed with "Neryungri-Metallic" LLC.*

- The West (Zapadny) Dump is partially located in the water protection zone of the Rudny stream and it is likely that the North (Severny) Dump is in the water protection zone of the Temny stream. SRK understands the designs for the dumps are officially approved and the mine is simply required to take measures to avoid pollution of the streams.
- No studies of ARDML potential have been undertaken. The mine is not legally obliged to undertake these studies but recognises that ARDML studies are required for mine closure planning aligned to the Responsible Gold Mining Principles.

5.11.4 Closure

A proposal for closure of Taborny mine is presented in the mine design documentation and is complemented with LoM closure cost estimate by "SPb-GIPROSHAKHT" LLC (2020). The plan focuses on making the Taborny and Temny pits safe, dismantling of buildings and structures and waste removal offsite, covering of leaching pads, waste dumps, ore stockpiles and all solid surfaces with ground without dismantling. The estimate amounts to USD0.7m.

From available information, ongoing rehabilitation is not carried out. The area of disturbed land at the Taborny and Temny deposits was 1,694 ha at the start of 2020.

Nordgold recognises that the above-mentioned estimate is low and has prepared an updated estimate of USD10.7m, which has been included in the financial model for the Ore Reserve Case and Base Case.

There is a risk that the actual closure costs will be higher. The closure legislation in Russia could become stricter, following global norms, and ARDML test work may reveal a need for more stringent closure measures such as capping of mine waste facilities.

SRK notes that the above-mentioned closure cost estimate excludes retrenchment costs.

Taborny mine is not obliged to provide the Government with financial assurance for closure.

Nordgold intends to review the Company's mine closure practices against the Responsible Gold Mining Principles and other international industry standards. Products of this review will be a Nordgold closure framework and updates to closure plans and cost estimates.

5.11.5 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Taborny mine:

- Continues with the development of the environmental management system and obtains certification of this and the health and safety management system as planned.
- Conducts ARDML studies as planned.
- Updates the closure plans and cost estimates in accordance with the new group closure framework when this has been established.
- Maintains a proactive and continuous community stakeholder engagement process.
- Considers options for phased site clearing while developing new exploration areas. This will reduce the annual reforestation obligations, as annual state quotas for forest plantations may be limited.

5.12 Economic Assessment

5.12.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Taborny gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 100% of the Taborny gold mine.

5.12.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Taborny cashflow analysis:

- royalty rate of 6.0% flat;
- corporate income tax rate of 20% flat;
- property tax payable at approximately USD150k per annum; and
- closure cost allowance of USD10.7m and retrenchment cost of USD0.2m have been allowed for in the economic assessment.

5.12.3 Production

Historical processing statistics over 2016-2020 are presented in Table 5-23. The remaining life of mine for the Ore Reserve Case is 10 years, and 15 years for the Base Case (14 years of mining plus a further one year of stockpile processing).

Table 5-23: Taborny Historical Production (Inclusive of Gross during 2016-2018)

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	18,776	22,593	17,288	20,774	30,048
Waste	(kt)	13,613	16,866	12,065	15,670	22,541
Capital Waste	(kt)	3,308	3,037	1,925	10,942	13,208
Operating Waste	(kt)	10,305	13,829	10,139	4,728	9,333
Ore	(kt)	5,163	5,727	5,224	5,104	7,507
Gold Grade	(g/t Au)	0.66	0.64	0.77	0.52	0.46
Gold Contained	(koz Au)	109	117	129	86	110
Surface Haulage	(kt)	-	-	-	-	-
Processing Feed	(kt)	4,742	5,590	5,622	6,065	7,939
Gold Grade	(g/t Au)	0.70	0.64	0.73	0.52	0.46
Gold Contained	(koz Au)	107	115	131	102	117
Gold Recovery	(%)	76.5%	77.1%	75.2%	70.6%	69.2%
Doré Produced	(kg)	2,482	2,129	3,035	2,385	2,432
	(koz Au)	80	68	98	77	78
Sales						
Doré	(koz Au)	80	67	99	77	77
Commodity Prices						
Gold	(USD/oz)	1,284	1,277	1,258	1,409	1,801
Sales Revenue						
Gold	(USDm)	102.9	85.9	124.2	108.3	139.0

5.12.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 5-24. These numbers exclude capitalised waste stripping (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Taborny, this cost amounts to approximately USD1.90/oz.

The Company has noted that for the Russian Mineral Assets, in general, approximately 50% of the operating costs incurred are denominated in local currency, 30% in USD and 20% in EUR.

Table 5-24: Taborny Historical Operating Expenditure (Inclusive of Gross during 2016-2018)

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	14.7	20.5	18.5	11.6	14.9
Surface Haulage	(USDm)					
Processing	(USDm)	9.6	13.4	14.3	15.9	15.5
Other Production	(USDm)	(1.8)	(6.6)	(0.5)	0.4	(0.5)
Overheads	(USDm)	9.4	10.5	9.7	7.6	9.1
General Site	(USDm)	8.3	9.2	8.7	6.4	7.9
SG&A	(USDm)	1.1	1.3	0.9	1.2	1.2
Royalties/Other Taxes	(USDm)	6.9	5.4	7.1	6.6	8.8
Other Operating	(USDm)	0.9	0.6	0.5	0.5	0.2
Total Cash Cost	**(USDm)**	**39.7**	**43.8**	**49.6**	**42.6**	**48.1**

5.12.5 Capital Expenditure

Table 5-25 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for the Russian Mineral Assets, in general, approximately 20% of capital expenditure incurred are denominated in local currency, 40% in USD and 40% in EUR.

Table 5-25: Taborny Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	**(USDm)**	**1.1**	**1.7**	**3.5**	**23.2**	**6.3**
Exploration	(USDm)	1.1	1.6	2.9	7.8	1.8
Dev/New Technology	(USDm)	-	0.1	0.6	15.4	4.6
New Mine Construction	(USDm)	-	-	-	-	-
Sustaining	**(USDm)**	**13.0**	**16.5**	**13.5**	**25.4**	**26.5**
Exploration	(USDm)	1.7	0.5	0.3	1.0	0.8
Maintenance	(USDm)	9.3	12.9	10.5	10.8	14.2
Capital Stripping/Dev	(USDm)	2.0	3.0	2.7	13.6	11.5
PCR	(USDm)	-	-	-	-	-
Total Capital Expenditure	**(USDm)**	**14.2**	**18.1**	**16.9**	**48.7**	**32.9**

5.12.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Taborny, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 5-26) and unit cost assessments (Table 5-27);
- for the Ore Reserve Case, annual detailed cashflows (Table 5-28) and annual unit cost assessment (Table 5-29); and
- for the Base Case, annual detailed cashflows (Table 5-30) and annual unit cost assessment (Table 5-31).

Both cases present technically feasible and economically viable plans.

Table 5-26: Taborny LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	256,407	392,826
Waste	(kt)	191,055	297,174
Capital Waste	(kt)	66,232	102,643
Operating Waste	(kt)	124,823	194,531
Ore	(kt)	65,352	95,651
Gold Grade	(g/t Au)	0.44	0.43
Gold Contained	(koz Au)	920	1,329
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	69,118	99,417
Gold Grade	(g/t Au)	0.43	0.43
Gold Contained	(koz Au)	957	1,367
Gold Recovery	(%)	70.5%	70.7%
Doré Produced	(kg)	21,005	29,899
	(koz Au)	675	961
Sales			
Doré	(koz Au)	675	961
Commodity Prices			
Gold	(USD/oz)	1,550	1,513
Sales Revenue			
Gold	(USDm)	1,047	1,454
Operating Expenditure			
Mining	(USDm)	187	290
Surface Haulage	(USDm)	-	-
Processing	(USDm)	141	215
Other Production	(USDm)	(6)	(6)
Overheads	(USDm)	80	119
Royalties/Other Taxes	(USDm)	64	89
Other Operating	(USDm)	0	0
Total Cash Cost	**(USDm)**	**465**	**706**
Cashflow			
EBITDA	(USDm)	582	748
CIT	(USDm)	74	100
Working Capital	(USDm)	5	5
Interest/Other	(USDm)	0	0
Operating Cashflow	**(USDm)**	**502**	**642**
Capital Expenditure	**(USDm)**	**194**	**259**
Project	**(USDm)**	**22**	**22**
Exploration	(USDm)	1	1
Development/New Technology	(USDm)	21	21
New Mine Construction	(USDm)	1	1
Sustaining	**(USDm)**	**161**	**226**
Exploration	(USDm)	6	7
Maintenance	(USDm)	61	73
Capital Stripping/Development	(USDm)	60	91
PCR	(USDm)	35	56
Closure/Retrenchment	**(USDm)**	**11**	**11**
Total Capital Expenditure	**(USDm)**	**194**	**259**
Free Cashflow	**(USDm)**	**308**	**383**

Table 5-27: Taborny LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	689	735
AISC	(USD/oz)	944	981
AISC (excluding closure)	(USD/oz)	927	970
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	0.99	1.00
	(USD/t_{ore})	2.87	3.04
Mining Capitalised	(USD/$t_{capitalised}$)	0.91	0.88
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	2.03	2.16
Overheads	(USD/t_{feed})	1.15	1.20

Table 5-28: Taborny Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Production												
Total Material Mined	(kt)	256,407	34,002	30,654	38,915	34,301	31,536	28,910	22,463	16,297	14,399	4,930
Waste	(kt)	191,055	28,586	24,476	31,714	26,388	21,910	21,480	15,931	11,880	8,037	653
Capital Waste	(kt)	66,232	16,047	11,078	2,099	9,407	-	10,051	9,620	7,930	-	-
Operating Waste	(kt)	124,823	12,539	13,398	29,615	16,981	21,910	11,430	6,312	3,950	8,037	653
Ore	(kt)	65,352	5,416	6,179	7,201	7,913	9,626	7,430	6,532	4,417	6,362	4,277
Gold Grade	(g/t Au)	0.44	0.52	0.45	0.40	0.34	0.38	0.45	0.46	0.57	0.44	0.50
Gold Contained	(koz Au)	920	91	90	92	87	118	107	97	81	89	68
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	69,118	7,268	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	5,850
Gold Grade	(g/t Au)	0.43	0.47	0.44	0.40	0.36	0.45	0.47	0.44	0.44	0.42	0.42
Gold Contained	(koz Au)	957	109	98	91	81	101	105	100	100	94	79
Gold Recovery	(%)	70.5%	68.3%	69.4%	70.4%	68.0%	71.7%	72.5%	72.2%	70.7%	71.1%	70.0%
Doré Produced	(kg)	21,005	2,327	2,121	1,984	1,715	2,250	2,368	2,248	2,189	2,074	1,728
	(koz Au)	675	75	68	64	55	72	76	72	70	67	56
Sales												
Doré	(koz Au)	675	75	68	64	55	72	76	72	70	67	56
Commodity Prices												
Gold	(USD/oz)	1,550	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400	1,400	1,400
Sales Revenue												
Gold	(USDm)	1,047	142.5	122.1	109.1	87.0	108.5	106.6	101.2	98.5	93.3	77.8
Operating Expenditure												
Mining	(USDm)	187	14.6	17.5	34.3	26.2	32.2	16.6	14.2	8.9	16.5	6.4
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-	-	-
Processing	(USDm)	141	15.9	16.2	16.4	14.8	13.7	13.9	13.9	13.1	12.6	10.2
Other Production	(USDm)	(6)	(6.4)	-	-	-	-	-	-	-	-	-
Overheads	(USDm)	80	8.5	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	4.2
Royalties/Other Taxes	(USDm)	64	8.1	7.5	6.7	5.4	6.7	6.6	6.2	6.1	5.7	4.7
Other Operating	(USDm)	0	0.1	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**465**	**40.8**	**49.5**	**65.8**	**54.8**	**61.0**	**45.5**	**42.7**	**36.4**	**43.2**	**25.6**
Cashflow												
EBITDA	(USDm)	582	101.8	72.7	43.3	32.2	47.6	61.2	58.5	62.1	50.2	52.3
CIT	(USDm)	74	21.5	10.5	6.1	2.2	6.6	7.4	5.9	6.6	5.2	2.2
Working Capital	(USDm)	5	5.1	-	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	0	0.1	-	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**502**	**75.0**	**62.2**	**37.2**	**30.0**	**41.0**	**53.8**	**52.7**	**55.5**	**45.0**	**50.1**
Capital Expenditure												
Project	**(USDm)**	**22**	**10.5**	**4.6**	**2.1**	**1.8**	**1.1**	**1.3**	**0.5**	**0.0**	**-**	**-**
Exploration	(USDm)	1	0.7	-	-	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	21	9.6	4.4	2.0	1.8	1.1	1.3	0.5	0.0	-	-
New Mine Construction	(USDm)	1	0.2	0.2	0.1	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**161**	**32.4**	**20.4**	**25.9**	**19.2**	**8.4**	**16.8**	**17.5**	**14.0**	**5.2**	**1.5**
Exploration	(USDm)	6	2.6	0.7	0.6	0.8	0.4	0.3	0.3	-	-	-
Maintenance	(USDm)	61	14.4	6.2	18.1	5.1	3.4	4.3	3.4	3.0	2.8	0.7
Capital Stripping/Dev	(USDm)	60	13.0	10.3	2.0	8.2	-	7.9	10.3	8.1	-	-
PCR	(USDm)	35	2.5	3.2	5.2	5.2	4.6	4.4	3.5	2.9	2.4	0.9
Closure/Retrenchment	**(USDm)**	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**10.9**
Total Capital Expenditure	**(USDm)**	**194**	**42.9**	**25.0**	**28.0**	**21.0**	**9.5**	**18.1**	**18.0**	**14.0**	**5.2**	**12.4**
Free Cashflow	**(USDm)**	**308**	**32.1**	**37.2**	**9.1**	**9.0**	**31.5**	**35.7**	**34.6**	**41.5**	**39.8**	**37.7**

Table 5-29: Taborny Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	689	545	725	1,031	995	842	597	590
AISC	(USD/oz)	944	978	1,024	1,437	1,344	959	818	832
AISC (excluding closure)	(USD/oz)	927	978	1,024	1,437	1,344	959	818	832
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	0.99	0.81	0.89	0.93	1.05	1.02	0.88	1.11
	(USD/t_{ore})	2.87	2.69	2.83	4.77	3.31	3.35	2.24	2.18
Mining Capitalised	(USD/$t_{capitalised}$)	0.91	0.81	0.93	0.97	0.87	-	0.79	1.08
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	2.03	2.19	2.31	2.34	2.12	1.95	1.98	1.98
Overheads	(USD/t_{feed})	1.15	1.17	1.20	1.20	1.20	1.20	1.20	1.20

Statistic	Units	2028	2029	2030
Standard Statistics				
Total Cash Cost	(USD/oz)	517	647	459
AISC	(USD/oz)	716	725	683
AISC (excluding closure)	(USD/oz)	716	725	487
Unit Costs				
Mining (excl capitalised)	(USD/t_{mined})	1.07	1.14	1.31
	(USD/t_{ore})	2.02	2.59	1.51
Mining Capitalised	(USD/$t_{capitalised}$)	1.02	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-
Processing	(USD/t_{feed})	1.87	1.80	1.74
Overheads	(USD/t_{feed})	1.20	1.20	0.72

Table 5-30: Taborny Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Production										
Total Material Mined	(kt)	392,826	34,002	34,402	34,442	34,436	34,462	34,602	34,402	34,236
Waste	(kt)	297,174	28,586	26,497	26,408	27,139	28,179	27,742	26,756	24,656
Capital Waste	(kt)	102,643	16,047	6,681	4,273	10,392	13,275	3,727	8,855	10,923
Operating Waste	(kt)	194,531	12,539	19,816	22,135	16,747	14,904	24,014	17,901	13,733
Ore	(kt)	95,651	5,416	7,905	8,034	7,297	6,283	6,860	7,646	9,580
Gold Grade	(g/t Au)	0.43	0.59	0.40	0.43	0.45	0.47	0.46	0.41	0.39
Gold Contained	(koz Au)	1,329	102	101	112	105	96	102	100	120
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	99,417	7,268	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Gold Grade	(g/t Au)	0.43	0.50	0.42	0.48	0.46	0.45	0.46	0.41	0.44
Gold Contained	(koz Au)	1,367	117	95	108	103	102	104	93	98
Gold Recovery	(%)	70.7%	68.3%	70.3%	72.5%	70.1%	70.7%	72.0%	73.5%	72.2%
Doré Produced	(kg)	29,899	2,327	2,075	2,429	2,249	2,244	2,319	2,130	2,210
	(koz Au)	961	75	67	78	72	72	75	68	71
Sales										
Doré	(koz Au)	961	75	67	78	72	72	75	68	71
Commodity Prices										
Gold	(USD/oz)	1,513	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	1,454	142.5	119.5	133.5	114.2	108.2	104.4	95.9	99.5
Operating Expenditure										
Mining	(USDm)	290	14.6	24.4	28.1	24.7	20.3	29.0	26.0	23.0
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-
Processing	(USDm)	215	15.9	18.0	16.4	15.1	14.0	15.8	17.7	16.2
Other Production	(USDm)	(6)	(6.4)	-	-	-	-	-	-	-
Overheads	(USDm)	119	8.5	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Royalties/Other Taxes	(USDm)	89	8.1	7.3	8.2	7.0	6.7	6.5	6.0	6.2
Other Operating	(USDm)	0	0.1	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**706**	**40.8**	**58.1**	**61.0**	**55.2**	**49.3**	**59.6**	**58.0**	**53.8**
Cashflow										
EBITDA	(USDm)	748	101.8	61.3	72.5	59.0	58.9	44.8	37.9	45.7
CIT	(USDm)	100	21.5	9.4	11.7	7.6	6.9	5.9	3.3	4.8
Working Capital	(USDm)	5	5.1	-	-	-	-	-	-	-
Interest/Other	(USDm)	0	0.1	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**642**	**75.0**	**52.0**	**60.8**	**51.3**	**52.0**	**38.9**	**34.6**	**40.9**
Capital Expenditure										
Project	**(USDm)**	**22**	**10.5**	**4.6**	**2.1**	**1.8**	**1.1**	**1.3**	**0.5**	**0.0**
Exploration	(USDm)	1	0.7	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	21	9.6	4.4	2.0	1.8	1.1	1.3	0.5	0.0
New Mine Construction	(USDm)	1	0.2	0.2	0.1	-	-	-	-	-
Sustaining	**(USDm)**	**226**	**32.4**	**14.5**	**27.1**	**18.9**	**20.6**	**13.0**	**18.2**	**18.3**
Exploration	(USDm)	7	2.6	0.7	0.6	0.8	0.4	0.3	0.3	0.3
Maintenance	(USDm)	73	14.4	6.2	18.1	5.1	3.4	4.3	3.4	3.0
Capital Stripping/Dev	(USDm)	91	13.0	4.4	3.2	7.8	11.8	3.3	9.3	9.9
PCR	(USDm)	56	2.5	3.2	5.2	5.2	5.1	5.2	5.2	5.2
Closure/Retrenchment	**(USDm)**	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**259**	**42.9**	**19.1**	**29.2**	**20.7**	**21.7**	**14.2**	**18.7**	**18.3**
Free Cashflow	**(USDm)**	**383**	**32.1**	**32.8**	**31.6**	**30.7**	**30.3**	**24.7**	**15.8**	**22.5**

Table 5-30: Taborny Base Case LoMp continued

Statistic	Units	Total LoM	2029	2030	2031	2032	2033	2034	2035
Production									
Total Material Mined	(kt)	392,826	34,584	34,288	22,247	12,944	10,512	3,266	-
Waste	(kt)	297,174	25,813	26,751	15,850	6,897	5,327	574	-
Capital Waste	(kt)	102,643	9,241	12,861	6,368	-	-	-	-
Operating Waste	(kt)	194,531	16,572	13,889	9,482	6,897	5,327	574	-
Ore	(kt)	95,651	8,771	7,537	6,397	6,047	5,185	2,693	-
Gold Grade	(g/t Au)	0.43	0.37	0.41	0.43	0.51	0.40	0.40	-
Gold Contained	(koz Au)	1,329	103	99	88	100	66	35	-
Surface Haulage	(kt)	-	-	-	-	-	-	-	-
Processing Feed	(kt)	99,417	7,000	7,000	7,000	7,000	7,000	7,000	1,150
Gold Grade	(g/t Au)	0.43	0.40	0.42	0.41	0.48	0.36	0.32	0.23
Gold Contained	(koz Au)	1,367	91	96	93	108	81	71	9
Gold Recovery	(%)	70.7%	71.9%	70.4%	71.6%	71.5%	68.5%	65.2%	60.0%
Doré Produced	(kg)	29,899	2,031	2,092	2,065	2,394	1,733	1,441	159
	(koz Au)	961	65	67	66	77	56	46	5
Sales									
Doré	(koz Au)	961	65	67	66	77	56	46	5
Commodity Prices									
Gold	(USD/oz)	1,513	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue									
Gold	(USDm)	1,454	91.4	94.2	93.0	107.8	78.0	64.9	7.1
Operating Expenditure									
Mining	(USDm)	290	24.4	21.6	17.9	16.5	14.7	5.3	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-
Processing	(USDm)	215	14.8	12.5	14.8	13.2	12.7	13.8	3.6
Other Production	(USDm)	(6)	-	-	-	-	-	-	-
Overheads	(USDm)	119	8.4	8.4	8.4	8.4	8.4	8.4	1.6
Royalties/Other Taxes	(USDm)	89	5.7	5.8	5.8	6.6	4.8	4.0	0.5
Other Operating	(USDm)	0	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**706**	**53.3**	**48.3**	**46.9**	**44.7**	**40.6**	**31.5**	**5.7**
Cashflow									
EBITDA	(USDm)	748	38.2	45.9	46.1	63.1	37.4	33.4	1.4
CIT	(USDm)	100	3.8	4.2	4.9	9.5	4.1	2.9	-
Working Capital	(USDm)	5	-	-	-	-	-	-	-
Interest/Other	(USDm)	0	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**642**	**34.4**	**41.7**	**41.2**	**53.6**	**33.4**	**30.5**	**1.4**
Capital Expenditure									
Project	**(USDm)**	**22**	**0.0**	**0.1**	**0.0**	**0.0**	**-**	**-**	**-**
Exploration	(USDm)	1	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	21	0.0	0.1	0.0	0.0	-	-	-
New Mine Construction	(USDm)	1	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**226**	**17.3**	**20.1**	**13.7**	**5.4**	**3.9**	**1.8**	**0.7**
Exploration	(USDm)	7	0.3	0.3	0.3	0.3	-	-	-
Maintenance	(USDm)	73	3.5	2.5	2.5	3.1	2.1	0.8	0.3
Capital Stripping/Dev	(USDm)	91	8.3	12.2	7.4	-	-	-	-
PCR	(USDm)	56	5.2	5.1	3.5	2.1	1.8	1.0	0.5
Closure/Retrenchment	**(USDm)**	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**10.8**
Total Capital Expenditure	**(USDm)**	**259**	**17.3**	**20.2**	**13.7**	**5.4**	**3.9**	**1.8**	**11.5**
Free Cashflow	**(USDm)**	**383**	**17.1**	**21.5**	**27.5**	**48.1**	**29.5**	**28.7**	**(10.1)**

Table 5-31: Taborny Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	735	545	871	781	764	683	799	846
AISC	(USD/oz)	981	978	1,089	1,128	1,024	969	973	1,112
AISC (excluding closure)	(USD/oz)	970	978	1,089	1,128	1,024	969	973	1,112
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	1.00	0.81	0.88	0.93	1.03	0.96	0.94	1.02
	(USD/t_{ore})	3.04	2.69	3.09	3.50	3.38	3.23	4.23	3.40
Mining Capitalised	(USD/$t_{capitalised}$)	0.88	0.81	0.66	0.75	0.76	0.89	0.88	1.05
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	2.16	2.19	2.57	2.34	2.16	2.00	2.26	2.53
Overheads	(USD/t_{feed})	1.20	1.17	1.20	1.20	1.20	1.20	1.20	1.20
Statistic	**Units**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Standard Statistics									
Total Cash Cost	(USD/oz)	757	815	718	705	581	728	679	1,114
AISC	(USD/oz)	1,015	1,080	1,017	911	651	798	718	3,376
AISC (excluding closure)	(USD/oz)	1,015	1,080	1,017	911	651	798	718	1,257
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	0.99	0.96	1.01	1.13	1.28	1.40	1.62	-
	(USD/t_{ore})	2.40	2.78	2.86	2.80	2.73	2.84	1.97	-
Mining Capitalised	(USD/$t_{capitalised}$)	0.90	0.90	0.95	1.16	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	2.32	2.12	1.79	2.11	1.89	1.82	1.98	3.14
Overheads	(USD/t_{feed})	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.41

6 BEREZITOVY OPEN PIT AND UNDERGROUND GOLD MINE

6.1 Introduction

6.1.1 Location

The Berezitovy asset is in the west of the Amur Region (Oblast). The location is remote, with the nearest settlements 25 to 60 km from the asset. The location of the mine is shown in Figure 3-9, Section 3.3, and in Figure 6-1.

The project is operated by "Berezitovy Rudnik" LLC which is registered in Pervomayskoye settlement near the district centre Tynda, more than in 140 km from the mining site.

There are three licence areas linked to the Berezitovy asset (Figure 6-1): Berezitovy and Khaikta which are in Tyndinsky district and Mongoli exploration area in Skovorodinsky district. Mining is active in the Berezitovy licence area. All licence areas are located on state forest lands (Urushinskoye and Tyndinskoye Forestries).

Waste rock material is disposed of in two waste dumps (southern and northern) and tailings from the processing plant is stored in a dry-stack tailings storage facility ("TSF"). Potable water wells are located on the Khaikta River. The mine also has a water reservoir, sanitary landfills, a sewage treatment plant, and mine water settling ponds.

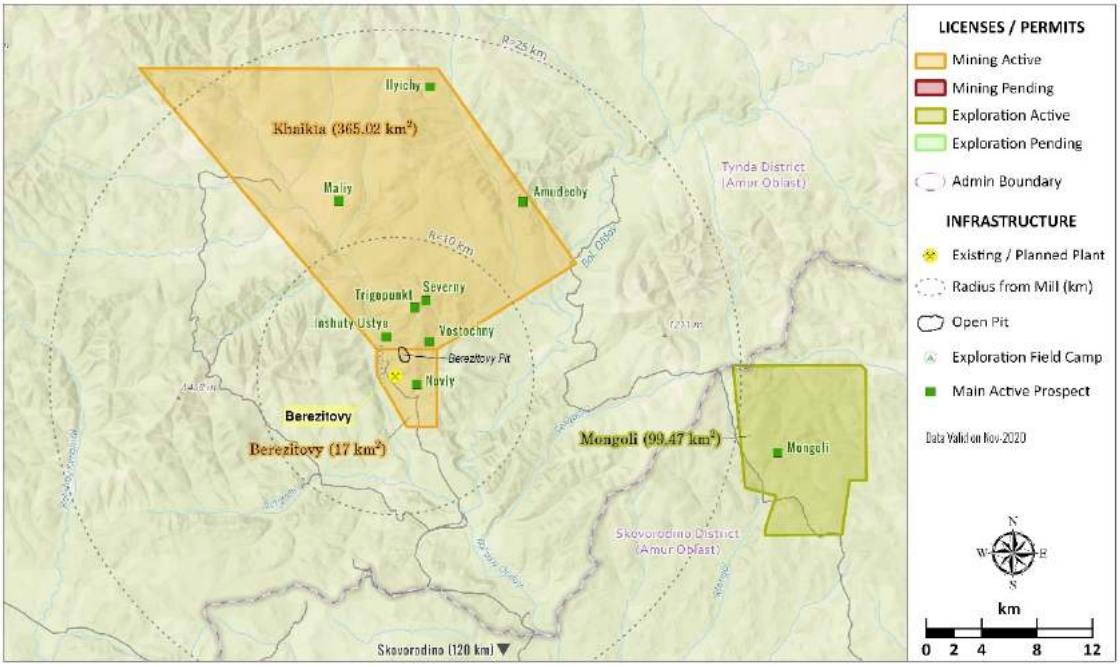


Figure 6-1: Berezitovy Mining and Exploration Licences (Nordgold)

6.1.2 Access

The Trans–Baikal Railway passes 50 km south-east to the asset. Supply to the sites is by rail to Skovorodino station. Further transportation is via the road, which is paved from Skovorodino to Madlan (section of the Federal road), and beyond that access is via is a dirt road which is operational for nine months of the year. The "Small BAM" (Tynda line) of the Far Eastern Railway (Amur–Yakutsk Mainline), passes 55 km east to the main site.

6.1.3 Climate

The climate at Berezitovy is sharply continental with large daily and annual fluctuations of air temperatures. The area has long cold winters and short wet summers. Snow cover lasts around seven months (October to May) with average thickness 300-500 mm. The average winter temperature is -35°C in January (the coldest month) and average summer temperature is +25°C in July. The prevailing wind direction is north-east, with an average speed of 2.1 m/s.

The average annual temperature is -3.6°C and permafrost is present around the site. Average annual precipitation is around 600 mm, 80% of which falls as rain and 35% as snow/wet snow.

6.2 Mineral Rights and Primary Approvals

6.2.1 Mineral Rights Held

The mining and exploration licences held by "Berezitovy Rudnik" LLC are listed in Table 6-1 and shown in Figure 6-1.

Table 6-1: "Berezitovy Rudnik" LLC Mining and Exploration Licences

Tenement Name	Licence		Validity	
	Type	Number	From	To
Berezitovy	BR	BLG 11787 BR	2003-10-09	2024-12-31
Khaikta	BR	BLG 02694 BR	2015-02-18	2035-12-31
Mongoli	BP	BLG 03959 BP	2020-06-29	2025-06-29
Water extraction		BLG 01852 VE	2006-08-18	2022-12-31

*BP - Exploration Licence; BR - Combined Licence (Mining and Exploration); BE – Production Licence

All licences include general environmental requirements: to comply with the Russian environmental and mineral resource legislation and to develop a (temporary) closure program one year before the planned closure date. There is an additional requirement of the environmental monitoring in the impact area for Mongoli licence.

The social requirements are defined only for Berezitovy licence in general terms:

- sponsorship for medical institutions of Tynda district; and
- cooperation with the road services to maintain the road network of the district south of Tynda settlement.

6.2.2 Land Tenure

All licence areas are located on forest lands (Urushinskoye and Tyndinskoye Forestries), most of which is categorised as "operational"; however, forests within the WPZ of rivers are protected. An additional protective category of forest, "forbidden", applies along Oldoy River, which slightly overlaps the boundaries of the Berezitovy and Khaikta licensed areas.

Currently, "Berezitovy Rudnik" LLC leases about 1,000 ha within 10 land plots. All active mine facilities are located within two forest plots leased until 2024. Another two forest plots are leased for geological exploration of Khaikta licence area until 2022-2023. The remaining six plots are very small and are leased for infrastructure until 2022-2028.

Forest management projects have been developed and approved for the leased forest lands in compliance with legal requirements. Due to the recent deforestation for the expansion of the Berezitovy mine, the Company carried out compensatory reforestation on a 66 ha site in 2020.

According to the design documentation, no further expansion of the existing mine is planned. Thus, the lease of new forest plots would only be required for the development of Khaikta and Mongoli licence areas.

According to the leasing agreements, some forest land plots (including existing mine and exploration sites) have limitations of construction activities, as they include the specially protected forest sites.

According to the open data, there is a placer gold mining licence held by a third party within the western part of Khaikta licence site along the rivers Oldoy, Amudechi and Bolshie Ilichi.

6.2.3 Environmental Approvals

The waste dumps, dry TSF and landfill are registered in the State Register of Waste Disposal Facilities ("GRROO"). Table 6-2 summarises the environmental permits which "Berezitovy Rudnik" LLC held in December 2020.

Table 6-2: "Berezitovy Rudnik" LLC Permitting Documentation

Aspect	Permit	Validity	
		From	To
Waste management	Approval #55 dated 2016-06-30 of waste generation rates and waste disposal limits	2016-06-30	2021-06-29
	Licence 28#00077 for collection, transportation, processing, utilization, neutralization, and disposal of wastes of I-IV hazard categories	2015-09-22	Unlimited
	Contracts for the transfer of waste to third parties (mercury lamps, ferrous metals, used batteries, oils, tires, etc.)	Signed/extended annually	
Air emissions	Air emissions permit #69 (for the heap leach section)	2016-08-19	2021-05-12
	Air emissions permit #43 (for the mining area and rotation camp)	2018-02-13	2024-11-22
	Sanitary-epidemiological statement for an SPZ	#28.22.12.000.T.000372.11.17 dated 2017-11-22	
	Decision to establish an SPZ	Required by 2025, will be obtained as required	
Water consumption	Licence BLG 01852 VE for the extraction of underground waters for drinking and technical purposes	2006-08-18	2022-12-31 (amendment dated 2016-04-16)
Water discharge	Permit the usage of water body # 28-20.03.03.001-P-PCBX-C-2016-02204/00 (discharge of the domestic sewage after biological treatment)	2016-09-08	2021-09-01
	Permit to discharge treated pit, mine, and rainstorm waters – required in future	Required in future, the mine is planning for this (2021 – 2022)	

6.3 Geology

Gold mineralisation at Berezitovy is present within a steeply west-southwest dipping zone of metasomatically altered and brecciated granodiorite. Mineralisation occurs in chaotic irregular-sided veins, consisting of variable amounts of sulphide minerals, intergrown with a gangue of quartz and accessory minerals.

Berezitovy is located in the Sergachi Metallogenic Zone ("SMZ"), known for Au, Cu, Pb, ZN, Bi, Mo and W prospects. The SMZ is hosted by a major volcano-plutonic zone, formed in the late Permian to Cretaceous, and considered to be an Andean-type active continental margin. Magmatic complexes were intruded into Archaean and Proterozoic basement. The dominant structures of the region are the east-northeast striking Sergachinski and Khaiktinski fault zones. The other main regional structural feature is a set of northwest trending structures, less pervasively developed than the east-northeast striking fault zones. Berezitovy and several satellite occurrences of mineralisation correspond to this northwest trend.

The host rock at Berezitovy is Permian age granodiorite. Variations in texture and composite of the intrusions have been interpreted to possibly represent pulses from a Cretaceous complex.

The geology at Berezitovy is shown in Figure 6-2.

Numerous metre-scale dioritic dykes intrude the granodiorite host rocks. The dykes have two main orientations: east-northeast striking, subvertically-dipping, or shallow northeast-dipping. The dykes exhibit a range of timing relationships with the host intrusion and faulting of the deposit.

A major feature of the Berezitovy open pit is a steeply south-southeast dipping shear zone, >8 m wide, that coincides with a swarm of mafic dykes. South of the shear zone, the mineralisation is relatively higher-grade, massive, and with a lower Ag-Au ratio. North of the shear zone, the mineralisation tends to be thinner, lower grade, a more planar structure, and higher Ag-Au ratio.

Mineralisation occurs in chaotic irregular-sided veins, consisting of variable amounts of pyrite, sphalerite, galena, lesser chalcopyrite, intergrown with a gangue of quartz ± garnet, sericite, tourmaline, biotite and chlorite. Mineralised veins do not have a strong preferred orientation. Vein geometries and textures are consistent with conditions that can occur in relatively shallow crustal levels, sub as the sub-volcanic environment.

Although pyrite is ubiquitous, higher gold grades are associated with greater contents of galena and sphalerite. Vakh et al (2016) concluded that there are two main phases of mineralisation; an earlier phase of gold-polymetallic sulphides, and a later phase of gold-quartz veins.

Weathering of sulphide minerals has not occurred to substantial depths, and the depth of oxide and transitional mineralisation is typically no more than 7 m below topography.

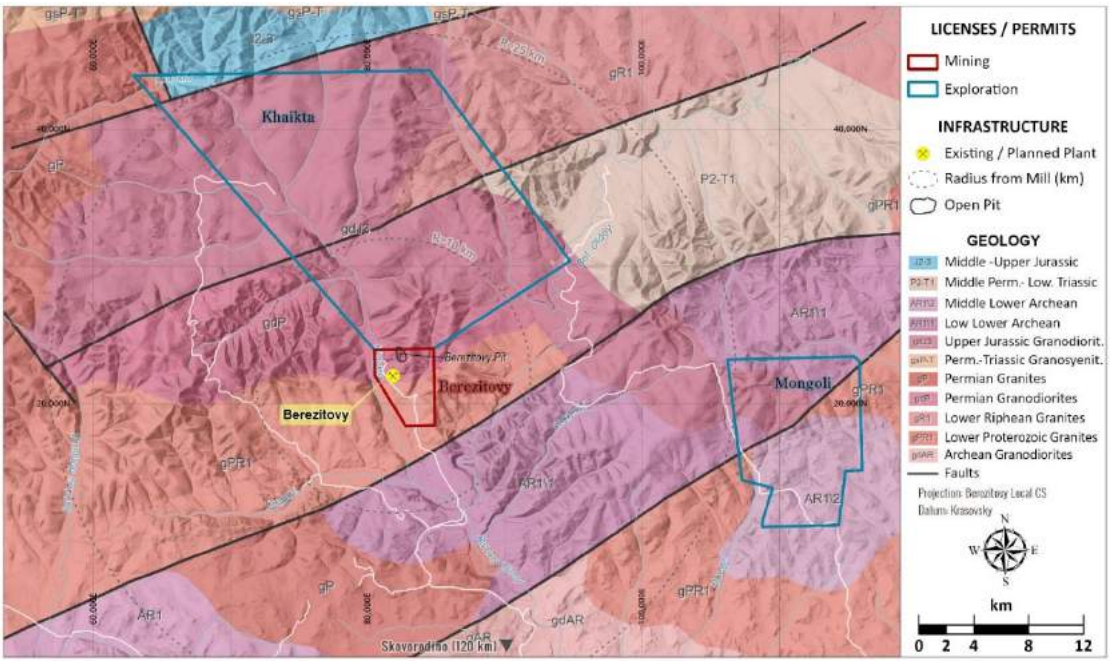


Figure 6-2: Berezitovy Local Geology

6.3.1 SRK Comments

Some aspects of the geological setting have not been completely resolved; for example, the relative timing of mineralisation events, and the relative importance of various structural and intrusion-related controls on mineralisation. However, the extents and orientation of mineralisation are well defined. Therefore, possible alternative geological interpretations are unlikely to lead to material changes in the results of Mineral Resource estimate.

6.4 Mineral Resources

6.4.1 Introduction

The Mineral Resources presented herein are based on review of an estimate prepared internally by Nordgold effective as at 31 December 2020. The key aspects of this estimate are summarised below.

6.4.2 Exploration History

The Berezitovy deposit was discovered in 1932, as the source of a gold placer deposit in the Konstantinovsky Stream. From 1960 to 1980 the Amurskaya Geological Expedition carried out mapping, soil sampling, drilling, trenching, underground exploration, and airborne geophysical surveys of the deposit itself, and of the surrounding exploration property.

Drilling

All exploration information used to prepare the Mineral Resource estimate was collected by either Berezitovy Mine LLC, which is fully owned by Nordgold, or the previous owners of the project, High River Gold Mines Ltd, a Canadian company.

The Mineral Resource database contains 1,973 diamond core holes (168,810 m). The oldest data used are from the first High River Gold drilling campaign, 2002-2003.

All holes were drilled with a double tube core barrel. Holes drilled from surface (301 holes) were HQ diameter. Holes drilled from underground were either NQ diameter for exploration (421 holes), BQ diameter for grade control (1,208 holes), or unknown diameter pre-2010 exploration holes (344 holes).

The holes are angled to dip 60 to 70° northeast, and intersect the generally steeply southeast-dipping mineralisation at a moderate to high angle. Hole spacing ranges from approximately 20 x 20 m, to 60 m (across strike) by 80 m (along strike).

In preparing the database for the open pit Mineral Resources, the open pit grade control samples (56,507 blast holes, for 539,117 m) were included in the database for both geological modelling and geostatistical estimation. The blast holes, with a typical depth of approximately 10 m, were drilled by open hole percussion methods, and one or two samples were collected per hole. The blast hole data were not used to inform the block model estimate of the underground Mineral Resources.

Diamond core recovery is reported as typically high (95% to 100%), based on comparing the total length of core pieces to the length of each drilling run

Sampling and Assaying

Core sampling was mostly on fixed 1 m intervals. Core was sampled for the entire length of intersections through the zone of dykes and metasomatic alteration. Core was selectively sampled outside the metasomatic zone. For the surface drilling, and the pre-2010 underground drilling, half core was sampled, and the other half stored. For the more recent underground drilling (2018 to 2020), the full NQ or BQ core was sampled.

Crushing, splitting, and grinding of core and grade control samples was done on site, to prepare 500g to 1000 g subsamples (with a particle size of 85% <0.075 mm) for analysis in the site laboratory. Samples were analysed for gold by fire assay. For samples before and during 2016, a gravimetric finish was used. From 2017, atomic-absorption or inductively coupled plasma finishes were used for most samples, with gravimetric finish only used for grades >10 g/t Au.

Quality Assurance and Quality Control

Quality control sampling included resubmitting duplicate pulps, and analysis of duplicate pulps by an umpire laboratory, blank samples, and analysis of certified reference materials. No quality control data was available from 2010 or earlier (the period when the project was owned by High River Gold Mines Ltd), and overall, the quantity of each type of quality control sample is at a proportion of 1% or 2% of primary core samples. This proportion is low compared to many other Mineral Resources at Indicated or Measured level; quality control at proportions in the order of 5% is typical internationally. The results from some Berezitovy quality control samples also appear to reveal patterns of bias or poor precision that would justify further investigation.

Notwithstanding the above, it is noted that for Berezitovy, which has had over ten years of mining and only a short remaining mine life, assessments of Mineral Resource Estimate confidence based on quality control analysis, can be countered by assessments of confidence based on the reconciliation history.

The database is stored in Geobank (a Micromine software tool). During loading of data, Nordgold validated approximately 5% of the database against original paper logbooks, and found no materially significant level of errors. Checks for internal consistency, during loading and analysis in other software (Datamine, Leapfrog), further confirmed the overall cleanliness of the database.

6.4.3 Mineral Resource Estimation

Geological Modelling

The estimation domains were modelled in Leapfrog Geo, based on indicator grade shells at thresholds 0.2 g/t Au, 0.4 g/t Au, and either 1.5 g/t Au (high grade domain south of the dividing shear zone) or 1.0 g/t Au (high grade domain north of the dividing shear zone). The domains were based on 1m composites.

The steeply west-southwest dipping mineralised zone has a strike length of approximately 800 m, a down dip extent of up to 500 m below topography, and is up to 120 m thick. Within the plane of grade continuity, the linear direction of maximum continuity moderately plunges to the northwest.

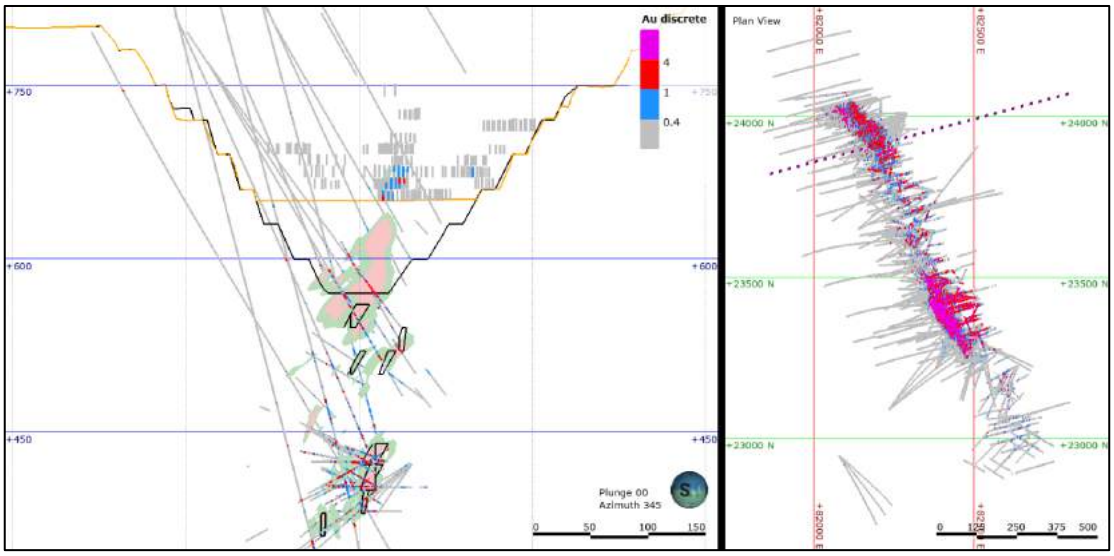


Figure 6-3: Berezitovy North Cross Section
Note: (30 m window) (section line marked by dotted purple line on plan). Red shading = high grade (>1 g/t Au) north grade shell; green shading = low grade (0.4 to 1.0 g/t Au) grade shell; orange trace = topography at end of 2020; black trace = USD1750/oz Mineral Resource pit shell, and MSO outlines.

Geostatistical Estimation

Gold block grades were estimated by Ordinary Kriging, using Datamine software. The estimation approach can be summarised as follows:

- Composite length 1 m.
- Block size 10 x 10 x 5 m, with sub-blocking to 1 x 1 x 0.5 m.
- Grade shells were used as hard boundaries for estimation.
- Capping thresholds of 13 g/t Au (northern high grade), 1.0 g/t Au (northern low grade), 29 g/t Au (southern high grade), and 1.5 g/t Au (southern low grade).

- Variogram model for the high grade north domain (which represents the majority of the metal in the remaining resource) has 0.08 nugget and two structures. First structure 0.81, with ranges in the Major, Semi-major, and Minor directions of 15 m, 17 m, and 12 m, respectively. Second structure 0.18, with ranges 120 m, 70 m, and 20 m. Main direction of continuity is moderately plunging to the northwest, within a main plain of continuity steeply dipping to the west-southwest. The variogram model parameters for this domain are reasonably representative of the parameters used for the other domains.
- Three-pass search approach used, with orientation and ranges varying for each estimation zone, but a minimum of 8 samples is set for the first and second passes, and, for all passes, a maximum of 18 composites per estimate.
- The block model was validated visually and statistically against the original input data and against the estimation composites.

Density

Block model volumes are converted to tonnages based on a dry bulk density factors of 2.87 g/cm^3 for mineralised material, and 2.61 g/cm^3 for waste. These factors were estimated based mainly on hydrostatic weighing of samples from the 2002-2003 drilling program. Reconciliation since mining began in 2006 has confirmed these factors are reasonable.

Classification

The classification categories assigned are principally based on drillhole spacing (Figure 6-4). The portion of the deposit covered by up to 40 x 40 m drilling is classified as Indicated. The remaining part of the deposit, with up to 100 x 100 m drilling coverage, is classified as Inferred.

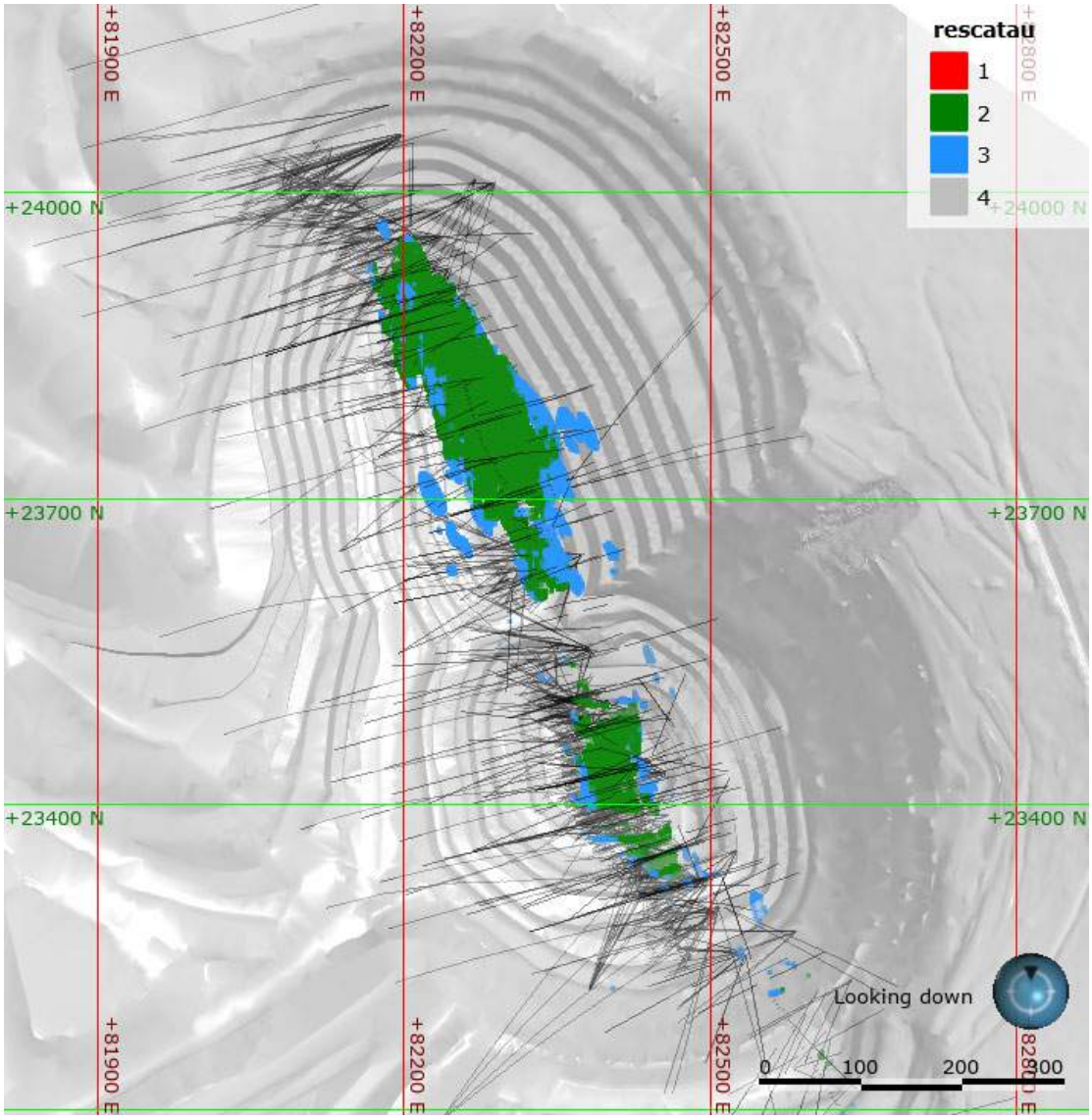


Figure 6-4: Berezitovy Plan View of Open Pit Mineral Resources Remaining After Depletion to end of 2020 Topography.

Note: Green = Indicated; Blue = Inferred. LoM pit design and drillhole database also shown (excluding blast holes).

Reconciliation

Reconciliation information from 2018 to 2020 open pit mining showed that the Actual production tonnes and grade (based on weightometer data and belt sampling of crushed material) were both lower than the forecast from the Mineral Resource estimate (with modifying factors applied). Over this period, contained Au ounces in the crushed material delivered for processing were in the order of 30% lower than forecast from the model. This reconciliation applied mainly to material mined in the South zone, and above a cut-off grade of 0.5 g/t Au.

The underground reconciliation (available for 2019 and 2020 only), shows Actual tonnes, grade and metal (805 kt at 2.93 g/t Au, for 76 koz Au) exceed the resource model forecast (742 kt at 2.78 g/t Au, for 66 koz), although it should be noted that underground Actual grades are obtained by grab sampling of truck loads instead of belt sampling of crushed material.

The mine plan for Berezitovy forecasts that the mining will be completed in 2022. In this plan, 83% of the metal to be mined will be from the open pit, and 17% from the underground. And of the open pit Ore Reserve tonnes in this plan, more than 95% will come from the North Zone, at cut-off grade of 0.26 g/t Au for open pit resources.

Therefore, the recent reconciliation history for the North Zone open pit is material to assessing any adjustments that should apply to the Mineral Resources. Nordgold extracted open pit reconciliation information for the North pit only, above 0.5 g/t Au cut-off, for 2016 to 2018 (Table 6-3). Compared to the resource model (with 5% mining loss and 5% dilution factors applied), the Actual tonnes mined over this period were 8.1% lower than forecast, and Actual grade was 11.4% lower than forecast.

Table 6-3: Berezitovy North Zone Reconciliation Summary for >0.50 g/t Au Material

Year	Actual tonnes (kt)	Actual grade (g/t Au)	Actual Metal (koz Au)	Block Model tonnes (kt)	Block Model grade (g/t Au)	Block Model Metal (koz Au)	Tonnes Ratio Actual/ BM	Grade Ratio Actual/ BM	Metal Ratio Actual/ BM
2016	64	0.94	2	98	1.56	5	0.66	0.60	0.40
2017	1,227	1.60	63	1,202	1.79	69	1.02	0.90	0.91
2018	308	1.33	13	435	1.58	22	0.71	0.84	0.60
Total	1,599	1.52	78	1,735	1.72	96	0.92	0.89	0.81

Note: 2016-2018, comparing Actual against Block Model (with 5% mining loss and 5% dilution applied)

The reasons for such a difference between Actual and forecast have not been resolved, but, given there are several years of evidence for the difference existing, and the remaining mine life is less than two years, Nordgold and SRK agreed the difference could be addressed with a simple factoring adjustment at the Mineral Resource statement level, based on the 2016-2018 reconciliation information. The following approach was applied:

1) For the component of the open pit Mineral Resource estimate above 0.5 g/t Au cut-off, the tonnes and grade were factored down by 8.1% and 11.4%, respectively.

2) The <0.5 g/t Au component of the open pit Mineral Resource estimate was not adjusted.

3) The underground Mineral Resource estimate was not adjusted.

6.4.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Berezitovy (Table 6-4) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code

In reporting the Mineral Resources as stated in Table 6-4, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design and within the optimised MSO shapes for the underground portion.
3. Depletion is applied for mining up to 31 December 2020.

4. Open pit Mineral Resources are presented at a 0.26 g/t Au cut-off grade based on the reserve price of USD1,400/oz within the final pit design due to short LoM. This is an incremental CoG and excludes G&A costs which were allocated to the underground ("UG") mine. The relatively low CoG seeks to maximise plant throughput, with demonstrated economic viability due to limited sub grade tonnages. Applied open pit mining factors 114% dilution and 95% recovery, and 85-91% processing recovery open pit mining cost of USD53/t, processing cost of USD8.90/t_{ore}, G&A at USD5.22/t_{ore} excluded.
5. The underground Mineral Resources are reported at 0.91 g/t Au CoG based on a long-term Au price of USD1,750/oz. The underground resources are external to the final pit design and reported within a mineable MSO stope shape, with a minimum mining width of 3 m. A total ore-based cost of USD42.36/t_{ore} was applied inclusive of USD13.03/t_{ore} G&A.
6. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
7. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
8. Mineral Resources are presented on a 100% basis.

.

Table 6-4: Berezitovy Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Berezitovy	Open Pit	0.26	-	-	-	3,231	0.94	98	3,231	0.94	98	685	0.89	20	3,916	0.93	117
	Crown Pillar	0.91	-	-	-	108	3.91	14	108	3.91	14	27	5.31	5	136	4.19	18
	Underground	0.91	-	-	-	279	2.88	26	279	2.88	26	79	3.12	8	358	2.94	34
	Stockpiles / Heap Leach		-	-	-	2,698	0.39	34	2,698	0.39	34	-	-	-	2,698	0.39	34
	Total Berezitovy		**-**	**-**	**-**	**6,316**	**0.84**	**171**	**6,316**	**0.84**	**171**	**791**	**1.27**	**32**	**7,107**	**0.89**	**204**

6.4.5 SRK Comments and Recommendations

The block model estimate for the open pit Mineral Resources is based on a database that includes the blast hole samples. In general, samples obtained from blast holes have greater risks of poor accuracy and poor precision than core or RC drilling. Furthermore, the blast hole samples from Berezitovy are typically 5 m long, which is significantly greater than the 1 m composite length used for grade shell modelling and estimation. SRK carried out statistical comparison of the blast hole samples versus nearby diamond core samples, and is satisfied that no significant relative bias exists between the two sources of information. SRK accepts that the benefits from using the additional quantity of data for estimating the open pit Mineral Resources outweigh the risks of lower precision from individual blast hole samples.

After making an adjustment to open pit tonnes and grade >0.5 g/t Au, based on the 2016 to 2018 reconciliation information for the North zone, SRK accepts the resource model and classification prepared by Nordgold. For a mine with a longer mine life, SRK would recommend an audit to establish the sources of the consistent and significant shortfall in Actual metal compared to model forecast. Based on the current Mineral resource base available at Berezitovy, however, mining is likely to be completed before the causes of this problem can be identified and changes implemented.

6.5 Mining and Ore Reserves

6.5.1 Current Mining Operations, Mining Method, Operating Strategy and Mining Fleet/Equipment

Current mining operations at Berezitovy are focused on a single open pit with two mining areas, north and south, and a recently developed underground mine, as shown in Figure 6-5. Berezitovy has a well-established open pit operation, with pre-production having commenced in 2006, with the operation expanded to the underground operation in 2018.

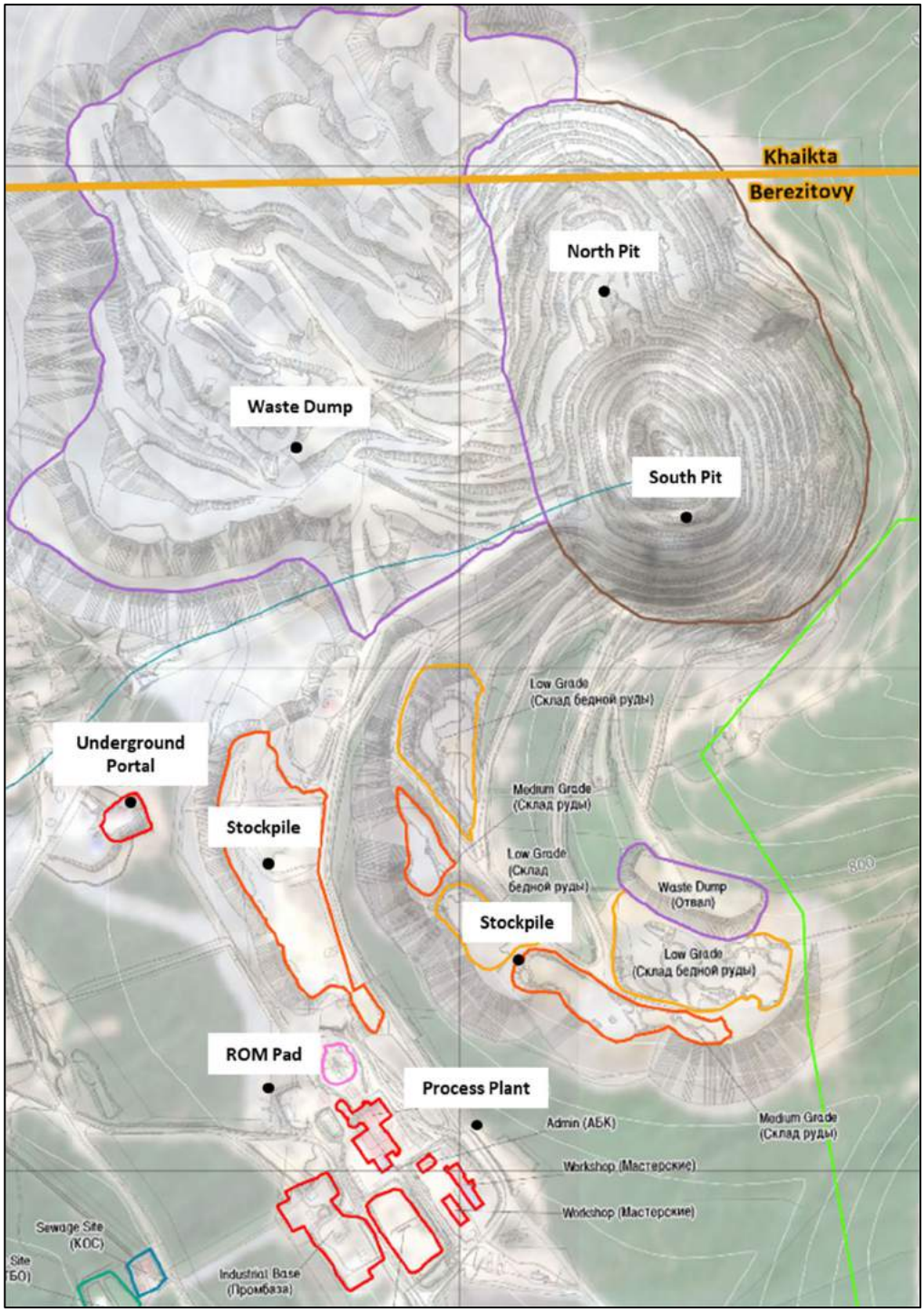


Figure 6-5: Berezitovy Mine Layout (Nordgold 2020)

Berezitovy Open Pit

Berezitovy is mined using conventional drill, blast, load, haul, dump and stockpile open pit mining methods utilising a top-down bench by bench approach. Truck haulage is used to convey ore to the process plant and waste to the dumps.

The deepest southern section of the pit is near completion and will be finalised in Q1 2021, with mining predominantly focused in the north for the remaining LoM in 2022. The underground mine is also planned to be finished in 2022.

The blasted ore and waste is extracted using Komatsu PC 1250 hydraulic excavators with bucket capacities of 5.0 m^3 and one smaller Komatsu PC 400 with bucket capacities of 1.9 m^3. Ore and waste are then loaded into a mixed fleet of off-highway haul trucks, either Caterpillar 773 (55 t) or Belaz 7555 (55 t) and Belaz 7547 (45 t).

Load and haul productivity values are in line with the historical values and are expected to slightly decrease as mining progresses deeper and mining widths become narrower.

Berezitovy Underground Mine

Development mining is achieved using modern electro-hydraulic single and twin boom drill jumbos to drill blastholes, diesel powered load-haul-dump loaders (“LHD”) to clean the blasted rock from each blasted advance, and diesel powered articulated dump trucks (“ADT”) to haul broken rock to surface (ore) or to underground voids to be used as backfill.

Production is achieved using variants of the long-hole sub-level open stoping method, either top-down “uphole benching” with eventual backfilling, or bottom-up “Avoca” progressively backfilling each sublevel. Blastholes are drilled using dedicated electro-hydraulic long-hole drill rigs, blasted ore is removed with LHD and ore is transported to surface with ADT.

Surface is accessed through twin transport declines with 8° inclination. The declines exit the mine through a dedicated box-cut excavation.

Stability of the workings is maintained by the installation of ground support (friction anchors, mesh sheets, shotcrete), leaving supporting rib and sill pillars of ore unmined for potential later extraction, and filling mined stopes with development waste as backfill when strategically required.

The key items of mining equipment in the current fleet are:

- development drill jumbo, 1 boom (1);
- development drill jumbo, 2 boom (2);
- production long-hole drill (2);
- LHD, 10 t, (3); and
- ADT, 30 t (6).

6.5.2 Historical Mining Production

Total open pit tonnage mined in recent years has remained constant for the open pit operation but with fluctuations in ore tonnes mined based on orebody presentation, and as a result strip ratio increased as new areas were accessed. Initially mining was focused in the south with strip ratio decreasing until 2017. With the southern pit near completion, mining the last 20 m bench planned for 2021, the majority of mining has been shifted to the north, with pre-striping during 2018 and 2019 as presented in Table 6-5.

The last two years of underground production from Berezitovy have yielded 320 kt and 360 kt of ore and 200 kt and 187 kt of waste respectively, for a total material movement of 520 kt and 544 kt annually. The ore grade has averaged between 2.1 and 3.1 g/t Au.

Table 6-5: Berezitovy Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Open pit						
Mined	(kt)	15,943	14,888	15,458	16,115	15,749
Waste	(kt)	15,239	13,900	15,271	15,856	14,872
Ore	(kt)	704	989	187	258	877
	(g/t Au)	2.16	1.96	1.65	1.40	1.45
	(koz Au)	48.8	62.4	9.9	11.6	40.9
Stripping ratio	(t_{waste}:t_{ore})	21.7	14.1	81.6	61.4	17.0
Underground						
Mined	(kt)			263	521	544
Waste	(kt)			189	201	187
Ore	(kt)			73	319	357
	(g/t Au)			2.79	3.09	2.11
	(koz Au)			6.1	32.5	24.3
Total						
Mined	(kt)	15,943	14,888	15,721	16,636	16,294
Waste	(kt)	15,239	13,900	15,460	16,058	15,059
Ore	(kt)	704	989	261	578	1,235
	(g/t Au)	2.16	1.96	1.97	2.33	1.64
	(koz Au)	48.8	62.4	16.1	44.1	65.1

6.5.3 Geotechnical Considerations - Open Pit

The Berezitovy open pit consists of a large granodiorite hosted gold deposit, approximately 400 m deep. Production began in 2007 and the mine has approximately two years of production remaining from the open pit and underground mines.

The granodiorite rock mass at Berezitovy is competent and exhibits high intact rock strength with high RMR89 values (>70). Structural mapping indicates that there are six major joint sets present in the rock mass. Joint set J1 is a steep to moderate dipping set to the west, sometimes becoming vertical and overturning to dip to the east, which represents the orientation of the mineralisation contact zones, indicating that the there is a single dominant structural domain for the mine. Figure 6-6 shows an aerial view of the pit (looking southwest - northeast).

Bench and berm criteria were defined by SRK in 2016 and have been used to develop the LoM pit designs as summarised in Figure 6-7 and Table 6-6. The pit is defined by 8 design domains; D01 to D08.

Figure 6-6: Berezitovy Pit View (looking north east)

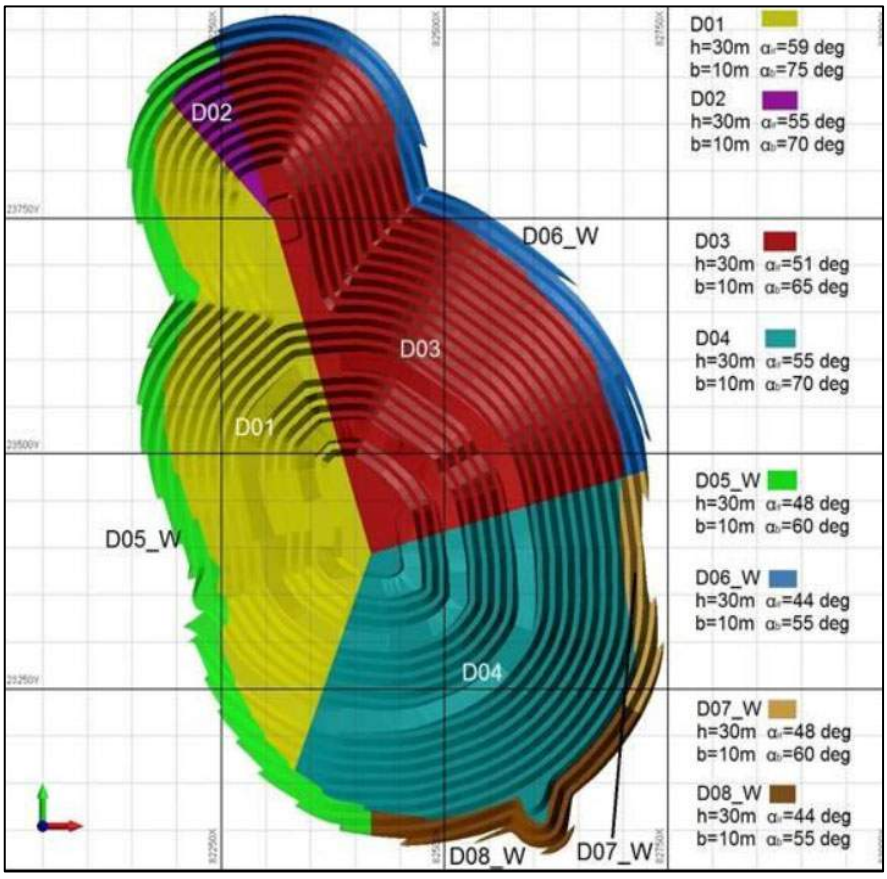


Figure 6-7: Berezitovy Design Domains

Table 6-6: Berezitovy Slope Design Criteria Summary

Design Domain	BH (m)	BFA (°)	B Width (m)	IRA (°)
D01	30	75	10	59
D02	30	70	10	55
D03	30	65	10	51
D04	30	70	10	55
D05_W	30	60	10	48
D06_W	30	55	10	44
D07_W	30	60	10	48
D08_W	30	55	10	44

Whilst the inter-ramp angles are generally steep, based on the December 2020 topographic survey the pit walls appear to be in good condition with good quality final wall blasting, minimal crest loss and hard toes. As-built profiles closely match the proposed design geometry. SRK originally recommended a minimum inter-ramp height of 150 m be implemented as part of the final pit design; however, this design has not been implemented, resulting in uninterrupted slopes of approximately 240 m.

The working areas within the pit are tight and could be exposed to risk from rockfall if blocky ground were to be exposed or poor final wall blasting implemented. The ramp system within the final pit design is narrow, and a section of the ramp is located on the saddle between the two excavations. As part of the Ground Control Management Plan (“GCMP”), a robust geotechnical investigation and analysis will be required before the ramp is put in to use. Appropriate ramp widths will be implemented to ensure adequate edge protection on either side of the ramp. Given the steep slope design and tight working areas, a robust slope management plan is also be implemented to ensure geotechnical risk is minimised.

6.5.4 Geotechnical Considerations - Underground

Geotechnical Setting

Mineralisation occurs within a zone of metasomatically altered and brecciated granodiorite (metasomatite) which is offset by a south-southeast dipping >8 m wide shear zone that coincides with a swarm of mafic dykes and lies within granodiorite host rocks as shown in Figure 6-8. Dominant structures of the region are the east-northeast striking fault zones, with the other main regional structural feature a set of less pervasively developed northwest trending structures

Figure 6-8: Berezitovy Main Structural Features (left) and Displacement of North and South Orebodies (right)

Geotechnical Characterisation

Rock mass strength characteristics and classifications in terms of GSI and RMR have been used as a basis for determining Q' and Q. These data have also been used to review open stope and crown pillar design which is of particular importance as open pit and underground mining is concurrent.

Rock masses range between Poor in Tectonic Zones to Fair/Good in the Granodiorite host rock. The metasomatically altered and brecciated granodiorite orebody has lower intact rock strength and rock mass properties than the host rock, the tectonic (shear) zones being lower still.

Mining Method and Design

Uphole open stoping has been planned in stages to converge on a pillar between 420 m level on the pit floor (end of Stage 3) and 390 m level underground (Stage 4). The characteristics referred to in Section 6.5.3 have been assumed to influence open stope stability (along with other reported characteristics such as RQD and UCS) and used in a preliminary assessment of design criteria undertaken by SRK, to compare with the mine's own evaluation.

Design Criteria

Analytical work has been undertaken by the mine to estimate the strength of a crown pillar left between the pit floor and underground workings. Results are expressed in terms of factors of safety for crown pillar thicknesses of 67 m and 25 m, with a 30 m pillar indicated from mine sections. In addition, the Matthews-Potvin method has been used by the mine to assess open stope stability showing both stable and unstable conditions depending on widely varying stability numbers (N').

SRK has undertaken a preliminary assessment of open stope stability with Q', in addition to an empirical assessment of crown pillar design using the Empirical Scaled Span Design Method (Carter 1992, 2014). The findings of SRK's analysis appears to be consistent with the analytical approach taken by the mine.

Support

The support standard for 'difficult' ground conditions in 16.4 m^2 (4.2 x 4.2 m) tunnels comprises 2.2 m 'self-fixing SZA-48mm' anchors (split sets) installed in 44 mm diameter holes. These are 'face plated' with 800 x 800 mm sheets of welded mesh. This support is more than adequate in terms of the average conditions defined by Q=7.5. In tectonic (shear) zones, where Q is calculated to be between Q=0.11 and Q=0.28 additional support comprising of 9-12 cm of fibre reinforced concrete will be installed.

SRK Comments / Conclusions

Designs appear to be broadly appropriate to the implied rock mass strengths assumed by SRK, however particular consideration needs to be given to rock mass variability and the hydrogeological characteristics of structures owing to the potential for water from the pit floor to connect to underground workings.

Further analytical work using empirical and numerical modelling tools is required to confirm that the crown pillar design thickness is adequate and does not need to be increased to more than 30 m.

Open stope designs appear to be consistent with analyses undertaken but will benefit from the construction of an appropriate geotechnical model using existing geological and structural data augmented with mapping and geotechnical logging data and refinements to design by measurement.

SRK has been engaged by the Company to develop and assist in the implementation of industry best practice Ground Control Management Plans ("GCMP"), Surface Water Management Plans ("SWMP") and Ground Water Management Plans ("GWMP").

6.5.5 Mine Water Management

Berezitovy is a mature open pit and proposed underground operation located between two approximately north-south flowing rivers, the Haykta River that runs along the site's western border and the Orogzhan River to the east. A diversion ditch was built around the upstream perimeter of the open pit in 2019 to divert ex-pit run-off, from the upstream catchment, around the pit rather than allowing it to flow into the pit sump.

The open pit and underground operations are situated within competent granodiorite rock mass and observations of water inflows into the existing open pit and underground developments would suggest that permeability is generally low and groundwater flow is limited to discrete structural features. Permafrost is present to depths of up to around 30 m.

SRK is not aware that groundwater plays a significant role in pit wall stability. Bench/berm analysis undertaken by SRK in 2016 assumed zero cohesion for joint properties.

Inflows to the pit sump from direct precipitation within the pit footprint and minimal ground seepage is pumped from the pit sump to a discharge pipe via a two-stage sump pumping arrangement. Sump pumping rates are generally between 350 m^3 per day up to 1800 m^3 per day.

Inflows to the current underground mine workings are currently around 60 m³ per hour (17 L/s). Underground pumping capacity is 105 m³ per hour using a combination of centrifugal pumps for main pumping stations and electrical submersible pumps for transfer pumping duties. Water is pumped to the portal at 565 m level from where it is transferred to a water treatment facility, prior to discharge.

Eight groundwater monitoring locations are distributed across the site for sampling of water quality at key facilities and locations three times a year.

Make-up raw water supply and possible demand is supplied by six boreholes which abstract up to 1,600 m^3 per day in total. A dedicated borehole is used to supply around 120-140 m³ per day of potable water to the accommodation village.

6.5.6 Mine Design and Planning

Nordgold uses its Base Case Design for operational and LoMp decisions and schedule. This plan is comprised of the 2021 Business Plan (BP) (as prepared in Q3 2020) for the first year, and the Strategic Business Plan for 2022 onwards (as prepared in Q4 2020 and Q1 2021). Further description of Nordgold's planning process is presented in Section 2.4 "Nordgold Technical Study Standards and Planning Process".

The Base Case designs and schedule includes Inferred Resources, which are captured within a USD1,400 pit shell or MSO stope shapes that define the long-term mine planning economics. In order to constrain Ore Reserves, Nordgold has prepared a separate Ore Reserve Case, which only includes Measured and Indicated Resources in the optimisation and associated design and schedule. The Ore Reserve Case Design (including pushbacks, ramps for the open pit and underground developments) defines the open pit and MSO shapes that contain the Proved and Probable Ore Reserves, and the Ore Reserve Case schedule demonstrates that the Ore Reserves are economically viable on a stand-alone basis, and that it is supported by an integrated financial model that includes a mineral processing schedule and recoveries, and all operating and capital costs.

The Base Case Design and schedule includes the full Ore Reserves inventory, but the Ore Reserve Case is not simply a sub-set within the Base Case and the schedules may differ based on economic and practical planning considerations.

SRK's due diligence process in reporting Ore Reserves at Berezitovy is therefore as follows:

- review optimisation parameters and Mine Planning Assumptions ("MPA") for the Ore Reserve Case (LTP USD1,400);
- review Ore Reserve Case Design and Ore Reserves inventory in the USD1,400 pit shell and MSO stope shapes;
- review Ore Reserve Case schedule and associated financial model to assess technical feasibility and economic viability for the Ore Reserves sign-off; and
- review Base Case Design and schedule to present the Company's Life of Mine plan and overall project economics.

Open Pit

At Berezitovy the open pit final design is the same for both the Ore Reserve Case and Base Case due to the short life of mine. The Base Case includes Inferred resources in the pit but these are excluded from the Ore Reserve Case. For the purposes of this CPR, the Base Case LoM production schedule inclusive of Inferred material will be discussed.

Modifying Factors

The resource block model has been regularised to a block size of 10 x 10 x 5 m to estimate dilution on a local level based on the minimum Selective Mining Unit ("SMU") achievable with equipment on site. Total dilution incurred through the regularisation process is 9% with 100% mining recovery. An additional dilution of 5% and recovery of 95% was applied on a block by block basis. SRK notes that the additional modifying factors are based on minimal data and that the inherent factors derived from the regularisation process are adequate for this type of deposit. The underlying geological resource model representativity is discussed previously in the reconciliation section 6.4.3.

Open Pit Cut-off Strategy

The cut-off grade calculation is done based on the economic assumptions, mining modifying factors, processing recoveries and processing costs with the main components listed in Table 6-7. The CoG calculates to 0.40 g/t Au at a gold price of USD1,400/oz. An incremental cut-off grade ("IO") of 0.30 g/t Au was used which is lower than the marginal CoG and is used to fully utilise the plant capacity at the end of mining. Overhead and fixed costs have been excluded for the open pit IO due to the short LoM. This was assessed and confirmed the average grade being above cut-off with a positive cashflow.

Ore is stockpiled in three grade bins for blending optimisation. High grade ("HG") is all material with a grade above 1.8 g/t Au and is prioritised for direct feed into the crusher. The marginal grade ("MG") bin is between 1.0 – 1.8 g/t Au, and the low grade ("LG") between the marginal cut-off of 0.3 – 0.1 g/t Au. Berezitovy as of 31 December 2020 had 142 kt of LG on stockpiles at 0.8 g/t Au. There is also 138 kt at 0.4 g/t Au available on an old heap leach pad for potential processing.

Table 6-7: Berezitovy Open Pit Cut-off Grade Parameters

Parameter	Value
Gold Price (USD/oz)	1,400
Refining Cost (USD/oz)	3.30
Royalty (%)	6
Metallurgical Recovery by Grade Bin	
0.3 – 1.0 g/t Au (%)	85
1.0 – 1.8 g/t Au (%)	88
> 1.8 g/t Au (%)	91
Total Processing Costs (USD/t milled)	8.80
Overhead Cost (USD/t milled)	5.22
Sustaining Capital	0.08
Total Ore Based Costs (USD/t milled)	14.12
Cut-off grade (g/t Au)	0.40
Incremental Cut-off grade (g/t Au)	0.30

Open Pit Mine Design

The mine design criteria for the Berezitovy open pit are shown in Table 6-8. The pit design for Berezitovy is shown in Figure 6-9. The pit has been designed based on the geotechnical parameters presented in the previous section. The ramps have been designed at a gradient of 10% at 17 m width. The mining benches are 30 m high.

Table 6-8: Berezitovy Open Pit Design Parameters

Parameter	Unit	Value
Minimum Mining Width Ore	m	15
Mining Recovery	%	95
Bench Height	m	30
Face Angle	°	55 to 70
Berm Width	m	10
Ramp Width – Double Lane	m	17
Ramp Width – Single Lane	m	15
Ramp Gradient	%	10

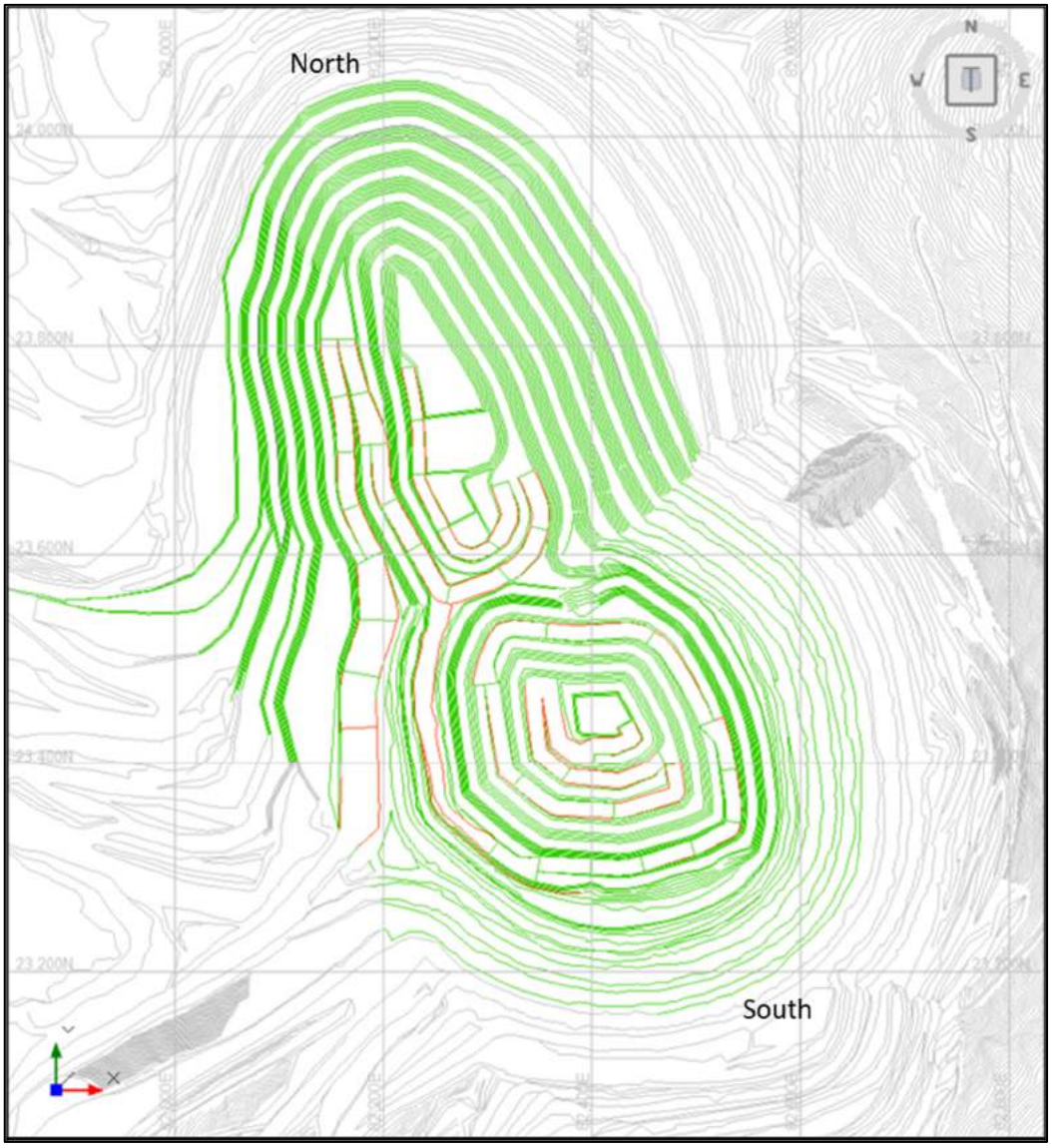


Figure 6-9: Berezitovy Mine Pit Design (Nordgold 2021)

Underground

Long term mine planning for the purposes of strategic planning and ore reserves estimation uses modern software (Mineable Shape Optimiser, “MSO”) to prepare economic three dimensional mining shapes, and to prepare plans of the development required to access and extract the economic mining volumes.

Technically derived design parameters specify minima and maxima stope dimensions, and records of recent historical costs and mine production are referenced to prepare estimates of the economic and stoping cut-off grades for use during the optimisation.

Underground Mine Design

Berezitovy underground mine comprises two main ore zones located beneath the north and south parts of the existing open pit mine. Workings currently extend to 600 m below the natural surface, and about 200 m below the deepest part of the pit (Figure 6-10).

Mining of the remaining ore reserves will deepen the northern workings by 40 m. There will be no deepening below the southern part of the pit surface and the workings will remain at 800 m depth upon depletion of the ore reserves. A separation distance of 15 m is maintained between the open pit and planned underground workings.

The existing workings and those planned for extraction of known Ore Reserves are shown in the schematic diagram in Figure 6-10.

7

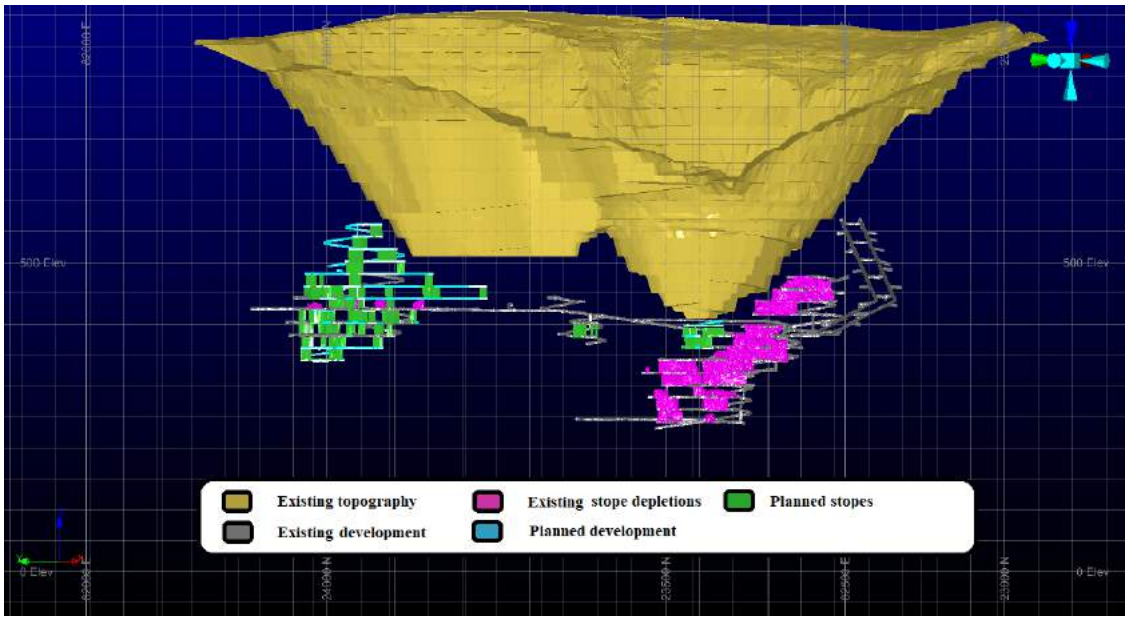


Figure 6-10: Berezitovy Underground Mine Workings

Underground Cut-off Strategy

The CoG calculation is based on the economic assumptions, mining modifying factors, processing recoveries and costs with the main components listed in Table 6-9.

Table 6-9: Berezitovy Underground Cut-off Grade Parameters

Parameter	Value
Gold Price (USD/oz)	1,400
Refining Cost (USD/oz)	3.3
Royalty (%)	6
Metallurgical Recovery by Grade Bin	
1.0 – 1.8 g/t Au (%)	88
> 1.8 g/t Au (%)	91
Mining Fixed Costs	8.21
Stoping Cost (u/g)	8.74
Total Processing Costs (USD/t milled)	10.00
Overhead Cost (USD/t milled)	13.03
Sustaining Capital	2.37
Total Ore Based Costs (USD/t milled)	42.36
Cut-off grade (g/t Au)	1.11

Base Case Life of Mine Plan

The mining schedule is prepared using modern software to schedule development and production activities according to logical precedences and dependencies, and achievable unit rates of performance.

The Base Case includes Inferred material which cannot be considered as Ore Reserves. These resources are incremental to Ore Reserve Case and are within the current open pit design or accessible from current or planned local extensions to the underground mine workings. The Base Case adds 517 kt of total material, all scheduled to be mined in 2022.

Table 6-10 shows the Base Case LoMp forecast for Berezitovy. The remaining LoM is approximately one year. The majority of the ore tonnes to be processed are forecasted from the open pit (89%), which contains 80% of the total metal fed to the plant. The remaining LG stockpile will also be depleted during 2021.

SRK considers there to be a low risk of failure to achieve the Ore Reserve Case schedule. Achieving the Base Case schedule must be considered higher risk because of its reliance on low confidence mineralisation (Inferred Resources) in the underground in the second year.

Table 6-10: Berezitovy Forecast (2021 to 2022) Mining Production Statistics for Base Case LoMp

Statistics	Units	Total	2021	2022
Open pit				
North				
Mined	(kt)	16,690	14,388	2,302
Waste	(kt)	12,791	11,391	1,400
Ore	(kt)	3,899	2,997	902
	(g/t Au)	0.80	0.86	0.61
	(koz Au)	101	83	18
Stripping ratio	(t_{waste}:t_{ore})	3.28	3.80	1.55
South				
Mined	(kt)	411	411	
Waste	(kt)	260	260	
Ore	(kt)	151	151	
	(g/t Au)	1.09	1.09	
	(koz Au)	5	5	
Stripping ratio	(t_{waste}:t_{ore})	1.72	2.72	
Total Open pit				
Mined	(kt)	17,101	14,799	2,302
Waste	(kt)	13,051	11,651	1,400
Ore	(kt)	4,050	3,148	902
	(g/t Au)	0.81	0.87	0.61
	(koz Au)	106	89	18
Stripping ratio	(t_{waste}:t_{ore})	3.22	3.70	1.55
Underground				
North				
Mined	(kt)	728	519	209
Waste	(kt)	348	284	64
Ore	(kt)	380	234	145
	(g/t Au)	1.41	1.49	1.29
	(koz Au)	17	11	6
South				
Mined	(kt)	168	88	80
Waste	(kt)	94	39	55
Ore	(kt)	74	49	25
	(g/t Au)	1.74	1.70	1.83
	(koz Au)	4	3	1
Total Underground				
Mined	(kt)	896	607	289
Waste	(kt)	442	323	119
Ore	(kt)	454	284	170
	(g/t Au)	1.46	1.52	1.37
	(koz Au)	21	14	7

6.5.7 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 6-7. The Audited Ore Reserve Estimate as of 31 December 2020 is shown in Table 6-11.

In reporting the Ore Reserve stated in Table 6-11, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.30 g/t Au cut-off grade based on the reserve price of USD1,400/oz within the final pit design due to short LoM. This is an incremental CoG and excludes G&A costs which were allocated to the UG mine. The relatively low

CoG seeks to maximise plant throughput, with demonstrated economic viability due to limited sub grade tonnages. Applied open pit mining factors 114% dilution and 95% recovery, and 85-91% processing recovery open pit mining cost of USD53/t, processing cost of USD8.90/t_{ore}, G&A at USD5.22/t_{ore} excluded.

3. The underground Ore Reserves are reported at 1.11g/t Au CoG based on a long-term Au price of USD1,400/oz. The underground Ore Reserves are external to the final pit design and reported within a mineable MSO stope shape, with a minimum mining width of 3m with. Underground modifying factors are 10% and 15% dilution (0 Au g/t) for development and stoping, respectively, and 0% and 10% loss for developing and stoping, respectively. A total ore-based cost of USD42.36/t_{ore} was applied inclusive of USD13.03/t_{ore} G&A.
4. CoGs are reported in terms of Au owing to a negligible contribution from contained Ag.
5. Ore Reserves have demonstrated economic viability.
6. The pit inventories were constrained within the Company's existing LoM pit designs. The Ore Reserve comprises a mine life of approximately one year.
7. The underground inventories were defined using MSO optimisation software.
8. Ore Reserves are presented on a 100% basis.

Table 6-11: Berezitovy Gold Mine Ore Reserve Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Proved			Probable			Proved + Probable		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Berezitovy	Open pit	0.30	-	-	-	3,032	0.9	85	3,032	0.9	85
	Underground	1.11	-	-	-	383	1.4	18	383	1.4	18
	Stockpiles	0.30	-	-	-	142	0.8	4	142	0.8	4
	Heap Leach	0.30	-	-	-	138	0.4	2	138	0.4	2
	Total Berezitovy		**-**	**-**	**-**	**3,695**	**0.9**	**108**	**3,695**	**0.9**	**108**

SRK Comments

The current open pit LoMp has a low risk of not being achieved. A key element in this is the adoption of additional geological factors suggested by SRK which reduces the risk of achieving the reserve ounces significantly.

The current open pit design is aggressive and there are risks associated with maintaining access to pit bottom in the north with the pit ramp going through the saddle (between the north and south pits). Current blasting practises are very good and there is additional space to widen the ramp to reduce this risk. SRK is confident that the current design can be achieved and that the recommendations will be operationally implemented.

The underground mine design includes a 15 m stand-off between the open pit and underground workings to ensure stability and access to ore is not compromised.

The modifying factors for underground mining would benefit from improved reliability and confidence if rigorous reconciliation processes were developed to compare actual mined voids and their block model contents, as determined by survey technology such as CMS, with the model contents of the planned voids.

6.6 Mineral Processing

6.6.1 Flowsheet Description

The Berezitovy process plant treats non-refractory sulphide-hosted gold ore through a conventional carbon-in-pulp ("CIP") circuit. Silver is present as a co-product. Lead and zinc are also present in the ore, but are at sub-economic levels.

The plant commenced production in late 2007 at a production rate of 1.2 Mtpa using mostly second-hand equipment (primary crusher, SAG and ball mill, CIP circuit). Progressive upgrades, including the addition of additional tailings filters in 2009, a second ball mill and goldroom upgrades in 2010, and a secondary crusher at a subsequent date, have resulted in an increase in plant capacity to the current figure of up to 2.0 Mtpa.

The key processes in the flowsheet are:

- Crushing: RoM ore is screened at 750 mm on a stationary grate, with oversized broken using a rockbreaker. The primary crusher is a FLSmidth (Fuller-Traylor) 1200x1500 jaw crusher. Crushed ore is screened at 40 mm, with oversize directed to a Metso GP500 cone crusher operating in open circuit and with a nominal product size of 35 mm. Crushed ore reports to an open stockpile. The secondary crusher can be by-passed if the ore is soft, or contains a significant amount of ice or tramp metal from the mining operation.
- Grinding: The first grinding stage consists of a 6.7 x 2.4 m SAG mill (1800 kW) that is closed with a 2 mm aperture screen. Screen undersize is split between two ball mills, the original 4.4 x 8.5 m (2240 kW) and the new 4.5 x 6.0 m (1800 kW) units. Each mill operates in closed circuit with a bank of Cavex 500CVX cyclones. After screening for trash removal, cyclone overflow, with a target grind size of 90% -74 μm, is combined and thickened in a 24 m diameter conventional thickener ahead of cyanidation. Grinding is conducted using cyanide-containing process water to commence leaching early in the circuit.
- Cyanidation: The cyanidation circuit consists of eight 430 m^3 mechanically agitated tanks, giving a circuit residence time of the order of 12 hours at a feed slurry density of 50% solids. Cyanide is added to the first and fifth tanks, and cyanidation addition is automatically controlled using a TAC 1000 on-line titration system. Compressed air is sparged into each leach tank. The adsorption circuit consists of six 270 m^3 mechanically agitated tanks, giving a residence time of the order of 8 hours. The tanks are fitted with Kemix interstage screens, and carbon is transferred using recessed impeller pumps. The carbon residence time is 180-190 hours.
- Tailings: Leached pulp is filtered without thickening. The circuit originally consisted of three disc filters of Chinese manufacture, each with 200 m^3 of filtration area. These units have subsequently been augmented by two units of Russian manufacture, each with 100 m^3 of filtration area. Return effluent from the TSF is treated using hypochlorite for cyanide detoxification.
- Metal recovery: Gold is recovered from the loaded carbon in a conventional elution and electrowinning circuit. Acid washing and elution is carried out using four 10 m3 columns, and metal is electrowon using five electrowinning cells (four operational, one standby). There are two smelting furnaces.

A heap leach circuit was commissioned in 2012 to treat low grade (off-balance) ore; however, this circuit is in the process of begin decommissioned, as the leach extractions achieved were significantly lower than expected. Future off-balance ore will be processed through the CIP circuit.

6.6.2 Supporting Metallurgical Testwork

A number of testwork programs on Berezitovy ore were conducted at or under the auspices of Irgiredmet over the period 1974 to 2003, including a plant trial using 300 t of ore in 1974, and the final program in 2003 using a 3.5 t sample. Most of the samples tested had head grades of 2.7-3.5 g/t Au and 12.7-20.0 g/t Ag, although 11 "private" samples tested in 1978 had a wider range of head grades (1.4-7.0 g/t Au, 11.5-113 g/t Ag).

Flowsheets tested included gravity separation, bulk sulphide flotation, leaching of whole ore, gravity tailings and flotation concentrate, and the flotation of lead and zinc concentrates from cyanidation tailings.

Additional testwork was conducted by SGS Lakefield in 2004 using the same sample tested by Irgiredmet in 2003.

While a flowsheet consisting of gravity separation followed by cyanidation of the gravity tailings was initially preferred, based on the SGS testwork the gravity circuit was eliminated, as no recovery benefit was observed to justify the additional circuit complication. While Pb and Zn recovery by flotation were also proposed based on the Irgiredmet testwork, the flowsheet that was built did not incorporate these stages.

Based on the 2003 Irgiredmet testwork, Au recovery for the selected circuit of 89.4% was specified, and Ag recovery of 32.9%.

6.6.3 Historical Operating Data

Annual plant operating data for the period 2016-2020 is shown in Table 6-12. With the exception of a small proportion of LG ore in 2019 (12% of the total LG ore processed for that year), the Au recovery figures are the same in each year for all ore sources.

Table 6-12: Berezitovy Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	1,481	2,039	1,962	1,895	1,835
Au Head Grade	(g/t)	1.72	1.60	0.90	1.12	1.27
Au Recovery	(%)	89.5	85.6	88.7	88.6	91.2%
Au Produced	(koz)	82	92	50	60	68
Operating Cost	(USD/t)	9.37	9.32	8.04	9.97	9.86

6.6.4 Forecast Operating Data

Summary processing data for the Ore Reserve and Base Case schedules are presented in Table 6-13. Both cases only extend to end-2022, with both the open pit and underground mines, and stockpiles, being depleted by this time. Old Heap Leach Pad material is only slightly depleted to "top up" the plant. There is a slightly higher proportion of high and medium grade material in the Base Case, as well as an additional 43 kt or ore, but the difference is small.

Table 6-13: Berezitovy Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	3,695	3,738
Gold Grade	(g/t Au)	0.91	1.00
	(koz Au)	108	120
Gold Recovery	(%)	88.1%	88.4%
Doré Produced	(kg)	2,963	3,306
	(koz Au)	95	106

6.6.5 Discussion

The Berezitovy processing circuit is of conventional format, and is consistent with the testwork on which its design was based, although the testwork did indicate there may have been some benefit in including a gravity circuit.

Recent production data indicates that the circuit has successfully processed ore at a rate of 1.8-2.0 Mtpa, consistent with the plant's estimated capacity.

Figure 6-11 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as for the sample on which the design recovery figure was based. The historical and forecast data are annual figures for 2014, 2015 and 2022 onwards, and monthly figures for 2016-2021, inclusive. The recovery per "grade bin" assumed in the MPA spreadsheet supporting the 2022 SBP is also shown. The historical data show some particularly low recoveries (<80%); these were all from the period January to September 2016, and the set of results with recoveries in the low 80s were all from the period December 2016 to May 2017. Otherwise, the historical and forecast data lie along the same trend, with recoveries similar to, and in some cases in excess of, the design figure, despite the lower head grades processed.

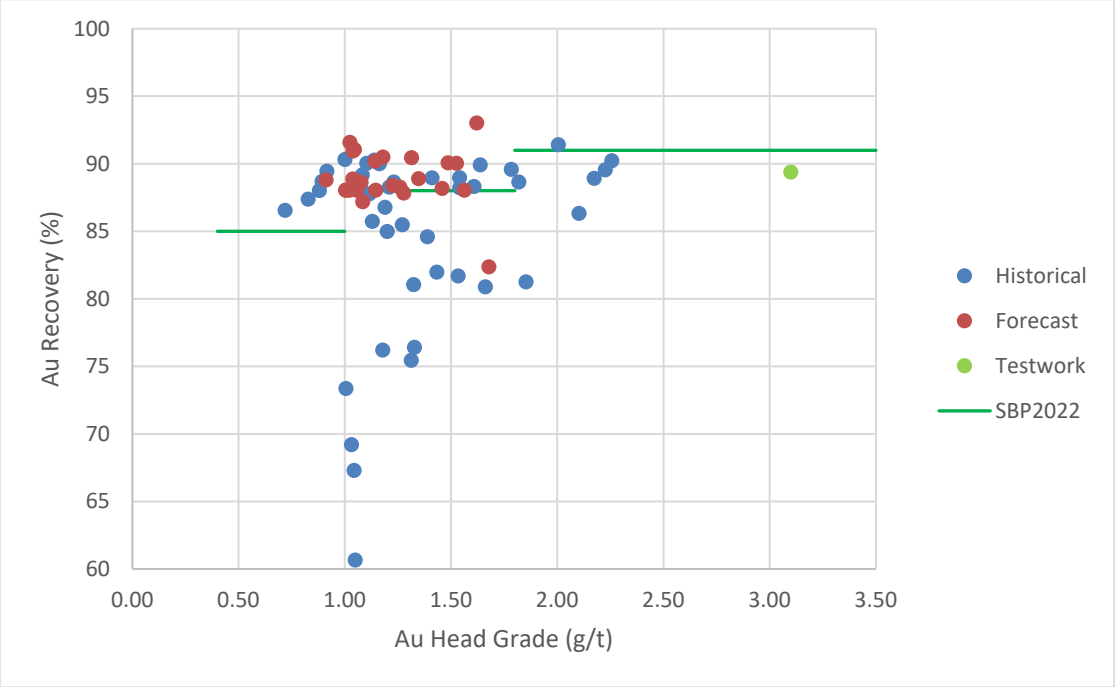


Figure 6-11: Berezitovy Gold Recovery versus Head Grade

The assumed recoveries for the SBP seem reasonable for the two lower grade bins (0.4-1.0 g/t Au and 1.0-1.8 g/t Au); however, for the higher grade bin (>1.8 g/t Au) the assumed recovery is approximately 1% higher than the average of the historical and testwork figures.

The operating costs are somewhat lower than benchmark costs for a plant of a similar configuration and capacity. Relatively low labour costs and a low power unit cost are likely to be contributing factors. In addition, earlier CPR report low cyanide consumptions (0.8 kg/t) for ore being processed at the time.

The MPA spreadsheet lists processing operating costs equating to USD9.99/t, referencing these to 2019 actual costs.

6.7 Tailings Storage Facility

6.7.1 Introduction

The Berezitovy filtered tailings storage facility (“Dry Stack” or “DSF”), is located approximately 0.5 km south of the processing plant. Tailings from the plant thickener circuit are pumped to a disc filter/vacuum filter circuit located at the DSF itself, where the slurry is dewatered to a solids content of 78% (W_{total}/W_{soilds}). Filtered tailings are loaded directly onto trucks by a conveyor before being hauled across the DSF footprint and dumped in stockpiles. Tailings are dozed (without compaction) to form successive DSF raises.

Tailings are produced at a rate of approximately 5,000 tpd (1.8 Mtpa). In the Ore Reserve and Base Cases, approximately 2.9 Mt and 3.8 Mt of tailings, respectively, will be produced during 2021 and 2022, which represents the total remaining mine life. Nordgold reports that the remaining capacity in the DSF is approximately 3.1 Mm^3 (or 5.2 Mt) and hence there is sufficient capacity to store the remaining LoM tailings.

A heap leach facility (“HLF”) has been partially developed immediately NE of the operating DSF (Figure 6-12). The HLF was partially re-mined during 2020, to supplement plant feed. SRK understands that as of February 2021 excavation of the HLF has ceased and hence the area will require rehabilitation prior to mine closure.

Figure 6-12: Berezitovy Dry Stack Facility (2), HLF (3), and HLF and HLF Warehouse (4) (source: Nordgold)

6.7.2 DSF Design

The DSF design passport was issued by Igiredmet Design Institute ("IDI") during 2014. The original design considered maximum storage capacity of 7.85 Mt of tailings (4.6 Mm^3), constructed in a series of 5.0 m lifts to a maximum elevation of 605 m RL (approximately 50 m at maximum height above natural topography). This was subsequently expanded to the south, by creation of an additional cell, which is currently being constructed on a former slurry tailings storage area (emergency slurry storage pond).

DSF external slopes were designed with overall gradient of 1V:3H, with individual raises being constructed with steeper inclinations of 1V:2H (separated by horizontal benches). It is evident from review of recent satellite imagery that the external slopes of the landform have not been constructed to the setting out points defined in the design. Recent photographs provided by Nordgold indicate that individual raises have been constructed with slopes of 45°, which deviates significantly from the design.

The tailings material is relatively fine (90% passing 75 µm size fraction), which has led to historical problems with filtration of tailings. This, combined with re-processing of heap leach facility ore (which results in higher moisture content in plant feed), has led to tailings with relatively high moisture content being deposited on the facility over the last year.

The site is located in a region of high seismicity, 8 point on the Russian MSK scale (which equates to 0.1-0.2g for 1:475 year event). The facility is designed Russian Class IV (high hazard).

A series of HDPE lined ponds have been constructed along the western and southern flank of the DSF to store runoff from the facility. Water is pumped from the ponds back to the water treatment plant for re-use.

Significantly, the original design of the DSF included provision for a series of lined HDPE ponds within the southern footprint area of the DSF, which were designed to store slurry tailings in the event of filter circuit downtime/maintenance. Based on review of satellite imagery from 2017, it appears that slurry tailings were pumped into these cells. Subsequently, filtered tailings has been stacked directly upon former ponds storage areas, it is not clear how these surfaces were prepared prior to subsequent stacking on the facility. Nordgold has indicated that the slurry material was removed from the cells prior to construction of the DSF above; however, there are no records available to confirm this.

During 2017, Kuzbass Institute undertook additional geotechnical investigations within the footprint area of the DSF, which indicated the presence of frozen layers entrained within the filtered tailings.

The latest inspection of the facility was carried out during 2019 by the Department for Infrastructure Amur Region. No significant deviations were noted, apart from surface erosion of the external slopes by a recent storm event. As indicated in Figure 6-12, SRK notes extensive erosion of all slopes around the perimeter of the facility, which indicates that they are over-steepened compared to the design. In addition, it appears that no erosion protection has been placed on external slopes of the landform, which makes external slopes prone to hydraulic erosion by rainfall/snowmelt. SRK recommends that oversteepened slopes are regraded and/or buttressed in advance of closure to ensure that they meet the inclinations included in the design.

Monitoring provisions at the site include groundwater monitoring wells around the perimeter of the DSF, visual inspections of the DSF slopes and recording of water storage pond levels.

6.7.3 Stability Analysis

The latest stability analysis for the facility is dated 2014 (IDI, 2014). Effective Strength Analysis (“ESA”) was undertaken, which considers drained conditions only. Whilst this meets Russian requirements, it should be noted that International Best Practice dictates use of Undrained Strength Analysis (“USA”) in addition to ESA, which should be undertaken adopting credible estimation of post-seismic strength.

ESA material parameters used in analyses are broadly representative; however, SRK notes that all analyses were carried out on design slope geometries with lower slope inclinations than the as-built slopes and hence calculated Factors Of Safety (“FOS”) values have been overestimated. The analysis has not been updated to replicate field conditions.

The estimated FOS meet the requirements set out in Russian Standards (design FOS is 1.3 static and 1.2 dynamic/seismic). SRK recommends that a higher target FOS should be considered (1.5 static and 1.2 dynamic/seismic), which is in line with International Guidelines such as the Canadian Dam Association.

Based on review of the analysis and design cross sections, SRK considers there to be a credible risk of flow liquefaction triggered by both static and dynamic loads (seismicity). Tailings are being placed in loose condition on the dry stack with a relatively high moisture content. Static liquefaction may also be credible dependent upon saturation/pore pressure conditions, this could occur during construction of DSF raises on loose, contractive materials (i.e. wet, uncompacted tailings placed significant wet of optimum moisture content). Raises are relatively low; however, these are undertaken over former tailings slurry storage areas (i.e., at the south of the dry stack), where loose, saturated material forms the foundations of the dry stack.

6.7.4 Hazards and Risks Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
  - Meteorological events: **Low** (storm accumulation unlikely a significant issue as diversion channels are designed to divert storm flows around the facility; ponds have been designed to manage contact water runoff).
  - Seismic events: **High** (area of high seismicity).
  - Human Ingress: **Low** (remote site; unlikely to have significant ingress from local population).
- Internal:
  - Tailings Dewatering: **High** Disc filters cannot achieve desired moisture content during dewatering of tailings. This results in wet (>20% Wtotal/Wwater) material leaving the filter circuit, which cannot be effectively placed/compacted in the filtered tailings facility.
  - DSF Construction: **High.** Loose, wet tailings are being placed in the DSF, which have the potential to liquify during construction and/or seismic events. No QA/QC protocols in place.
  - Electrical and mechanical, including automation, protection and controls, communications: **Low/moderate.** Remote site, so communication is likely to be challenging.

The following key risks have been identified following completion of this review:

- Slope instability/loss of strength: **High.** Owing to the high moisture content in dewatered tailings, it is evident that off-specification tailings (wet tailings) are being placed across the DSF footprint. In addition, SRK understands that the filtered tailings are not compacted during placement in the facility. There is a high risk of static and seismic liquefaction, which could lead to rapid loss of strength. The presence of frozen layers in dry stack are also of concern. This can lead to build up of porewater pressure in confined layers between frozen zones in the dry stack and loss of strength.
- Lack of monitoring provisions in the DSF: **High.** Lack of instrumentation such as vibrating wire piezometers means that there is currently no means by which to pick up rapid changes in porewater pressure within the DSF foundations.

- Lack of Storage Capacity: **Low.** Whilst it is reported that there is sufficient capacity for remaining tailings produced over the coming years, it is considered unlikely that that design storage density of 1.7 t/m^3 is being achieved without mechanical compaction.
- Dust: **High.** Dust generation is likely to be significant, particularly during winter months. No population/settlements nearby, however the potential for impact on local environmental receptors is high.
- Overtopping of DSF sedimentation ponds: **Low/Moderate.** If design freeboard is maintained at all times for the ponds. Water levels are currently being monitored by the operator.

6.7.5 Other Risks

Over steepened external slope sections have been observed during review of recent aerial imagery and photographs of the site, which indicates that external slopes have been constructed at angles which exceed design. In addition, it is likely that the southern sector of the TSF may be constructed upon loose, potentially contractive material (previously deposited slurry tailings) which could be prone to liquefaction. There is a risk that significant buttressing of the external slopes of the landform will be required to ensure that all slopes meet the required FOS. As the remaining mine life is relatively short (two years), external slopes should be regraded and erosion protection can be placed to prevent further erosion. SRK estimates that buttressing earthworks could be up to USD5m, depending on the outcomes of follow up geotechnical investigations and design.

SRK has not been provided with details of a closure design for the DSF or the HLF. This is likely to involve installation of a minimum 0.5 m thickness of site derived NPAG fill overlain by 0.3 m thickness of restoration soil; to form a shedding cover, which promotes water drainage away from the DSF and minimised infiltration into stored waste. Approximately 0.5 Mm^3 of fill materials would be necessary to form a cover system over the DSF. SRK estimates that the cost to close the DSF could be approximately USD3m. An additional allowance of USD1.5m is envisaged for the closure earthworks at the HLF.

6.8 Infrastructure and Logistics

The Berezitovy mine is an operating asset and as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- potable water supply from boreholes, heating, and hot water supply;
- waste and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility; and
- explosives storage facility.

Power is supplied via a 110 kV grid connection to the main Skovorodino 220/110/35/10 kV substation and back-up diesel generators for critical loads.

Berezitovy Mine is well connected to regional road and rail infrastructure via a 55 km access road to the Urusha, which is a town located on the Tran-Siberian Railway and the major Amur Highway (M58 section). No major capital investment is planned for infrastructure assets.

6.9 Human Resources

Nordgold has provided the following breakdown of staff at the Berezitovy Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2022. The mine is currently expected to close at the end of 2022.

Table 6-14: Berezitovy Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Berezitovy	867	887	746	0	24	24	24	0

6.10 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Berezitovy mine has a health and safety management system that is being aligned with ISO 45001:2018. The mine is targeting certification of conformance to this standard by the end of 2021.

The register of accidents is maintained on the Berezitovy mine and includes cases involving employees, contractors and third parties. The database has about 25 parameters and includes investigation, estimation of damage, and analysis of root causes and lessons learned. Table 6-15 summarizes the key health and safety indicators for Berezitovy mine.

Table 6-15: Berezitovy Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	434/87	439/ 71
Lost time injury frequency rate ("LTIFR")*	0,23/0.67	0.21 5/0.00
Total recordable injury frequency rate ("TRIFR")**	4.55/6.69	2.09 /0.00
Lost Time Accident Days (LTAD)	334/0	220/0
Fatalities	0/0	0/0
Lost Time Incidents ("LTI")	2/1	2/0
Medical Treatment Incidents ("MTI")	6/1	1/0
First Aid Incidents ("FAI")	3/1	5/0
Near Misses	2/0	1 /0
Unsafe Conditions, Fixed	670/0	668/0
Actual Headcount	434/87	439/ 71

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

6.11 Environmental and Social Matters

6.11.1 Environmental and Social Setting

The nearest settlements are located near the stations of Trans–Baikal and Far Eastern Railways more than in 25 km away from the licence areas. The main livelihood activities are railway maintenance, logging and exploitation of gold placer deposits.

The Berezitovy mine staff work on a rotation and are transported to Skovorodino from where they can travel to other locations.

The entire population of the Tyndinsky district is 13,013 (01 January 2020). Tynda town administratively is not included in the district, with a population of 33,177. The population of Skovorodinsky district is 16,643 and of Skovorodino town is 8,943 .

The main climate features around the deposit are:

- extreme continental climate;
- average annual precipitation 600 mm, with most precipitation during the warm period;
- a predominant north-east wind with the average velocity 2.1 m/s;
- discontinuous and insular distribution of permafrost; and
- presence of hazardous exogenous processes.

The fauna in the area is of East Siberian type. Some Red Book species of plants and animals may be present in the area, but they were not discovered during the field surveys. There are no specially protected natural areas or leased hunting grounds within or near the licences boundaries.

Licence areas are located on forest lands of Tyndinskoye forestry of Tyndinsky district and Urushinskoye forestry of Skovorodinsky district.

The licence areas are in the Oldoy River catchment, in the Amur River basin. The Oldoy River runs about 3 km south-east from the mine and slightly crosses the border of Khaikta licence area. All rivers and streams draining the licence areas are Oldoy River tributaries of various orders (Khaikta, Amudechi, Mongoli and many others).

The Oldoy and Khaikta rivers are officially listed as rivers of high fishery value at a regional level. Although, it is probable that the Oldoy River is still important for traditional amateur fishing, the river and its tributaries have been disturbed by placer gold mining unrelated to Nordgold's operations. The potential consumers of water resources are residents of Madalan settlement (367 inhabitants), located 50 km downstream from the mine.

6.11.2 Approach to Environmental and Social Management

Management System

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Berezitovy mine has an environmental management system that is being aligned with ISO 14001:2015. The mine is targeting certification of conformance to this standard by the end of 2023.

Currently the focus of environmental management is on compliance with legislation and permits. Some elements of the management system are well developed (job descriptions with the definition of responsibilities, corporate policies, monitoring and control, periodic audits from the corporate office).

There is one environmental engineer on rotation at Berezitovy mine who reports to the Director for Health, Safety and Environment, who in turn reports to the Executive Director of “Berezitovy Rudnik” LLC and corporate HSE Department (based in Moscow).

Environmental monitoring data is used as a basis for emissions payments to the government. These are paid in accordance with tax regulation in the country. Table 6-16 summarises the Company’s environmental payments in 2017-2019.

Table 6-16: “Berezitovy Rudnik” LLC Environmental Payments

	2017		2018		2019	
	Under limit RUBk	Over limit RUBk	Under limit RUBk	Over limit RUBk	Under limit (RUBk	Over limit RUBk
Emissions	67,93	0	17,2	0	17,89	0
Discharge	0,3	54,77	0,14	18,37	0,8	225,74
Wastes	492,34	0	500,63	216,61	490,99	1,73

Over limit payments for the discharges were caused by the exceedance of the limits for the nitrogen in domestic sewage. The issue is now resolved, the Company has installed a new filtration unit to improve water quality treatment (up to 95%). The payments for the wastes were caused by the delays of contracting with the external organisations, which are accepting wastes for disposal. Reportedly, this has been resolved.

Stakeholder Engagement

Public hearings are held when required by law, generally as part of updates to environmental approvals. Public hearings were recently held for Berezitovy mine-extension project. The mine also has a hotline and official website in place that allows stakeholders to address their complaints or requests to the Company by means of telephone or online communication.

Community Development

“Berezitovy Rudnik” LLC supports social projects as part of agreement with Amur Regional Public Organization "Civil Initiative". Also, there are plans for different types of charity, material assistance and partnerships coupled with provisions of RUB5m annually.

6.11.3 Technical Issues

The technical issues listed below were noted.

- The mine intends to undertake ARDML studies to provide input into mine water management and closure plans. Available monitoring data provides indicates potential for ARDML from mine waste in special dump #3 and for localised metal enrichment in streams on the mine site (Berezitovy Stream, Orogzhan Stream, the Khaita River) and groundwater. It is noted that mine water and storm water are currently discharged in accordance with a new project with a positive conclusion of the state expertise. In accordance with Russian legislation, a discharge permit will be obtained in 2021.

- There may be challenges associated with allocation of forest lands to develop greenfield areas (Khaikta and Mongoli). There are risks of delays, administrative obstacles, and significant material expenses during the allocation procedure. This is related with possible protected status of forests and compensatory reforestation. Some forest lands may include specially protected forest sites where construction is prohibited. Compensatory reforestation depends on many regional factors (such as limited quotas of permitted plantations and their accessibility, availability of seedings, contractors.

6.11.4 Closure

There is no comprehensive LoM closure plan for Berezitovy mine. Closure solutions are provided as part of the design documentation but lack detail on specific measures. The framework design solutions for the LoM are as follows: the pit should be filled with water, the flat surfaces should be covered with forest, and the slopes and roads should be straightened to avoid the exogenous processes. Heap leaching pads should be covered with soil, straightened, and sown with grass. No closure solutions were provided for plant and other industrial sites, administrative buildings, shift camp, landfill, sewage, and other infrastructure objects.

A LoM closure cost estimate was made for the Berezitovy mine for the combined mining project by “SibGeoProject” LLC in 2019. The estimate amounted to USD0.47m, excluding administrative facilities.

Nordgold recognises that the above-mentioned estimate is low and has prepared an updated estimate of USD4.67m, which has been included in the financial model for the Ore Reserve Case and Base Case.

There are risks that the actual closure costs will be higher. The closure legislation in Russia could become stricter, following global norms, and ARDML studies may reveal a need for more stringent closure measures such as capping of mine waste facilities.

SRK notes that the above-mentioned closure cost estimate excludes retrenchment costs.

Berezitovy mine is not obliged to provide the Government with financial assurance for closure.

Nordgold intends to review the Company’s mine closure practices against the Responsible Gold Mining Principles and other international industry standards. Products of this review will be a Nordgold closure framework and updates to closure plans and cost estimates.

6.11.5 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Berezitovy mine:

- Continues with the development of the environmental management system and obtains certification of this and the health and safety management system as planned.
- Improves water treatment based on additional comprehensive water quality monitoring.
- Conducts ARDML studies as planned.
- Updates the closure plans and cost estimates in accordance with the new group closure framework when this has been established.
- Maintains a proactive and continuous community stakeholder engagement process.

- Considers options for phased site clearing while developing new exploration areas. This will reduce the annual reforestation obligations, as annual state quotas for forest plantations may be limited.

6.12 Economic Assessment

6.12.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Berezitovy gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 100% of the Berezitovy gold mine.

6.12.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Berezitovy cashflow analysis:

- Royalty rate of 6.0% flat;
- Corporate income tax rate of 20% flat;
- Property tax payable at USD275k per annum; and
- Closure cost allowance of USD4.7m and retrenchment cost of USD0.3m have been allowed for in the economic assessment.

6.12.3 Production

Historical processing statistics over 2016-2020 are presented in Table 6-17. The remaining life of mine for the Ore Reserve Case and Base Case is 2 years.

Table 6-17: Berezitovy Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	15,943	14,888	15,721	16,636	16,294
Waste	(kt)	15,239	13,900	15,460	16,058	15,059
Capital Waste	(kt)	12,697	6,564	14,183	15,038	11,260
Operating Waste	(kt)	2,542	7,336	1,277	1,020	3,799
Ore	(kt)	704	989	261	578	1,235
Gold Grade	(g/t Au)	2.16	1.96	2.33	2.33	0.59
Gold Contained	(koz Au)	49	62	20	43	23
Surface Haulage	(kt)	-	-	-	-	1,096
Processing Feed	(kt)	1,481	2,039	1,962	1,895	1,835
Gold Grade	(g/t Au)	1.72	1.60	0.90	1.12	1.27
Gold Contained	(koz Au)	82	105	57	68	75
Gold Recovery	(%)	89.5%	85.6%	88.7%	88.6%	91.2%
Doré Produced	(kg)	2,539	2,875	1,552	1,869	2,110
	(koz Au)	82	92	50	60	68
Sales						
Doré	(koz Au)	80	93	47	60	68
Commodity Prices						
Gold	(USD/oz)	1,234	1,263	1,288	1,395	1,781
Sales Revenue						
Gold	(USDm)	98.1	117.0	61.0	84.0	121.2

6.12.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past 5 years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 6-18. These numbers exclude capitalised waste stripping and capital development (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Berezitovy, this cost amounts to approximately USD4.20/oz.

The Company has noted that for the Russian Mineral Assets, in general, approximately 50% of the operating costs incurred are denominated in local currency, 55% in USD and 20% in EUR.

Table 6-18: Berezitovy Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	5.4	14.3	2.6	7.7	13.2
Surface Haulage	(USDm)	-	-	-	-	-
Processing	(USDm)	13.9	19.0	15.8	18.9	18.1
Other Production	(USDm)	7.4	0.0	2.7	0.3	-2.1
Overheads	(USDm)	9.3	12.1	6.6	10.7	12.1
General Site	(USDm)	8.3	10.7	5.1	9.1	10.1
SG&A	(USDm)	1.0	1.4	1.4	1.6	2.0
Royalties/Other Taxes	(USDm)	6.4	7.8	4.1	5.5	7.6
Other Operating	(USDm)	0.1	0.1	-0.1	0.0	0.0
Total Cash Cost	**(USDm)**	**42.3**	**53.4**	**31.6**	**43.1**	**48.9**

6.12.5 Capital Expenditure

Table 6-19 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for the Russian Mineral Assets, in general, approximately 20% of capital expenditure incurred are denominated in local currency, 40% in USD and 40% in EUR.

Table 6-19: Berezitovy Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	1.9	10.5	13.8	9.0	1.4
Exploration	(USDm)	1.2	1.4	0.9	0.1	1.2
Dev/New Technology	(USDm)	0.7	9.1	12.9	8.9	0.2
New Mine Construction	(USDm)	-	-	-	-	-
Sustaining	(USDm)	26.0	17.4	31.2	25.8	24.9
Exploration	(USDm)	0.4	0.6	0.2	0.3	0.3
Maintenance	(USDm)	4.9	1.9	6.7	2.7	1.9
Capital Stripping/Dev	(USDm)	15.8	9.1	20.9	20.8	17.7
PCR	(USDm)	4.9	5.7	3.4	2.1	5.0
Total Capital Expenditure	**(USDm)**	**27.9**	**27.9**	**44.9**	**34.9**	**26.3**

6.12.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Berezitovy, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 6-20) and unit cost assessments (Table 6-21);
- For the Ore Reserve Case, annual detailed cashflows (Table 6-22) and annual unit cost assessment (Table 6-23); and
- For the Base Case, annual detailed cashflows (Table 6-24) and annual unit cost assessment (Table 6-25).

Both cases present technically feasible and economically viable plans.

Table 6-20: Berezitovy LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	17,480	17,997
Waste	(kt)	14,065	13,493
Capital Waste	(kt)	2,744	2,771
Operating Waste	(kt)	11,321	10,722
Ore	(kt)	3,415	4,504
Gold Grade	(g/t Au)	0.94	0.88
Gold Contained	(koz Au)	103	127
Surface Haulage	(kt)	279	142
Processing Feed	(kt)	3,695	3,738
Gold Grade	(g/t Au)	0.91	1.00
Gold Contained	(koz Au)	108	120
Gold Recovery	(%)	88.1%	88.4%
Doré Produced	(kg)	2,963	3,306
	(koz Au)	95	106
Sales			
Doré	(koz Au)	95	106
Commodity Prices			
Gold	(USD/oz)	1,865	1,860
Sales Revenue			
Gold	(USDm)	178	198
Operating Expenditure			
Mining	(USDm)	27	33
Surface Haulage	(USDm)	-	-
Processing	(USDm)	36	38
Other Production	(USDm)	(6)	(7)
Overheads	(USDm)	21	21
Royalties/Other Taxes	(USDm)	11	12
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**90**	**97**
Cashflow			
EBITDA	(USDm)	88	100
CIT	(USDm)	14	17
Working Capital	(USDm)	5	6
Interest/Other	(USDm)	-	-
Operating Cashflow	**(USDm)**	**69**	**78**
Capital Expenditure			
Project	**(USDm)**	**2**	**2**
Exploration	(USDm)	2	2
Development/New Technology	(USDm)	-	-
New Mine Construction	(USDm)	-	-
Sustaining	**(USDm)**	**10**	**11**
Exploration	(USDm)	-	-
Maintenance	(USDm)	3	3
Capital Stripping/Development	(USDm)	5	5
PCR	(USDm)	2	2
Closure/Retrenchment	**(USDm)**	**5**	**5**
Total Capital Expenditure	**(USDm)**	**17**	**18**
Free Cashflow	**(USDm)**	**52**	**60**

Table 6-21: Berezitovy LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	944	917
AISC	(USD/oz)	1,103	1,064
AISC (excluding closure)	(USD/oz)	1,050	1,017
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	1.86	2.16
	(USD/t_{ore})	8.04	7.31
Mining Capitalised	(USD/$t_{capitalised}$)	1.72	1.90
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	9.84	10.22
Overheads	(USD/t_{feed})	5.65	5.68

Table 6-22: Berezitovy Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022
Production				
Total Material Mined	(kt)	17,480	15,241	2,239
Waste	(kt)	14,065	12,444	1,621
Capital Waste	(kt)	2,744	2,744	
Operating Waste	(kt)	11,321	9,700	1,621
Ore	(kt)	3,415	2,797	618
Gold Grade	(g/t Au)	0.94	0.97	0.80
Gold Contained	(koz Au)	103	87	16
Surface Haulage	(kt)	279	279	-
Processing Feed	(kt)	3,695	1,852	1,842
Gold Grade	(g/t Au)	0.91	1.18	0.64
Gold Contained	(koz Au)	108	70	38
Gold Recovery	(%)	88.1%	88.2%	87.7%
Doré Produced	(kg)	2,963	1,931	1,032
	(koz Au)	95	62	33
Sales				
Doré	(koz Au)	95	62	33
Commodity Prices				
Gold	(USD/oz)	1,865	1,905	1,791
Sales Revenue				
Gold	(USDm)	178	118.3	59.4
Operating Expenditure				
Mining	(USDm)	27	22.8	4.6
Surface Haulage	(USDm)	-	-	-
Processing	(USDm)	36	17.8	18.6
Other Production	(USDm)	(6)	(5.9)	-
Overheads	(USDm)	21	12.0	8.9
Royalties/Other Taxes	(USDm)	11	7.4	3.8
Other Operating	(USDm)	-	-	-
Total Cash Cost	**(USDm)**	**90**	**54.0**	**36.0**
Cashflow				
EBITDA	(USDm)	88	64.3	23.5
CIT	(USDm)	14	10.0	4.2
Working Capital	(USDm)	5	4.6	-
Interest/Other	(USDm)	-	-	-
Operating Cashflow	**(USDm)**	**69**	**49.7**	**19.3**
Capital Expenditure				
Project	**(USDm)**	**2**	**1.9**	**0.1**
Exploration	(USDm)	2	1.9	0.1
Dev/New Technology	(USDm)	-	-	-
New Mine Construction	(USDm)	-	-	-
Sustaining	**(USDm)**	**10**	**8.2**	**1.9**
Exploration	(USDm)	-	-	-
Maintenance	(USDm)	3	1.8	1.3
Capital Stripping/Dev	(USDm)	5	4.7	0.0
PCR	(USDm)	2	1.6	0.6
Closure/Retrenchment	**(USDm)**	**5**	**-**	**5.0**
Total Capital Expenditure	**(USDm)**	**17**	**10.1**	**7.0**
Free Cashflow	**(USDm)**	**52**	**39.6**	**12.3**

Table 6-23: Berezitovy Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022
Standard Statistics				
Total Cash Cost	(USD/oz)	944	870	1,084
AISC	(USD/oz)	1,103	1,001	1,292
AISC (excluding closure)	(USD/oz)	1,050	1,001	1,142
Unit Costs				
Mining (excl capitalised)	(USD/t_{mined})	1.86	1.82	2.07
	(USD/t_{ore})	8.04	8.15	7.50
Mining Capitalised	(USD/$t_{capitalised}$)	1.72	1.72	22.52
Surface Haulage	(USD/$t_{transported}$)	-	-	-
Processing	(USD/t_{feed})	9.84	9.59	10.08
Overheads	(USD/t_{feed})	5.65	6.46	4.84

Table 6-24: Berezitovy Base Case LoMp

Statistic	Units	Total LoM	2021	2022
Production				
Total Material Mined	(kt)	17,997	15,406	2,591
Waste	(kt)	13,493	11,974	1,519
Capital Waste	(kt)	2,771	2,744	28
Operating Waste	(kt)	10,722	9,230	1,492
Ore	(kt)	4,504	3,432	1,072
Gold Grade	(g/t Au)	0.88	0.93	0.73
Gold Contained	(koz Au)	127	102	25
Surface Haulage	(kt)	142	-	142
Processing Feed	(kt)	3,738	1,851	1,887
Gold Grade	(g/t Au)	1.00	1.21	0.79
Gold Contained	(koz Au)	120	72	48
Gold Recovery	(%)	88.4%	88.6%	88.0%
Doré Produced	(kg)	3,306	1,991	1,315
	(koz Au)	106	64	42
Sales				
Doré	(koz Au)	106	64	42
Commodity Prices				
Gold	(USD/oz)	1,860	1,905	1,791
Sales Revenue				
Gold	(USDm)	198	121.9	75.7
Operating Expenditure				
Mining	(USDm)	33	25.3	7.6
Surface Haulage	(USDm)	-	-	-
Processing	(USDm)	38	19.2	19.0
Other Production	(USDm)	(7)	(7.2)	-
Overheads	(USDm)	21	12.0	9.3
Royalties/Other Taxes	(USDm)	12	7.6	4.8
Other Operating	(USDm)	-	-	-
Total Cash Cost	**(USDm)**	**97**	**56.8**	**40.6**
Cashflow				
EBITDA	(USDm)	100	65.1	35.1
CIT	(USDm)	17	10.2	6.5
Working Capital	(USDm)	6	5.8	-
Interest/Other	(USDm)	-	-	-
Operating Cashflow	**(USDm)**	**78**	**49.1**	**28.6**
Capital Expenditure				
Project	**(USDm)**	**2**	**1.9**	**0.3**
Exploration	(USDm)	2	1.9	0.3
Dev/New Technology	(USDm)	-	-	-
New Mine Construction	(USDm)	-	-	-
Sustaining	**(USDm)**	**11**	**8.1**	**2.5**
Exploration	(USDm)	-	-	-
Maintenance	(USDm)	3	1.8	1.3
Capital Stripping/Dev	(USDm)	5	4.7	0.5
PCR	(USDm)	2	1.6	0.6
Closure/Retrenchment	**(USDm)**	**5**	**-**	**5.0**
Total Capital Expenditure	**(USDm)**	**18**	**10.0**	**7.8**
Free Cashflow	**(USDm)**	**60**	**39.0**	**20.8**

Table 6-25: Berezitovy Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022
Standard Statistics				
Total Cash Cost	(USD/oz)	917	888	961
AISC	(USD/oz)	1,064	1,015	1,137
AISC (excluding closure)	(USD/oz)	1,017	1,015	1,019
Unit Costs				
Mining (excl capitalised)	(USD/t_{mined})	2.16	2.00	2.96
	(USD/t_{ore})	7.31	7.37	7.08
Mining Capitalised	(USD/$t_{capitalised}$)	1.90	1.72	19.57
Surface Haulage	(USD/$t_{transported}$)	-	-	-
Processing	(USD/t_{feed})	10.22	10.39	10.05
Overheads	(USD/t_{feed})	5.68	6.47	4.91

7 IROKINDA GOLD MINE

7.1 Introduction

7.1.1 Location

The Irokinda Gold Mine is in the north-eastern part of the Republic of Buryatia, largely within the Muysky district. The nearest settlement is Irokinda, located in 4 km to the south, which services the mine. The location of the mine is shown in Figure 3-10, Section 3.3, and in Figure 7-1. Taksimo town is the regional administrative centre and is approximately 50 km to the north-west.

Since August 2019, the Irokinda mine has been operated by “Irokinda” LLC, which is a 100% subsidiary of “Buryatzoloto” PJSC. Both “Irokinda” LLC and “Buryatzoloto” PJSC have their head office in the capital of the Republic, Ulan-Ude.

There are three licence areas in the Irokinda area, which are Irokindinskoe (“Irokinda”), Severny and Zhanokskaya (“Zhanok”), as shown in Figure 7-1. Mining is active only in the Irokinda licence area. The Visokaya, Tuluinskaya and Serebryakovskaya veins are all in production and together constitute the Irokinda Mine. Exploration is also focused on the Severny licence area to the east.

The mine is mostly in the Muysky district, but the Zhanok licence area extends into the Bauntovsky district of the Republic of Buryatia.

The licence areas are mostly on forest lands. Most of the land within Irokinda and Severny licences has been disturbed by the extensive mine and exploration workings in the past.

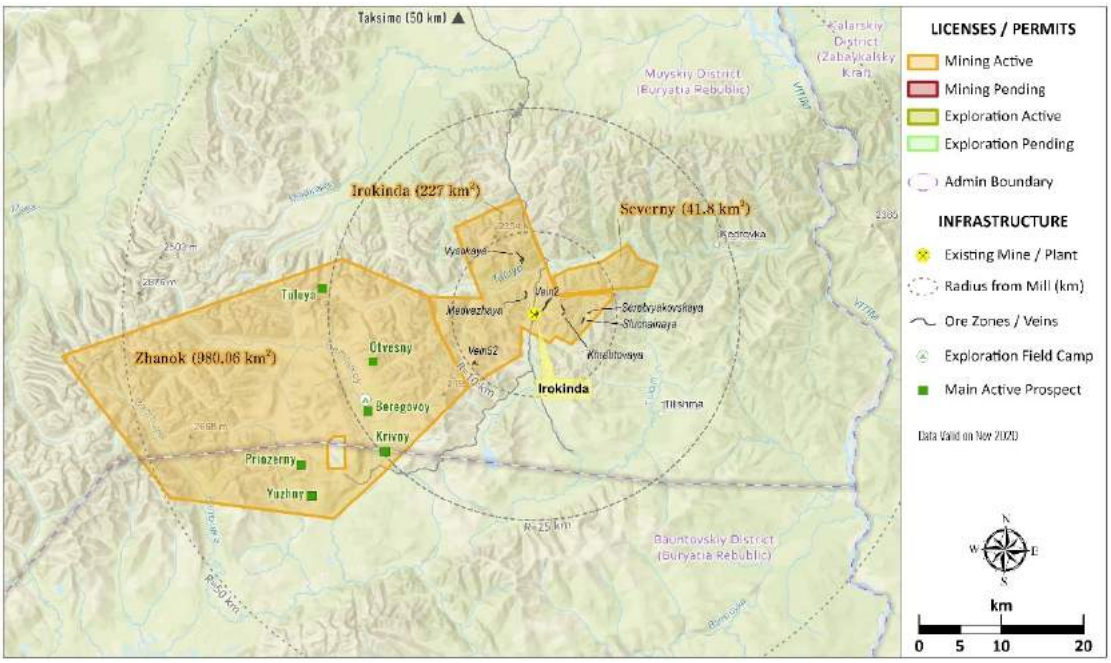


Figure 7-1: Irokinda Asset Licence Areas (Nordgold)

Irokinda mine has a processing plant with crushing, grinding, gravity, and flotation circuits; the final product is doré alloy. Most of the waste rock goes to backfill and about 400 kt are reportedly stored in the waste dumps. Tailings from the processing plant is stored in a TSF.

7.1.2 Access

The Irokinda mine is accessible via an all-seasons gravel road from Taksimo (75 km by road), where the Taksimo station of the Baikal-Amur Railway and Taksimo airport are located. Supply to the site is by rail via this station. There is a logistics base at the station. There are several local roads which provide access from the Irokinda settlement to the mine and exploration sites.

7.1.3 Climate

The climate at Irokinda is continental with long cold winters and short wet summers. Snow cover lasts around seven months (October to May). The average winter temperature ranges from -22°C to -32°C in January (the coldest month). Summer temperatures in July range from 15°C to 17°C. The average annual temperature is -6.7°C. Average annual precipitation is around 462 mm, 72% of which falls during the summer, 3% during the winter, and the remainder during the spring and autumn. Permafrost occurs across the mine site to a depth of up to 200 m.

7.2 Mineral Rights and Primary Approvals

7.2.1 Mineral Rights Held

The mining and exploration licences held by “Irokinda” LLC are listed in Table 7-1. Note that these are combined mining and exploration licences.

Table 7-1: “Irokinda” LLC Mining and Exploration Licences

Tenement Name	Licence		Validity	
	Type	Number	From	To
Irokinda	BR	UDE 02129 BR	2019-08-22	2021-12-31
Severny	BR	UDE 02130 BR	2019-08-22	2037-02-20
Zhanok	BR	UDE 02128 BR	2019-08-22	2038-03-12
Water extraction		MUYA 00708 PVE	2019-10-29	2038-12-03

* BP - Exploration Licence; BR - Combined Licence (Mining and Exploration); BE – Production Licence

The licences of “Irokinda” LLC have no special environmental requirements. They define general requirements to comply with the Russian environmental and mineral resource legislation and to develop a (temporary) closure program one year before the planned closure date. As for the social requirements, all licences indicate a preference to select national contractors.

7.2.2 Land Tenure

The licence areas are mainly located on forest lands (Muyskoye Forestry). Most of the forests belong to the operational and reserve categories. Forests within the water protection zones of rivers are protected.

The current area of land plots legally operated by Irokinda mine is 571 ha. The Company has documentation for 48 land plots, the summary is provided below[17] (Table 7-2).

[17] *Since the drawing with the boundaries of the designed land allotment was not available, SRK did not assess whether the currently leased land plots are sufficient.*

Table 7-2: Irokinda Mine Land Plots

Land category	Number of land plots	Total area, ha	Owner	Expiration	Main objects
Forest lands	11	378	Federal government	2021-2038	Mines, TSF, roads
Lands of industry	36	183	Regional government	2023-2024	Mines, process plant, ore storage, TSF, explosives, roads
Lands of settlements (Irokinda settlement)	21	6	Regional government	2024-2037	Administrative buildings
Lands of industry	1	4	Irokinda mine	Unlimited	Landfill for solid and liquid wastes

Forest management projects have been developed and approved for the leased forest lands in compliance with the Forestry legislation requirements. Logging has not been carried out in recent years, so reforestation activities are not planned.

According to the leasing agreements, some forest land plots have limitations of use, as they include the specially protected forest.

7.2.3 Environmental Approvals

Table 7-3 summarises the environmental permits which “Irokinda” LLC had in December 2020. Most of the documentation is in the process of renewal due to the change of legal entity from “Buryatzoloto” PJSC to “Irokinda” LLC.

Table 7-3: “Irokinda” LLC Permitting Documentation

Aspect	Permit	Validity	
		From	To
Waste management	An approval of waste generation rates and waste disposal limits	In the process of renewal	
	Licence for collection, transportation, processing, utilization, neutralization, and disposal of wastes of I-IV hazard categories	In the process of renewal	
	Contracts for the transfer of waste to third parties (mercury lamps, ferrous metals, used batteries, oils, tires, etc.)	Signed/extended annually (current contract #433/2020 is dated 2020-03-06)	
Air emissions	Air emissions permit	In the process of renewal	
	Air emission rates	In the process of renewal	
	Sanitary Protection Zone (SPZ)	In the process of establishment	
Water consumption	Licence MUYA 00708 PVE for the extraction of underground waters for drinking and technical purposes	2019-10-29	2038-12-03
Water discharge	Contract is signed to transfer liquid waste from toilets	Signed/extended annually	
	Permit for discharge of substances and microorganisms into water bodies	Company states zero discharge (except the liquid waste from toilets)	

No waste dumps or tailing ponds are currently registered in the State Register of Waste Disposal Facilities (“GRROO”), registration is planned for 2021.

The mine is inspected by state authorities. Rosprirodnadzor has not inspected the site recently. An inspection by Rospotrebnadzor in 2020 had findings pertaining to air quality monitoring, soil monitoring and potable water safety control, all of which have been addressed by the mine.

7.3 Geology

The Irokinda gold deposit occurs within a fault-bounded block of the Archaean Uzhno-Muiskaya formation, a 2,500 m thick series which has been metamorphosed to granulite-facies, and intruded by dykes and sills (Figure 7-2 and Figure 7-3).

The structure of the deposit is dominated by three systems of faulting. These fractures dip shallowly to moderately, to the northwest, west, and southwest.

The gold mineralization at Irokinda is hosted by quartz veins that follow the orientation of the three fault systems. Minerals other than quartz represent less than 3% of the content of the veins; pyrite and galena are the most abundant of these other minerals.

The veins have strike lengths and down dip extent of up to several hundred metres. Thickness is highly variable, and over distances of tens of metres can change from centimetres thick to several metres thick. Gold distribution is also highly irregular.

Overall, the deposit type for Irokinda is interpreted as low sulphidation, mesothermal, shear-hosted gold veins.

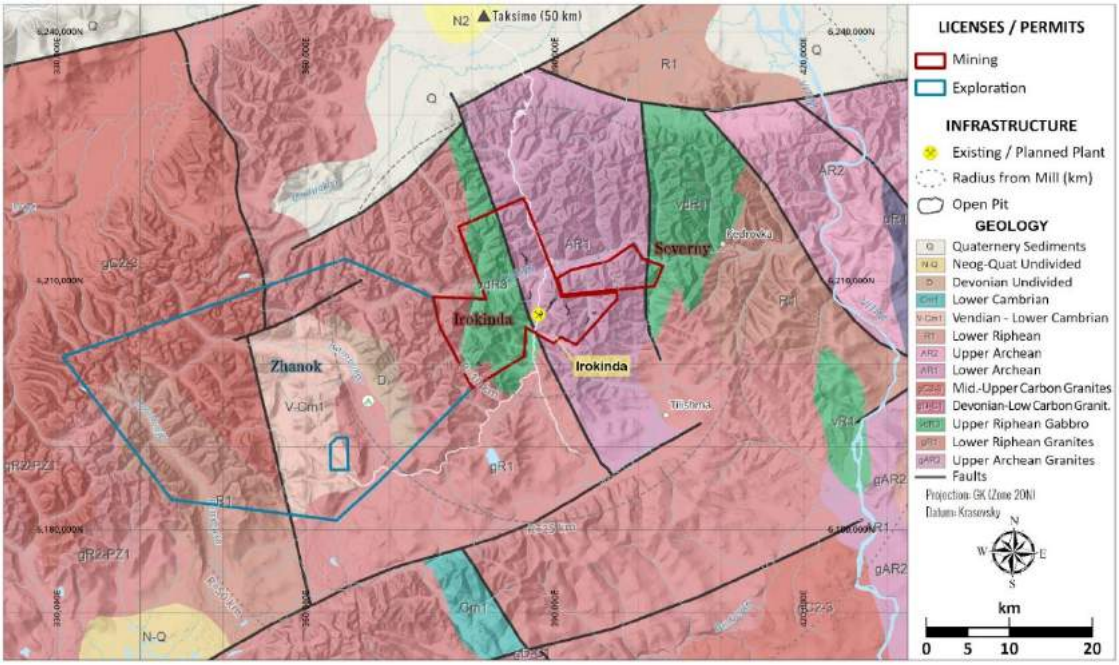


Figure 7-2: Irokinda Regional Geology

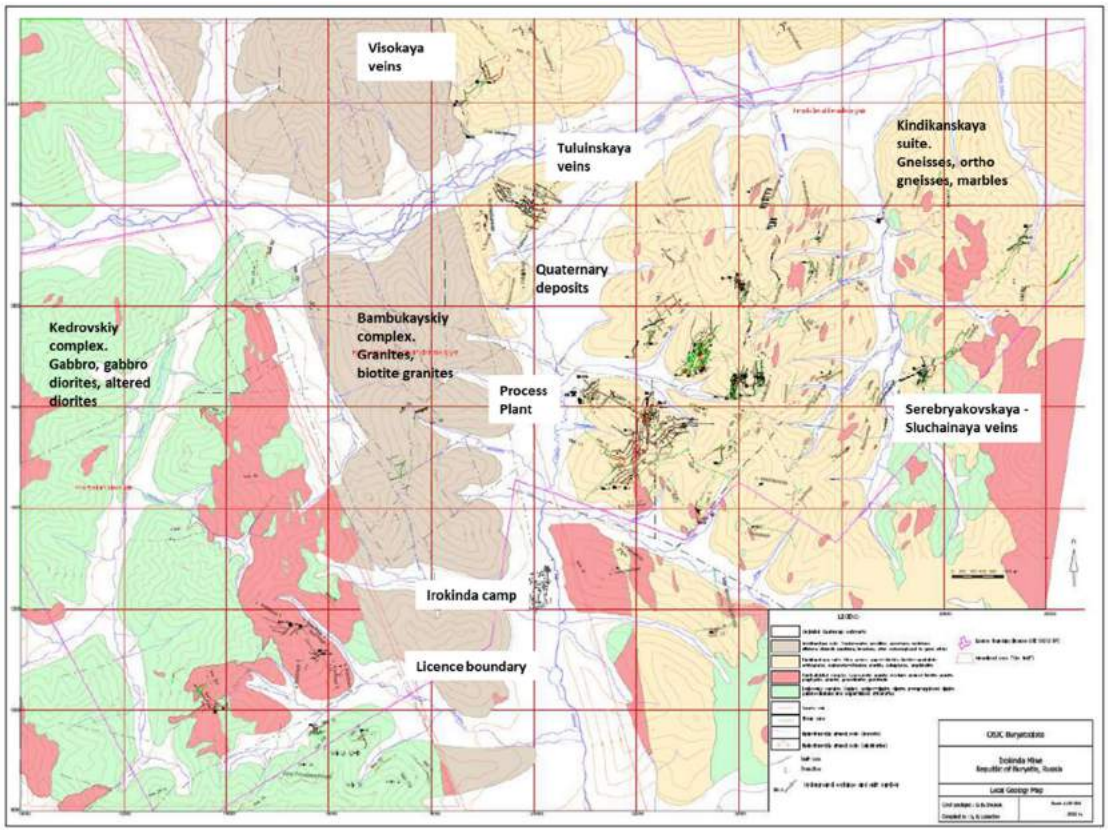


Figure 7-3: Irokinda Underground Gold Mine Local Geology

7.4 Mineral Resources

7.4.1 Introduction

The current Irokinda Mineral Resources are from three groups of veins, shown on the map in Figure 7-3:

- Visokaya-Poperechnaya (“VP”).
- Serebryakovskaya-Sluchainaya (“SS”).
- Medvezhya-Poperechnaya-Tuluinskaya (“MPT”).

Nordgold has prepared separate block models for each of these groups.

7.4.2 Exploration History

The initial two veins of the Irokinda deposit were discovered in 1959, during a program of regional mapping and geophysical surveys. Further exploration campaigns defined more veins, and mining commenced in 1974. By 2012, approximately 140 veins had been identified.

Drilling / Channel Sampling

The database is a combination of core drilling (NQ diameter, whole core sampling) and channel sampling of underground workings. The grid spacing for the drilling typically is in the range 20 x 20m to 80 x 80m.

The channel samples were collected from exploration drifts and stopes. The exploration drifts follow the strike of the mineralisation, and are generally spaced 80 m apart down dip. Along these drifts, samples were taken at intervals ranging from 2 m to 10 m. Most of the drift samples were chipped across the thickness of the mineralisation, ie. from the exposed faces as the drifts advanced. A minor proportion of these samples were collected from the walls and backs of the drifts. The target extraction profile for the channel sampling of drifts was 10 cm wide and 5 m deep.

Channel sampling within stopes typically forms a grid of 6 m to 8 m along strike, and averaging 6 m down dip. The target extraction profile for the stope channel samples is stated as 10 cm wide and 5 cm deep.

Sampling and Assay

Mineralisation contacts are usually clearly visible, and samples boundaries adhere to these contacts. Samples were crushed, split, and ground to -0.074 mm to prepare analytical subsamples.

Samples were analysed for gold and silver by fire assay.

QA/QC

The quality control samples used include certified reference materials, duplicates resubmitted to the original laboratory, duplicates submitted to an umpire laboratory, and blanks. Nordgold's current protocol is to submit internal and external duplicates at a rate of approximately 5% compared to primary samples. The rate of submission for blanks and certified reference materials ranges from 2% to 5%. SRK considers these frequencies of insertion for quality control samples to be appropriate for the style of mineralisation. Some of the older information in the database appears to have a much lower rate of quality control sample insertion, but the areas covered by this older information are also often already mined out.

The results from the quality control sampling do not imply any problems with accuracy and precision that would be material to the Mineral Resource estimation. SRK notes though that consistently large differences in average grade between core and channel samples from the same areas imply that biases occurring at the sample collection stage are a more significant risk to confidence in the estimate than biases occurring during sample preparation and analysis. Furthermore, the reconciliation information available for the VP and SS deposits makes the quality control results of secondary importance.

7.4.3 Mineral Resource Estimation

The Mineral Resources presented herein are based on review of an estimate prepared internally by Nordgold effective 31 December 2020. Nordgold has prepared separate block models for each of the three vein groups. The geological models for each of the vein groups were prepared in Leapfrog, and the block grade estimation was prepared in Datamine software. The key aspects of the estimates are summarised below.

Geological model and wireframes

The mineralised zones are modelled in Leapfrog using the vein modelling tools. The nominal threshold for defining the mineralised contacts is 1 g/t Au.

There are four separate mineralised domains modelled for VP, seven domains for SS, and six domains for MPT. The domains dip shallowly to moderately to the northwest, west, and southwest. Within the plane of continuity, many of the domains have very irregular shapes. The larger domains have maximum extents of up to 1000 m along strike and down dip. The domains are thin compared to these extents, with average thicknesses mostly in the range of 0.3 m to 1.5 m.

Block models

The following block sizes were used:

- VP: 20 x 20 x 10 m, with sub-blocking to 0.5 x 0.5 x 0.5 m;
- SS: 20 x 20 x 10 m, with sub-blocking to 0.5 x 0.5 x 0.25 m;
- MPT: 20 x 20 x 5 m, with sub-blocking to 0.5 x 0.5 x 0.5 m.

Assay data

Composite length was 1 m for VP and SS, and 0.5 m for MPT. Capping grades were defined separately for each vein domain: for gold, up to 150 g/t Au for VP, up to 120 g/t Au for SS, and 47 g/t Au for MPT.

Interpolation and estimation

Block grades were estimated by Ordinary Kriging, with dynamic anisotropy to control local rotations of the variogram model and search ellipsoid anisotropy.

Bulk density

For all three models, a constant density factor of 2.63 g/cm^3 was used to convert mineralised block model volumes to tonnes. A density factor of 2.71 g/cm^3 was used for waste.

Classification

The classification categories assigned are principally based on drillhole spacing. Indicated was applied to areas covered by drilling up to 40 x 40 m spacing, and to areas either immediately adjacent to development workings, or with development workings on at least two sides.

Inferred was applied to areas covered by drilling up to 80 x 80 m spacing.

Reconciliation

Nordgold compiled reconciliation information for the first ten months of 2020 for the SS deposit. For this period, the in situ equivalent of the material depleted from the initial version of the block model was calculated as 54,598 t at an average grade of 8.3 g/t Au, for 453 kg Au. The corresponding Actual (diluted) material mined from SS was estimated to be 114,184 t, at 3.3 g/t, for 373.2 g/t Au. The difference in tonnes, and to some extent the grade, can be explained by the mining dilution that should be expected, given the minimum mining width relative to the thickness of the veins; however, the difference in metal was evidence that the overestimation of grade was occurring in the initial version of the estimate.

The block model in the mined areas is overwhelmingly influenced by channel samples rather than drill samples. In locations where channel samples and drill samples coincide, the channel samples are, on average, much higher grade (in the order of 100% to 300% more). It is unclear if this difference occurs because the channel sample collection method is inherently biased, or if the NQ diameter drill samples are inadequate size for capturing coarse gold, or both of these reasons, or other reasons. Given the relative unknowns, and that reconciliation is effectively a comparison of Actual against an estimate based on channel samples, it was considered appropriate to apply an adjustment factor to only the channel samples, and not the drill samples.

To correct for this overestimation, the channel sample grades were factored by 0.87, and the SS block grades were re-estimated. The 0.87 factor is based on the difference in metal (373.2 kg is 82% of 453 kg), and assuming 5% of the difference is related to mining loss, leaving a 13% overall grade reduction.

For VP, the reconciliation information for the first nine months of 2020 showed the in situ equivalent of the material depleted to be 39,687 t, at 21.5 g/t Au, for 855 kg Au, compared to Actual (diluted) of 109,410 t, at 5.1 g/t Au, for 554.6 kg Au. Based on these values, the Au content of the Actual for this period only has 65% of the metal predicted by the in situ block model.

An adjustment to the VP model was therefore justified; however, a different approach was selected for the adjustment factor to that of the SS vein. It was determined that the material mined during this period was almost entirely from Domain 20, and the locations mined represented a spread of locations throughout this specific domain. The nine months of mining information in 2020 was therefore treated as a bulk sample for Domain 20. From the Actual information, SRK back-calculated an equivalent in situ grade of 13.1 g/t Au, and this grade was assigned to the entire domain. In most locations, this assigned grade was less than the original estimated grade, but in the centre of the vein, drilling and channel sampling information suggests there may be a zone of low grade mineralisation, so an exception was made for this zone. The low grade area was coded by a perimeter, and within this perimeter the original grade estimates were retained.

Block grades of the three other domains in the VP model (Domains 10, 11, 21) were not adjusted. The portions of these domains not already mined have much lower average estimated grades than domain 20 (3.5 g/t, 2.1 g/t and 4.7 g/t respectively), including when the comparison is restricted to only the channel samples. In this lower grade range, there is an absence of reconciliation information to test the accuracy of the resource estimate, so an adjustment was not clearly supported. Furthermore, after applying the Domain 20 adjustment, but before applying RPEEE criteria, Domain 20 represents almost 80% of the metal content of the resource model, therefore adjustments to the other domains would be much less material than the Domain 20 adjustment.

MPT was not mined in 2020 and no reconciliation information is available for this model.

7.4.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Irokinda is presented in Table 7-4. The Mineral Resources are reported inclusive of those Mineral Resources modified to generate Ore Reserves and restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 7-4, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the optimised MSO shapes.
3. Depletion is applied for mining up to 31 December 2020.
4. The underground Mineral Resources are reported at 1.11 g/t Au, 1.06 g/t Au and 1.30 g/t Au CoG for Visokaya, Serebryakovskaya-Sluchainaya and Medvezhya-Poperechnaya-Tuluinskaya respectively based on a long-term Au price of USD1,750/oz. Processing cost of USD22.50/t milled, general and administrative cost of USD79.41/t_{ore} milled (includes all power generation costs), average stoping cost of USD33.00/t_{ore} mined, and variable processing recoveries dependent on metallurgical zones and au grade was applied. No sustaining capital costs are separately planned, all such costs are included as operational costs.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

Table 7-4: Irokinda Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Irokinda	Visokaya	1.11	-	-	-	244	9.86	77	244	9.86	77	348	9.01	101	592	9.36	178
	Serebryakovskaya-Sluchainaya	1.06	-	-	-	420	8.04	109	420	8.04	109	1,138	9.71	355	1,558	9.26	464
	Medvezhya-Poperechnaya-Tuluinskaya	1.30	-	-	-	158	10.43	53	158	10.43	53	416	7.97	107	573	8.65	159
	Stockpiles	0.00	-	-	-	11	2.81	1	11	2.81	1	-	-	-	11	2.81	1
	Total Irokinda	1.11	**-**	**-**	**-**	**832**	**8.96**	**240**	**832**	**8.96**	**240**	**1,901**	**9.20**	**563**	**2,734**	**9.13**	**802**

7.4.5 SRK Comments

SRK accepts the resource model and classification prepared by Nordgold based on the reconciliation-based adjustments to VP and SS described above.

7.5 Mining and Ore Reserves

7.5.1 Current Mining Operations, Mining Method, Operating Strategy and Mining Equipment

Current mining operations at Irokinda are focused on three separate vein areas, Visokaya-Poperechnaya ("Visokaya mine"), Serebryakovskaya-Sluchainaya ("Serebryakovskaya mine") and Medvezhya-Poperechnaya-Tuluinskaya ("Tuluinskaya mine") as shown in Figure 7-4.

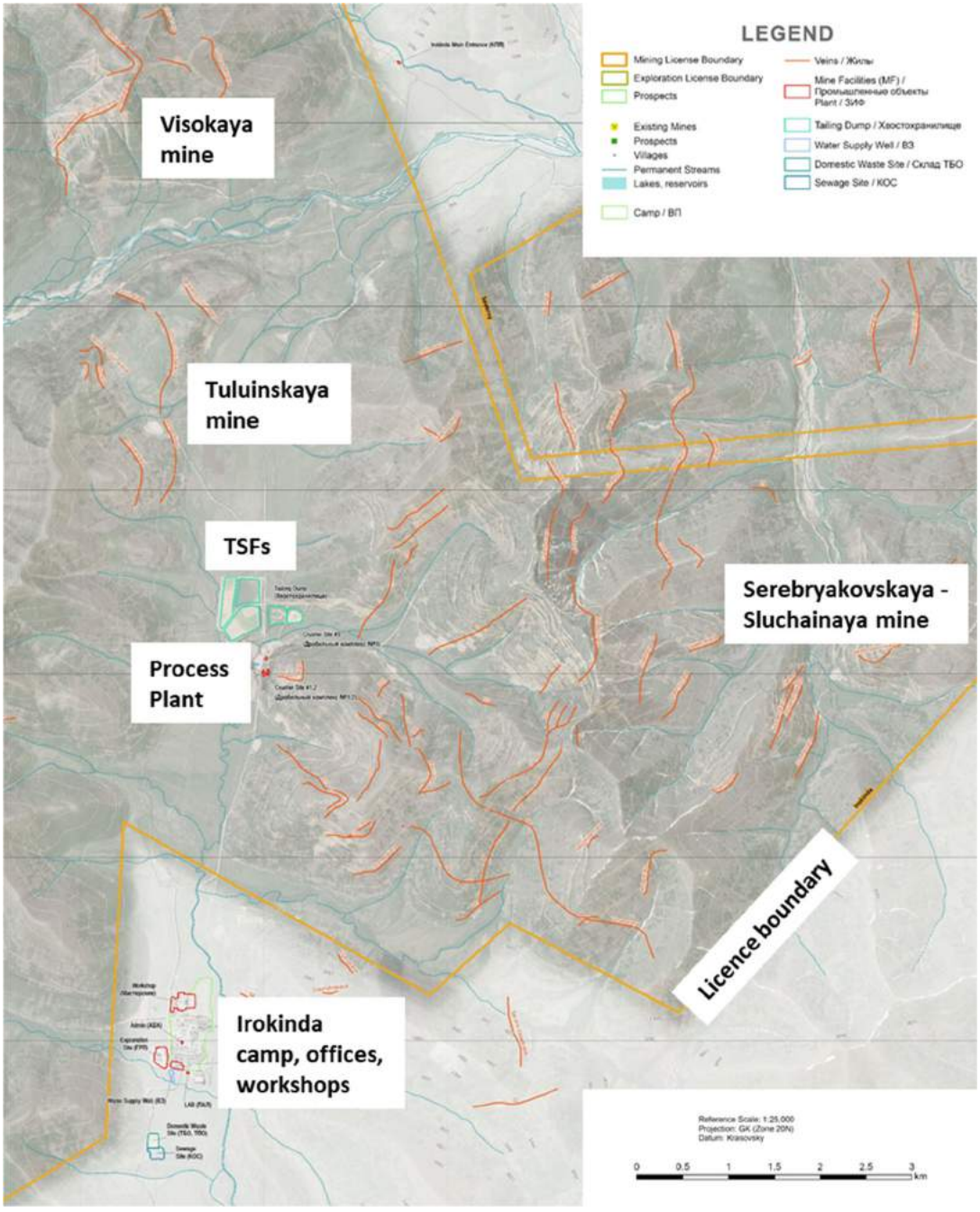


Figure 7-4: Irokinda Mine Layout (Nordgold 2020)

Development mining is achieved using modern electro-hydraulic single and twin boom drill jumbos to drill blastholes, diesel powered load-haul-dump loaders (“LHD”) to clean the blasted rock from each blasted advance, and diesel powered articulated dump trucks (“ADT”) to haul broken rock to surface.

At SS, 70% of production is achieved using mechanised long-hole sub-level open stoping with rib and crown pillars left for support. Blastholes are drilled using electro-hydraulic long-hole drill rigs, blasted ore is removed with LHD and ore is transported to surface with ADT.

The mining method at Viso, the remaining 30% of SS and planned for Tulu is manual room and pillar mining with variants (up-dip or along strike) defined by local conditions, predominantly orebody dip. The dip in these areas varies between 25° and 35°. Hand-held pneumatic rock drills are used to drill blastholes and electric scraper winches and gravity are used to direct broken ore to millholes for removal by LHD.

The LHD load ADT which transport the broken rock to surface. The surface is accessed through three transport inclines with 8° inclination, one for each mine. Each transport incline reaches the surface through an adit in the slope of the steeply dipping local topography.

Stability of the workings is maintained by the installation of local ground support (including wooden split wedge point anchors, friction anchors, hydraulic props), and leaving temporary or permanent supporting pillars of ore.

The key items of mining equipment in the current fleet comprise:

- development drill jumbo, 1 boom (2);
- development drill jumbo, 2 boom (3);
- production long-hole drill (1);
- LHD, 6.7 t (4);
- LHD, 10 t, (3);
- ADT, 20 t (4); and
- ADT, 30 t (4).

7.5.2 Historical Mining Production

Production in the last two years from Irokinda has yielded between 311 kt and 304 kt of ore and between 236 kt and 238 kt of waste, for a total material movement between 547 kt and 542 kt and is presented in Table 7-5. The ore grade has averaged between 4.23 and 4.33 g/t Au.

Table 7-5: Irokinda Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Mined	(kt)	587	679	570	547	542
Waste	(kt)	246	382	249	236	238
Ore	(kt)	342	297	321	311	304
	(g/t Au)	5.60	4.32	4.16	4.23	4.33
	(koz Au)	65	41	43	42	42

7.5.3 Underground Geotechnical Considerations

Introduction

SRK has been engaged by the Company to develop and assist in the implementation of industry best practice Ground Control Management Plans ("GCMP"), Surface Water Management Plans ("SWMP") and Ground Water Management Plans ("GWMP"). In addition SRK has been engaged to complete a mining method review of all three veins and provide recommendations on geotechnical support designs and productivity improvements.

The current assessment is based upon limited geotechnical information and without the benefit of a site visit; however, characteristics and associated classifications have been inferred to make judgements regarding designs.

The Irokinda ore bodies are vein-hosted and are variable in morphology, with pinching (down to 3-4 m) and swelling (up to 20 m). They are generally flat-dipping (25-45°) to the west and hosted within a gneissose rock mass that has been metamorphosed and ruptured by dykes and sills. Despite this complexity, it is recognised as a competent geotechnical environment that allows conventional although labour-intensive room and pillar mining but with plans to increasingly mechanise development.

Geotechnical Characterisation

Wall rock characteristics have been interpreted and these used to derive classifications in terms of Q for the Irokinda Gneiss which comprises the wall rocks. Adjustments have been made based on an assumed 3m wide zone of schistosity adjacent to the vein-hosted ore to show that the immediate hangingwall and footwall is likely to lie between Fair (at Q=9.375) and Good (at Q=15). A level of geotechnical complexity is introduced by the following:

- Zones of schistosity of variable thickness, further complicated by discontinuities filled with clay and icy limonitic substrate.
- The variable depth of the permafrost which is generally recognised to be 'dry', extend down to 200 m below surface and is associated with stable conditions. Where this is not the case and local thawing occurs, instabilities can occur with the dislocation of lenses, particularly within schistose layers.

This suggests the need to monitor temperatures, control increases induced by machinery and adapt designs (including support) to suit.

Mining Method and Design

Room and pillar mining generally involves 3 to 8 m wide rooms at minimum stoping widths of 1.1 m between temporary pillars and/or mine poles to achieve a recovery of approximately 85%. In steeper-dipping veins (approaching 45°) broken ore is thrown by the blast to the sublevel (sill) drift, in shallower veins (down to 25°) scrapers and slushers are required. Hydraulic props are used at the advancing face which are used to construct barricades separating the face from the back areas for vacuum cleaning.

Design Criteria

The method of room and pillar mining implies that the hangingwall is stabilised by a combination of ore pillars (that are likely to crush) and mine poles with hydraulic props used at the face. This combination of stiff support is ideally suited to mining at shallow depths within a Fair to Good rock mass. A Stability Graph approach has been taken by SRK to assess stope stability to indicate that the maximum hydraulic radius for mine pole supported panels lies between HR=10 and HR=13 in a stope dipping at 40°; however, such estimates need to be based on a fuller understanding of the geotechnical environment and its variability.

Support

This implied Q-values would account for the generally stable conditions reported at Irokinda and are consistent with galleries generally being developed without support, but elsewhere being supported with timbering, roof bolting with screening. The level of support required within the access development as indicated by the Barton Stability Chart is generally that of spot or pattern bolting without shotcrete for 3 x 3 m excavations. Consideration, however, needs to be given to the development of an 'active layer' around excavations that may arise at increasing depths and / or where there is a concentration of activities generating heat. Where this arises or is anticipated, support needs to cater for lens formation.

SRK Comments / Conclusions

Conditions are believed to be generally stable; however, there is considerable variability in orebody morphology and limited geotechnical data with which to adequately assess designs. It is expected that Irokinda may experience challenges with mining at greater depths due to:

- the unexplored geotechnical conditions, especially at Tuluinskaya.
- the increased likelihood of thawing and resultant weakening of the rock mass as mining goes deeper and mechanisation increases the amount of heat generated.

Identified and included in the GCMP is the requirement for a system of geotechnical data gathering along with the development of a geotechnical model that can be used in analyses to identify the optimum mining layouts and configurations. This will enable designs to be developed utilising analytical and numerical techniques and then adapted to suit variable conditions. It is envisaged that ground control problems may increase and that a particular focus will be needed to manage these changes, including the development of (systematic) support systems involving grouted bolts installed with a surface fabric that could involve shotcrete and welded mesh sheets.

7.5.4 Mine Water Management

The topography is relatively rugged with elevations ranging from around 1100 m to around 1500 m. The mine is located within, and drains to, the Irokinda River basin which in turn drains into the Tuldun River.

Permafrost occurs across the mine site to a depth of up to 200 m. It is understood that all of the current mine workings are within the permafrost and therefore groundwater inflows are limited to local scale melting around the workings and drillholes. The current operations rely heavily on the presence of permafrost to: a) maintain underground stability; and b) minimise groundwater inflows to the underground mine. This aspect also represents a current risk as the extent and morphology of the permafrost has not been extensively mapped.

7.5.5 Mine Design and Planning

Long term mine planning for the purposes of strategic planning and ore reserves estimation uses modern software (Mineable Shape Optimiser, MSO) to prepare economic three dimensional mining shapes, and to prepare plans of the development required to access and extract the economic mining volumes.

Technically derived design parameters specify minima and maxima stope dimensions, and records of recent historical costs and mine production are referenced to prepare estimates of the economic and stoping cut-off grades for use during the optimisation.

Ore Reserve Case Mine Design

The Irokinda mining complex comprises three separate operations: Serebryakovskaya-Sluchainaya mine (SS), Tuluinskaya mine (Tulu), and Visokaya mine (Viso), as shown in Figure 7-4. Workings at SS currently extend to 250 m below surface and will reach 400 m depth upon depletion of the ore reserves. Workings at Viso currently extend to 250 m below surface and will have reaches 300 m depth upon depletion of the Ore Reserves. Production from Tulu has not commenced. Extraction of the ore reserves will take the mining depth at Tulu to 550 m below surface.

The existing workings and those planned for extraction of known Ore Reserves are shown in the schematic diagrams in Figure 7-5, Figure 7-6 and Figure 7-7. Indicated stope depletions are recorded by non-electronic means. The schematics are projected normal to the general strike direction at each mine.

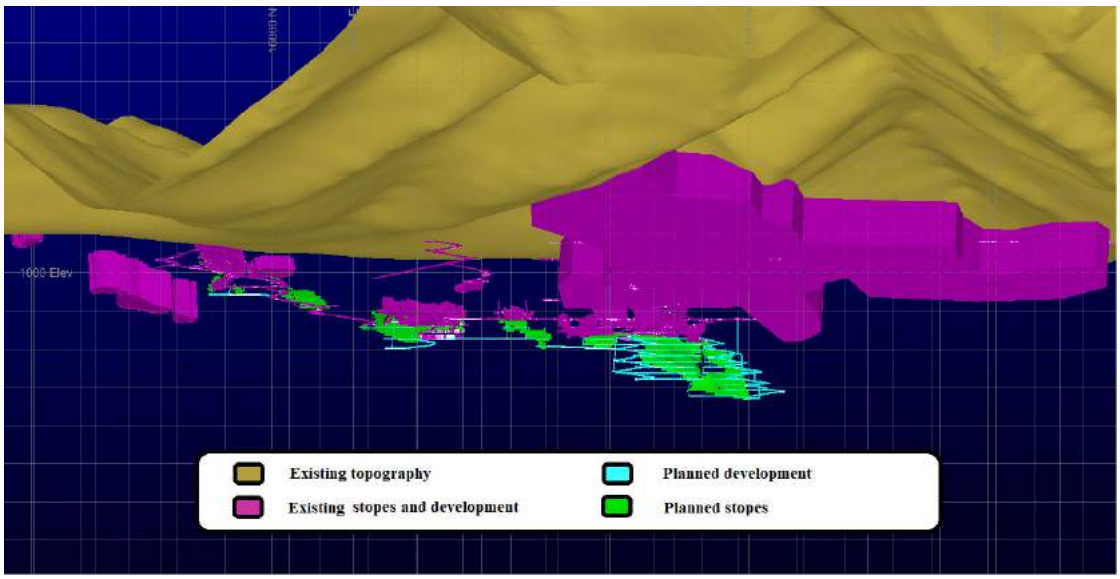


Figure 7-5: Serebryakovskaya – Sluchainaya Mine Schematic

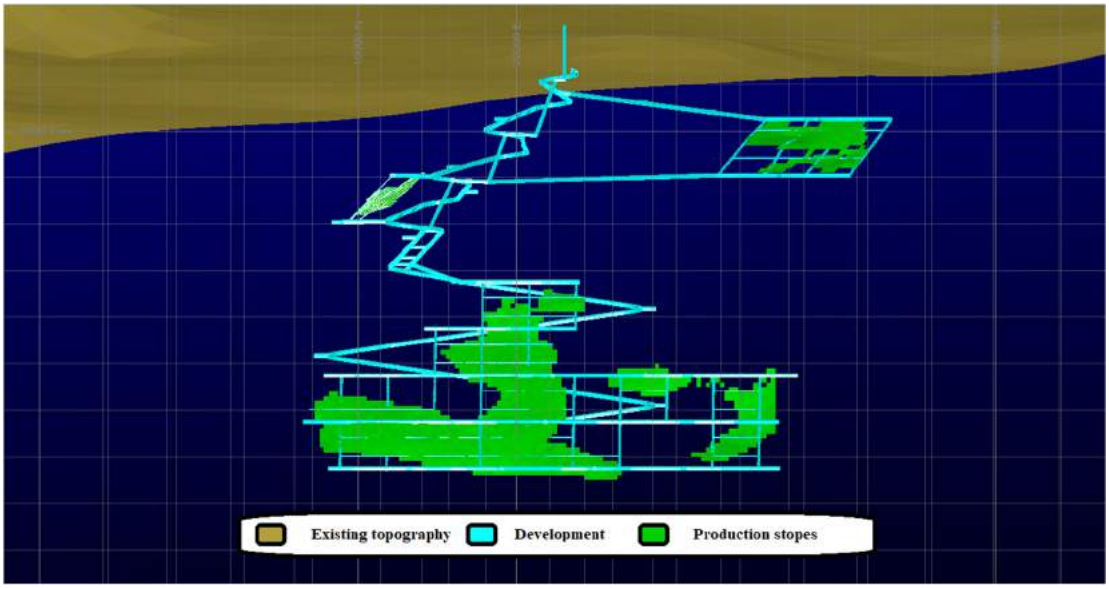


Figure 7-6: Tuluinskaya Mine Schematic

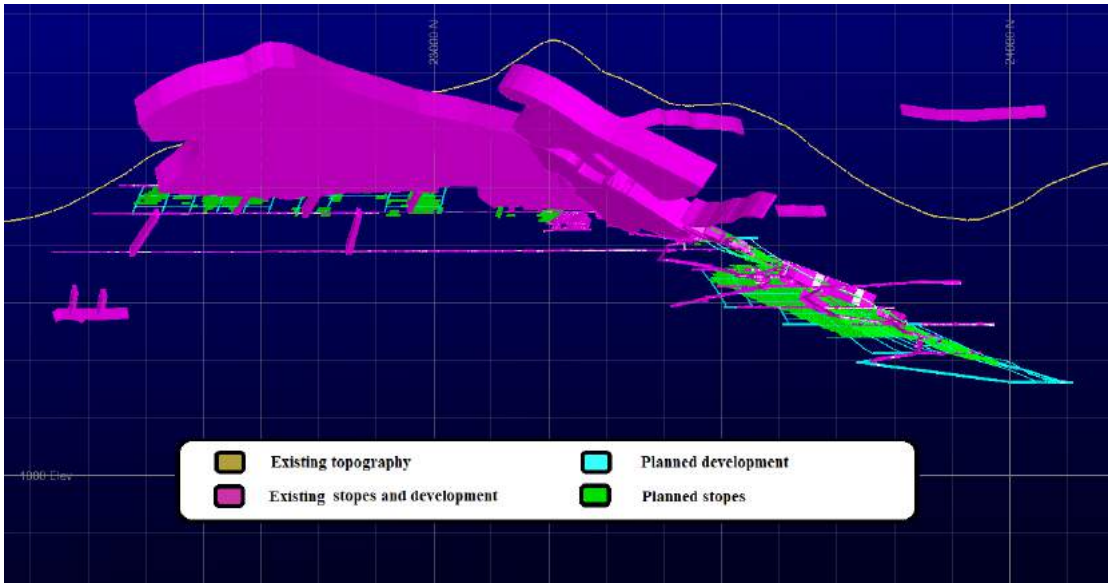


Figure 7-7: Visokaya Mine Schematic

Modifying Factors

Modifying Factors were used for the estimation of Ore Reserves based on reconciliation with production records and design considerations. SS factors are influenced by the larger scale of excavations, by mechanised methods, which result in larger quantities of geotechnically induced dilution. The MSO derived production shapes for the manual mining areas include dilution from outside ore grade blocks as necessary to fill the shapes. For all mining area, ore not recovered from pillars is accounted for as loss.

Irokinda's historical reconciliation records confirm that this process provides a reliable estimate of mined grade, and hence dilution.

The factors used were:

- SS: Development 15% dilution, 0 g/t Au;

- SS: Stoping 15% loss, 15% dilution, 0 g/t Au;
- Viso: Stoping 15% loss;
- Tulu: Stoping 15% loss.

Cut-off Strategy

The cut-off grades are based on the input parameters summarised in Table 7-6. Selling price of USD1,400/oz Au, royalties of 6% of revenue, refining cost of USD2.20/oz, processing cost of USD22.50/t milled, general and administrative cost of USD79.41/t milled (includes all power generation costs), average stoping cost of USD33.00/t ore mined, and variable processing recoveries dependent on metallurgical zones and au grade. No sustaining capital costs are separately planned, all such costs are included as operational costs.

Table 7-6: Irokinda Cut-off Grade Parameters

Parameter	Serebryakovskaya	Visokaya	Tuluinskaya
Gold Price (USD/oz)	1,400	1,400	1,400
Refining Cost (USD/oz)	3.3	3.3	3.3
Royalty (%)	6.5%	6.5%	6.5%
Metallurgical Recovery by Grade Bin	93%	93%	93%
Mining Fixed Costs	12.7	11.0	15.8
Loading Cost (u/g)	7.1	6.7	20.7
Total Processing Costs (USD/t milled)	22.5	22.5	14.0
Overhead Cost (USD/t milled)	9.5	13.9	13.1
Sustaining Capital	0.0	0.0	0.0
Total Ore Based Costs (USD/t milled)	51.8	54.1	63.5
Cut-off grade (g/t Au)	1.32	1.37	1.61

Base Case Life of Mine Plan

The mining schedule is prepared using modern software to schedule development and production activities according to logical precedences and dependencies, and achievable unit rates of performance.

The Ore Reserve Case has annual ore production of 365 kt, containing 4.34 g/t Au. Annual waste production reduces from a maximum of 325 kt for the first two years as development requirements are completed in advance of production. The current Ore Reserve is depleted in 2024.

The Base Case includes Inferred material which cannot be considered as Ore Reserves. These resources are incremental to The Ore Reserve Case and are accessible from current or planned local extensions to the mine workings. The Base Case extends to 2031, with an average grade of 5.08 Au g/t, benefitting from very high grades, > 8.0 g/t Au, estimated over the final four years. The annual rate of ore production reduces after 2028, to less than 200 kt from 2031, as production sources are depleted and fewer replacements become available.

SRK considers there to be a low risk of failure to achieve the Ore Reserve Case schedule. Lower confidence Inferred mineralisation in the Base Case schedule implies naturally higher risk compared to the Ore Reserve Case, but grades are higher and the basis for the Base Case schedule estimates is considered plausible, with ongoing conversion of Inferred mineral Resources to Indicated Mineral Resources and Ore Reserves.

Table 7-7 shows the Base Case LoMp forecast for the Irokinda mine

Table 7-7: Irokinda Forecast (2021 to 2031) Mining Production Statistics for Base Case LoMp

Statistics	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Serebryakovskaya												
Mined	(kt)	308	290	350	339	257	407	257	157	157	162	216
Waste	(kt)	93	152	143	161	175	97	55	0	0	0	0
Ore	(kt)	215	138	207	178	82	310	202	157	157	162	216
	(g/t Au)	3.97	5.72	4.43	3.90	7.43	4.71	5.67	7.62	8.99	8.86	7.85
	(koz Au)	27	25	29	22	20	47	37	38	45	46	54
Visokaya												
Mined	(kt)	239	278	254	186	162	145	145	135	52		
Waste	(kt)	92	106	106	47	15	8	5	0	0		
Ore	(kt)	148	172	148	139	147	137	140	135	52		
	(g/t Au)	4.77	3.64	3.95	3.74	3.49	4.24	4.22	4.09	3.67		
	(koz Au)	23	20	19	17	17	19	19	18	6		
Tuluinskaya												
Mined	(kt)	110	306	372	247	148	141	137	139	113		
Waste	(kt)	110	210	234	77	29	14	12	11	1		
Ore	(kt)	0	97	137	169	119	126	125	128	112		
	(g/t Au)		3.04	3.53	4.58	3.16	3.05	4.00	5.32	4.01		
	(koz Au)	0	9	16	25	12	12	16	22	14		
Total												
Mined	(kt)	657	875	976	772	567	692	539	431	322	162	216
Waste	(kt)	295	468	484	286	219	119	72	11	1	0	0
Ore	(kt)	363	407	492	486	349	573	467	421	322	162	216
	(g/t Au)	4.30	4.20	4.04	4.09	4.30	4.23	4.79	5.78	6.39	8.86	7.85
	(koz Au)	50	55	64	64	48	78	72	78	66	46	54

7.5.6 Ore Reserve Statement

The Ore Reserves are based on the remaining inventories on 31 December 2020 within the Ore Reserve Case design stopes. The cut-off grades have been calculated from the parameters shown in Table 7-6. The Audited Ore Reserve Estimate as of 31 December 2020 is tabulated in Table 7-8.

In reporting the Ore Reserve stated in Table 7-8, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. The underground Ore Reserves are reported at 1.33 g/t Au, 1.39 g/t Au and 1.63 g/t Au CoG for Serebryakovskaya-Sluchainaya, Visokaya and Medvezhya-Poperechnaya-Tuluinskaya respectively based on a long-term Au price of USD1,400/oz. Processing cost of USD22.50/t milled, general and administrative cost of USD79.41/t_{ore} milled (includes all power generation costs), average stoping cost of USD33.00/t_{ore} mined, and variable processing recoveries dependent on metallurgical zones and au grade was applied. No sustaining capital costs are separately planned, all such costs are included as operational costs.
3. CoG are reported in terms of Au owing to a negligible contribution from contained Ag.
4. Ore Reserves have demonstrated economic viability.
5. The Ore Reserve comprises a mine life of approximately 4 years.
6. The underground inventories were defined using MSO optimisation software

7. Ore Reserves are presented on a 100% basis.

Table 7-8: Irokinda Gold Mine Ore Reserve Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Proved			Probable			Proved + Probable		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Irokinda	Serebryakovskaya	1.33	-	-	-	591.8	5.0	94.9	591.8	5.0	94.9
	Tuluinskaya	1.63	-	-	-	311.5	4.1	40.6	311.5	4.1	40.6
	Visokaya	1.39	-	-	-	510.6	3.8	61.6	510.6	3.8	61.6
	Stockpiles	2.00	-	-	-	10.5	2.8	1.0	10.5	2.8	1.0
	Total Irokinda		**-**	**-**	**-**	**1,424**	**4.3**	**198**	**1,424**	**4.3**	**198**

7.5.7 SRK Comments

In the opinion of SRK, the Ore Reserves estimate prepared for Irokinda Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

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

The modifying factors for underground mining would benefit from improved reliability and confidence if rigorous reconciliation processes were developed to compare actual mined voids and their block model contents, as determined by survey technology such as CMS, with the model contents of the planned voids.

7.6 Mineral Processing

7.6.1 Flowsheet Description

The Irokinda process plant treats non-refractory quartz vein-hosted gold ore with associated sulphides. The Irokinda plant produces gold doré by gravity processing and a flotation concentrate generated from the gravity tailings. The flotation concentrate is transported to a third party treatment plant (Zun Holba mine) where it is processed in a conventional CIP circuit. Silver is present as a co-product.

The plant commenced production in 1988 and has been upgraded in several stages, including the additional of the flotation circuit, duplication of the main process line and the conversion of the third production line from seasonal to year-round operation. The current plant capacity is 380 ktpa.

The Irokinda flowsheet consists of two process lines in the Main Plant, with a combined capacity of 30-35 tph, and a third process line with a capacity of 15 tph, providing a total capacity of 50 tph. The key unit processes are:

- Crushing: The main and third process lines have identical crushing circuits. RoM ore is screened at 350 mm on a stationary grate to remove oversize, after which it is screened using a double deck screen at 40 and 16 mm. Oversize (-350 +40 mm) is fed to the primary crusher, a Russian made SMD-109 jaw crusher. Midsize (-40 +16 mm) is fed to the secondary crusher, a Russian made KMD-1200 Gr cone crusher. Undersize (-16 mm) is fed to the grinding circuit. Product from both crushers is screened at 32 mm, with the undersize joining the -16 mm material and the oversize recycled to the cone crusher.

- Grinding and Primary Gravity Separation: The two process lines in the Main Plant (lines 1 and 2) each have two stages of grinding and third process line has one. The first grinding stage is a ball mill (2.1 x 3.0 m in lines 1 and 3, 2.1 x 2.2 m in line 2, all with 200 kW motors) that is followed by a jig. Jig tailings report to a screw classifier that recycles sands to the ball mill feed. Jig concentrate is upgraded using two shaking tables operating in series, which produce gravity concentrate for further upgrading in the goldroom. In the third process line the screw classifier reports to cyclones that further close circuit the ball mill. In the Main Plant, screw classifier sands report to cyclones that close circuit the second grinding stage. The secondary mill is a 1.5 x 3.0 m ball mill (90 kW) that is also followed by a jig and one stage of shaking table. Jig and table tailings report to the cyclone feed sump. The target grind size for flotation is 85-90% -71 μm.
- Flotation: The flotation circuit for each line consists of roughing, scavenging, cleaning and cleaner scavenging stages. For line 1 the rougher cells are a bank of 3.2 m^3 units and for all other lines and stages the cells are banks of 1.0 m^3 units. Final concentrate from all three lines is combined and filtered using either a vacuum drum or a pressure plate-and-frame filters, followed which it is dried in a "drying room" before being bagged in 1 m^3 bags for shipment. Flotation tailings are sent to the TSF in slurry form.
- Goldroom: The combined table concentrate is further upgraded using a combination of tables and a centrifugal concentrator to produce "gold head" with Au grades of the order of 20%. This material is calcined for sulphide removal ahead of being smelted into doré.

The Zun-Holba plant is just over 1000 km directly distant from Irokinda; however, the shipment time, by a combination of road and rail, is of the order of 10 days. At Zun-Holba, the incoming concentrate is unloaded and reground in a dedicated grinding circuit, in cyanide-containing solution, to a grind size of 98-99% -75 mm, after which it is thickened. The thickened slurry is then combined with the Zun-Holba concentrate and leached in the CIP circuit. Metal recovery is by elution and electrowinning.

7.6.2 Supporting Metallurgical Testwork

A number of testwork programs on Irokinda ore were conducted at or under the auspices of Irgiredmet over the period 1977 to 2015. The first reported program tested a sample from the Yurasovskaya II vein that had a head assay of 27.7 g/t Au and 16.8 g/t Ag. Gravity separation followed by either flotation or cyanidation of the gravity tailings was tested. Both flowsheets produced Au recoveries of 96-98% and Ag recoveries of 87-91%. Based on this testwork, a flowsheet consisting of gravity separation followed by flotation was recommended.

Laboratory and pilot plant testwork was conducted in 1992 on a sample assaying 22.0 g/t Au and 13.5 g/t Ag. Recoveries to gravity concentrates of 86-88% were reported, with an overall recovery to gravity and flotation with cyanidation of the flotation concentrate being 96.3% for Au and 80.0% for Ag.

Further testwork in 1996/97 was conducted on samples from adit No 3 (6.6 g/t Au, 19.8 g/t Ag) and the Tuluinskaya vein (18.9 g/t Au, 13.5 g/t Ag). The Tuluinskaya vein sample had a lower coarse gold component, and this testwork led to improvements to the flotation circuit in the plant. The adit No 3 sample also contained a higher proportion of electrum, consistent with its higher Ag to Au ratio.

Testwork was conducted in 2000 on a sample from the No 35 vein (10.9 g/t Au, 11.7 g/t Ag) which reported a total Au recovery of 96.4%. In 2001 testwork was conducted on a composite sample from a number of veins (Tuluinskaya, No 35, Khrebtovoy, Petrovskaya, Yurasovskaya, Granitnaya). This sample reported total recoveries of 98% for Au and 90% for Ag.

Testwork was conducted in 2015 as part of a plant expansion study. The sample of plant feed assayed 5.5 g/t Au and 23.0 g/t Ag. A diagnostic analysis reported 59.0% gravity recoverable Au and a further 40.1% cyanide recoverable Au, giving 99.1% in total. Flotation testwork investigated reagent optimisation and the impact of return water on flotation performance.

Testwork was conducted in 2016 at the Zun-Holba laboratory on a sample from adit No 75 of the Serebryakovskaya vein. The sample assayed 10.6 g/t Au and 7.2 g/t Ag. Free Au recovery for this material was only 28.1%. Flotation of the gravity tailings produced an optimum stage recovery of 96.2%.

A number of samples were investigated by the Republican Analytical Centre in Ulan-Ude in two programs in 2017 and 2019. The 22 individual samples were composited into 7 composite samples based on their Au to Ag ratio, varying from a Au:Ag ratio of the order of 3:1 to a Ag:Au ratio of the order of 30:1. The main focus of the work was mineralogy, however diagnostic and gravity, flotation and cyanidation testwork was also conducted. Diagnostic analyses showed gravity recoverable contents ranging from 51% to 87%, and for all but the sample with the very high Ag:Au ratio, the total of gravity and cyanide recoverable Au was 96% or higher; however, the results of the gravity, flotation and cyanidation testwork gave Au recoveries ranging from 79.8% to 91.3%.

7.6.3 Historical Operating Data

Annual plant operating data for the period 2016 to 2020 are shown in Table 7-9.

Table 7-9: Irokinda Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	348	330	332	314	319
Au Head Grade	(g/t)	5.82	4.29	4.01	4.17	4.34
Au Recovery	(%)	93.0	91.4	91.1	92.6	91.5
Au Produced	(koz)	62	40	41	39	38
Operating Cost	(USD/t)	13.2	17.1	20.5	22.2	17.5

7.6.4 Forecast Operating Data

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 7-10. Plant feed for both cases is maintained at approximately 360 ktpa for the first two years, with the Ore Reserve Case depleting at the end of 2024 (4 years LoM). The Base Case increases throughput to 420 ktpa and the LoM extends to H1 2030. Gold recovery is maintained at 92%.

Table 7-10: Irokinda Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	1,424	4,266
Gold Grade	(g/t Au)	4.33	4.93
	(koz Au)	198	677
Gold Recovery	(%)	92.4%	92.4%
Doré Produced	(kg)	5,693	19,451
	(koz Au)	183	625

7.6.5 Discussion

The Irokinda processing circuit is designed to maximise gravity recovery of gold, given the high gravity recoverable component in the Irokinda ores, using equipment typical of its time of construction. The flotation circuit may have been a subsequent addition, made at the same time as the establishment of the Zun-Holba plant, hence the establishment of a single cyanidation facility to treat the flotation concentrates from both plants, rather than building a circuit at each plant. While the transport distance is significant, the overwhelming majority of the gold recovered is recovered into doré at the Irokinda site.

Recent production data indicates that the circuit has successfully processed ore at a rate of the order of 340 ktpa, consistent with the plant's estimated capacity.

Figure 7-8 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as estimated recoveries based on a selection of the testwork results. The historical and forecast data are annual figures for 2015 and for 2022 onwards, and monthly figures for 2016-2021 inclusive. The testwork results only show those samples which were similar in head grade to the production figures, and include the Irgiredmet testwork conducted in the No 35 vein sample and the sample taken in 2015, the testwork conducted at the Zun-Holba laboratory in 2016 and the work undertaken by Republican Analytical Centre in in 2017. The results from the 2019 Republican Analytical Centre program were not used as the flotation stage does not appear to have been optimised in this testwork.

The recovery assumed in MPA spreadsheet supporting the 2022 SBP is also shown. The historical recoveries lie in a relatively narrow band from 88.0% to 94.2%, and the forecast data tend to sit towards the upper end of this range. All these figures are within the band of testwork figures, although the testwork results were typically for samples with higher head grades.

The operating cost estimates are reasonable for a plant of its configuration and scale. No explanation has been provided for the increase in operating cost over the period 2017-19 or for the forecast decrease as of 2022 onwards.

The MPA spreadsheet lists processing operating costs of USD22.50/t for ore from the Serebryakovskaya, Visokaya and Sluchainaya veins, referencing these to 2019 actual costs; however, the cost for ore from the Tuluinskaya_2 vein is listed as USD14.00/t and is referenced to the 2021 BP. Although lower than the figure for the other ores, this figure is still broadly consistent with the historical data.

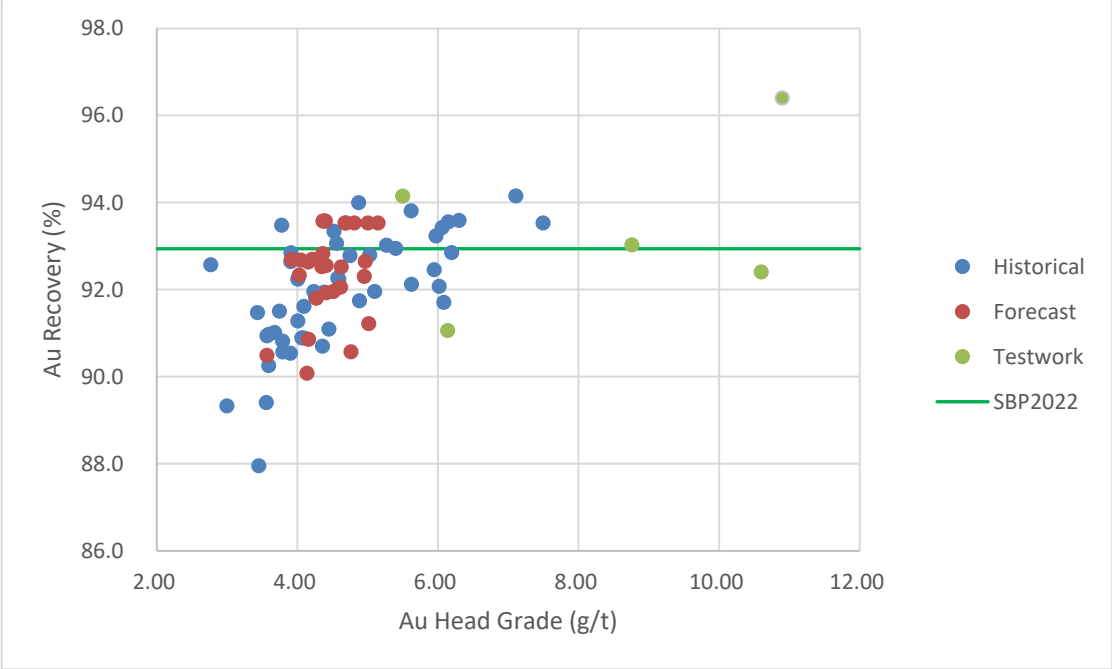


Figure 7-8: Irokinda Gold Recovery versus Head Grade

7.7 Tailings Storage Facility

7.7.1 Introduction

The Irokinda TSF is paddock style facility contained by perimeter embankments around all flanks. The facility is located some 350 m northwest of the plant. The TSF is raised using the upstream construction method, using waste rock material sourced from mining operations.

As of December 2020, the facility contains 3.47 Mm^3 (5.73 Mt) of tailings. There is currently design capacity for storage of an additional 4.28 Mm^3 (7.06 Mt) over the remaining mine life. This significantly exceeds the remaining tonnes to be processed at Irokinda, which are estimated to be approximately 1.6 Mt and 4.3 Mt for the Ore Reserve Case and Base Case, respectively.

Based on the current tailings production rate of 0.36 Mtpa rate of rise of the facility will be <2.0 m per annum. Based on review of satellite imagery (dated November 2020, Figure 7-9), it is clear that the pond in each cell extends to the perimeter embankments in all cells. SRK estimates that approximately 500,000 m^3 of excess water is currently being stored on the TSF, which is significantly larger than designed.

The site is located in a region of high seismicity, 9 point on the Russian MSK scale (approximately 0.2g to 0.4g for 1:475 year event). The facility is designed Russian Class III (moderate hazard).

Figure 7-9: Irokinda TSF Satellite Imagery Data (November 2020)

7.7.2 TSF Design

The original TSF was constructed by the previous owners of the project Buryatzoloto JSC, during the 1990s. No formal designs have been received for the original facility. The TSF was expanded in a series of cells during the early 2000s. During 2010, JSC Irgiredmet was engaged to prepare a formal upstream raise design for the facility. Whilst the design meets the requirements set out in Russian Legislation, it does not meet the requirements set out in International Guidelines, which mandate undrained strength analysis to verify the design cross section of the facility (described below).

The TSF was constructed on permafrost, with the starter embankment being constructed as a frozen core dam. Thermal-syphons are used to passively maintain freezing temperatures in the core of the dam.

The TSF has no emergency spillway. Excess water is removed from the TSF by means of a floating barge decant system.

During 2011, a failure was recorded, and only basic details are provided in the latest Safety Declaration Report (Dated 12 March 2019). The failure consisted of internal erosion in the perimeter embankment, which formed an erosional gully on the eternal slope (0.5 m diameter). An uncontrolled release of tailings/excess water resulted, for a period of 1.5 hours, until the slope was remediated (information based upon supplied anecdotal data). No further issues have been reported.

No monitoring instrumentation has been included in the design documentation. Based on discussions with the Irokinda operations team, SRK understands that visual inspections and surveys of the main embankments are carried out with regular frequency.

7.7.3 Stability Analysis

The latest stability analysis for the facility is dated 2019. Effective Strength Analysis ("ESA") was undertaken, which considers drained conditions only. Whilst this meets the requirements set out in Russian Legislation, it does not meet International Standards. No Undrained Strength Analysis ("USA") has been completed, which should be undertaken adopting credible estimation of post-seismic strength.

ESA parameters and geometries are broadly credible of representative design conditions; however, it is not clear whether the analyses accurately represent 'as-built' or 'current' cases.

The estimated Factors of Safety ("FOS") meet the required values set out in Russian Guidelines(design FOS is 1.21 static and 1.09 dynamic/seismic). SRK notes that these are low compared with International Guidelines such as the Canadian Dam Association). It is also not clear what pseudo static loads have been applied in analysis to represent impact of seismicity.

Based on review of the analysis and design cross sections, SRK considers there to be a credible risk of flow liquefaction triggered by dynamic loads (seismicity). Raises are relatively small but are undertaken over former tailings pond water areas (i.e. not on denser, dry beaches) (i.e. credible risk of contractive behaviour in slope zones).

Static liquefaction may also be credible dependent upon saturation/pore pressure conditions, this could occur during construction of upstream raises on loose, contractive materials (i.e. the tailings).

7.7.4 Hazards and risks assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
    - Meteorological events: **Moderate** (mainly land-raise TSF, so storm accumulation unlikely a significant issue if freeboard is reasonable; however, due to Climate Change the risk of foundation permafrost thawing should be addressed).
    - Seismic events: **High** (area of high seismicity).
    - Reservoir environment: **Moderate** (no major vegetation immediately upstream; some overlying topography above south cell; permafrost ground conditions).
    - Human attacks: **Low** (remote site; unlikely to have problems from local population).
- Internal:
    - Water or tailings barrier: **High** (upstream raise dam; large pond extending close to the perimeter walls; previous issues of piping/erosion; frozen core/base dam).
    - Hydraulic structures: **Moderate** (decant capacity likely acceptable for operations; no spillway; reliant upon freeboard for storm water management).
    - Electrical and mechanical, including automation, protection and controls, communications: **Low/Moderate** (remote site so communications likely challenging).

The following key risks have been identified upon completion of this review:

- Overtopping: **Low/Moderate** if design freeboard is maintained at all times. Water balance must be checked and confirmed (note the large footprint pond covering the TSF upper deck).
- Piping/internal erosion: **High** (pond close to the perimeter walls in all cells; previous failure occurrence in 2011).
- Slope instability/loss of strength: **High** (low design FOS; no appropriate seismic design analysis; previous raises over pond zones; high seismicity location; impact of permafrost thawing should be considered).
- Contaminated seepage and/or dust: **Moderate** (unlined TSF; but frozen ground; impact of climate change to be considered).

7.7.5 Other Risks

Nordgold has confirmed that USD15.9m has been included in both SBP models for TSF raises and construction (no breakdown provided).

This allocation appears to be sufficient to cover the following risks items (with SRK estimate of overall cost against each):

An allowance of approximately USD2.0m is necessary to construct the planned additional TSF upstream raise to 1120 m RL (both SBP Cases). SRK is of the opinion that the current facility as designed should not be raised further without sufficient/appropriate analysis (including assessment of credible undrained strengths and post-seismic or post-liquified strengths). The results of this work may potentially require significant modifications to the design.

SRK estimates that approximately 0.2 Mm^3 of imported granular fill material would be required to form a stabilisation buttress around the perimeter of the TSF. SRK estimates that the cost for placement of this fill material, with geotextile filter and contingency is approximately USD2.4m. Nordgold has included an allowance in their financial model to cover this eventuality.

Closure of existing TSF is likely to involve installation of a minimum 0.5 m thickness of site derived NPAG fill overlain by 0.3 m thickness of restoration soil; to form a shedding cover, which promotes water drainage away from the TSF and minimised infiltration into stored waste. Approximately 0.5 Mm^3 of fill materials would be necessary to form a cover system. SRK estimates that the cost to close the facility would equate to approximately USD3m (both SBP Cases).

Under the Base Case, a new TSF would be required to store the anticipated shortfall of 2.5 Mt of tailings in the current design. Nordgold has made an allowance USD1.5/t of tailings (totalling USD3.6m) to cover design and construction of a new facility in the financial model.

An allowance will also be necessary for closure of a new facility, which is necessary for storage of the additional tailings produced under the Base Case only. SRK anticipates approximately USD1.5m may be necessary for this task.

7.8 Infrastructure and Logistics

The Irokinda mine is an operating asset and, as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- potable water supply from boreholes, heating, and hot water supply;
- waste and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility; and
- explosives storage facility.

Power is supplied via a 70 km long, 110 kV overhead power line from the main 220/110/35 kV substation at Taksimo. Taksimo is the main population centre in the area and has a regional airport. Taksimo lies on the BAM railway and has station and siding infrastructure which is the main route of import for supplies and equipment.

No major capital investment is planned for infrastructure assets.

7.9 Human Resources

Nordgold has provided the following breakdown of staff at the Irokinda Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2031, when the mine is currently expected to close.

Table 7-11: Irokinda Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Irokinda	714	750	813	0	17	20	23	0

7.10 Occupational Health and Safety

A register of accidents is maintained on the Irokinda mine and includes cases involving employees, contractors and third parties. The database has about 25 parameters and includes investigation, estimation of damage, and analysis of root causes and lessons learned. The table below (Table 7-12) summarizes the key health and safety indicators for Irokinda mine.

Table 7-12: Irokinda Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	485/97	476/96
Lost time injury frequency rate ("LTIFR")*	0.95/0.00	0.81/0.00
Total recordable injury frequency rate ("TRIFR")**	9.58/2.85	6.45/ 2.46
Lost Time Accident Days (LTAD)	189/0	173 /0
Fatalities	1/0	0/0
Lost Time Incidents ("LTI")	6/0	5/0
Medical Treatment Incidents ("MTI")	7/1	3/1
First Aid Incidents ("FAI")	4/0	4/0
Near Misses	1/0	0/1
Unsafe Conditions, Fixed	645/0	1115/0

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

7.11 Environmental and Social Matters

7.11.1 Environmental and Social Setting

The Irokinda mine is in a remote location in the Muysky district of the Republic of Buryatia, as described in Section 7.1.1. The mine camp is in the Irokinda settlement (4 km to the south), which has 570 inhabitants. The entire population of the Muysky district is about 9,643 people (01 January 2019) with most of the people (7,667) living in Taksimo town, 50 km to the north-west. There are no specially protected territories nearby. The terrain is mountainous with poorly developed permafrost rocky soils.

The mine is in the Irokinda River catchment, which in turn drains into the Tuldun River. All rivers in the area are fed by local rainfall throughout the spring and summer and by melting snow during the spring. The primary type of underground water in the region is permafrost water. There are no sensitive water users downstream of the mine, but the Irokinda River is classed as being of importance for commercial fishing (Category 1).

7.11.2 Approach to Environmental and Social Management

Management System

The environmental management focuses on compliance with legislation and permits. Elements of an environmental management systems in place include job descriptions with the definition of responsibilities, corporate policies, monitoring and control and periodic audits from the corporate office.

There is an environmental engineer on rotation at Irokinda mine who reports to the Director for Health, Safety and Environment, who in turn reports to the Executive Director of "Irokinda" LLC . The environmental engineer also reports to the environmental manager of JSC "Buryatzoloto" (based in Ulan-Ude), who reports to the Director for Health, Safety and Environment of JSC "Buryatzoloto" and Nordgold Corporate HSE Department (based in Moscow).

Environmental monitoring data is used as a basis for emissions payments to the government. These are paid in accordance with tax regulation in the country. Table 7-13 summarises the Company's environmental payments in 2017-2019.

Table 7-13: "Irokinda" LLC Environmental Payments

	2017*		2018*		2019	
	Under limit RUBk	Over limit RUBk	Under limit RUBk	Over limit RUBk	Under limit (RUBk	Over limit RUBk
Emissions	24.30	0	23.97	0	25.43	0
Discharge	0	0	0	0	0	0
Wastes	607.87	0	552.36	0	186.96	0

Stakeholder Engagement

Public hearings are held when required by law, generally as part of updates to environmental approvals. The mine has a hotline and official website in place that allows stakeholders to address their complaints or requests to the Company by means of telephone or online communication.

Community Development

The mine supports district community development initiatives through a Social Projects Competition, "Mining for a Better Future", in partnership with the regional public organization for the development of civic initiatives called "Club Firn".

7.11.3 Technical Issues

The technical issues listed below were noted.

- There have been episodes of unauthorized mine water discharge in the past which were subject to fines. The Company states that this issue is now resolved. No ARDML studies have been undertaken. Existing water monitoring does not allow a full assessment of the drainage and leaching processes. SRK understands that Nordgold has committed to a study to assess ARDML potential in the future.
- Runoff from the mine sites is not captured. ARDML studies may reveal a need to implement measures to capture runoff and treat this prior to discharge. There may be challenges associated with allocation of forest lands to develop greenfield areas (Zhanok and Severny licences). There are risks of delays, administrative obstacles, and significant material expenses during the allocation procedure. This is related to possible protected status of forests and compensatory reforestation requirements.

7.11.4 Closure

There has been underground mining at Irokinda dating back to 1974 and numerous shafts have provided access to the underground workings. Currently, only the Visokaya, Serebryakovskaya-Sluchainaya and Tuluinskaya veins are in production and the rest have already been closed or conserved. Twelve veins / sections of the underground workings[18] have plans for conservation in the near future. Measures for the temporary suspension of mining operations were developed and agreed with the Transbaikal Department of Rostechnadzor.

[18] *Veins Tuluinskaya, Central - Tuluinskaya, Khrebtovaya, Khrebtovaya - II, Yubileinaya, #2, #3, #9, #15, #30, #35 and #52.*

SRK has not visited the mine site so cannot comment on whether the conservation measures are effective in terms of preventing environmental impacts. Satellite/aerial imagery indicates that considerable surface disturbance still exists. It is recommended that Nordgold clearly defines responsibilities and associated liabilities for conserved sections of Irokinda mine. These should be consolidated into the overall closure plan and cost estimate for the mine.

There is no comprehensive up-to-date closure plan for the entire Irokinda licence area. A LoM closure cost estimate for the Irokinda mine was prepared by SIBGIPROZOLOTO design institute in 1999. The total cost was approximately USD0.85m.

Nordgold has now estimated that the LoM closure cost for Irokinda mine is approximately USD5m for both Cases.

The above LoM estimate does not include retrenchment costs.

There are risks that the actual closure costs will be higher. The closure legislation in Russia could become stricter, following global norms, and ARDML studies may reveal a need for more stringent closure measures such as capping of mine waste facilities.

Irokinda mine is not obliged to provide the Government with financial assurance for closure.

7.11.5 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Irokinda mine:

- Continues to strengthen the environmental management system and align this with ISO 14001:2015.
- Ensures surface water quality monitoring upstream and downstream from the sites and conducts ARDML studies to provide the data for water and closure governance.
- Maintains a proactive and continuous community stakeholder engagement process.
- Maintains an up-to-date closure plan and cost estimate.
- Defines responsibilities and associated liabilities for conserved sections of Irokinda mine.
- Considers options for phased site clearing while developing new exploration areas.

7.12 Economic Assessment

7.12.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Irokinda gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 92.53% of the Irokinda gold mine, all number presented below are on a 100% (unattributable) basis.

7.12.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Irokinda cashflow analysis:

- royalty rate of 6.0% flat (however, an extra 1% is allowed for to cover any revenue coming from silver, which is not modelled);
- corporate income tax rate of 20% flat; and
- closure cost allowances of USD5.0m (Ore Reserve Case) / USD5.2m (Base Case) and retrenchment cost of USD0.8m (Ore Reserve Case) / USD0.6m (Base Case) have been allowed for in the economic assessment.

7.12.3 Production

Historical processing statistics over 2016-2020 are presented in Table 7-14. The remaining life of mine for the Ore Reserve Case is four years, and 11 years for the Base Case.

Table 7-14: Irokinda Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	587	679	570	547	542
Waste	(kt)	246	382	249	236	238
Capital Waste	(kt)	113	244	191	105	187
Operating Waste	(kt)	133	138	58	131	52
Ore	(kt)	342	297	321	311	304
Gold Grade	(g/t Au)	5.60	4.32	4.16	4.23	4.33
Gold Contained	(koz Au)	65	41	43	42	42
Surface Haulage	(kt)	-	-	-	-	-
Processing Feed	(kt)	348	330	332	314	319
Gold Grade	(g/t Au)	5.82	4.29	4.01	4.17	4.34
Gold Contained	(koz Au)	65	45	43	42	44
Gold Recovery	(%)	93.0%	91.4%	91.1%	92.6%	91.5%
Doré Produced	(kg)	1,886	1,229	1,265	1,223	1,189
	(koz Au)	62	40	41	39	38
Sales						
Doré	(koz Au)	61	39	41	38	39
Commodity Prices						
Gold	(USD/oz)	1,229	1,271	1,279	1,373	1,771
Sales Revenue						
Gold	(USDm)	74.6	50.4	52.8	52.2	68.5

7.12.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 7-15. These numbers exclude capital development (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Irokinda, this cost amounts to approximately USD4.30/oz.

The Company has noted that for the Russian Mineral Assets, in general, approximately 50% of the operating costs incurred are denominated in local currency, 55% in USD and 20% in EUR.

Table 7-15: Irokinda Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	15.1	18.0	14.7	12.5	11.8
Surface Haulage	(USDm)	-	-	-	-	-
Processing	(USDm)	4.6	5.6	6.8	7.0	5.6
Other Production	(USDm)	(2.2)	(2.0)	0.5	(2.1)	(3.3)
Overheads	(USDm)	11.2	14.6	15.4	13.3	14.9
General Site	(USDm)	10.3	13.6	14.3	12.1	13.2
SG&A	(USDm)	1.0	1.0	1.1	1.2	1.3
Royalties/Other Taxes	(USDm)	5.0	3.5	3.5	3.6	5.0
Other Operating	(USDm)	(0.1)	(0.1)	0.2	(0.8)	(1.4)
Total Cash Cost	**(USDm)**	**33.6**	**39.7**	**41.1**	**33.5**	**32.3**

7.12.5 Capital Expenditure

Table 7-16 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for the Russian Mineral Assets, in general, approximately 20% of capital expenditure incurred are denominated in local currency, 40% in USD and 40% in EUR.

Table 7-16: Irokinda Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	2.0	3.1	2.2	-	0.2
Exploration	(USDm)	2.0	3.1	2.2	-	0.0
Dev/New Technology	(USDm)	-	-	-	-	0.2
New Mine Construction	(USDm)	-	-	-	-	-
Sustaining	(USDm)	12.5	15.0	10.9	16.1	12.9
Exploration	(USDm)	2.7	4.2	3.5	3.6	3.9
Maintenance	(USDm)	5.9	3.9	2.1	4.5	5.7
Capital Stripping/Dev	(USDm)	3.3	6.0	4.1	6.8	2.5
PCR	(USDm)	0.8	0.9	1.2	1.2	0.5
Total Capital Expenditure	**(USDm)**	**14.7**	**18.1**	**13.1**	**16.1**	**13.1**

7.12.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Irokinda, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 7-17) and unit cost assessments (Table 7-18);
- for the Ore Reserve Case, annual detailed cashflows (Table 7-19) and annual unit cost assessment (Table 7-20); and
- for the Base Case, annual detailed cashflows (Table 7-21) and annual unit cost assessment (Table 7-22).

Both cases present technically feasible and economically viable plans.

Table 7-17: Irokinda LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	2,253	6,210
Waste	(kt)	840	1,954
Capital Waste	(kt)	552	1,261
Operating Waste	(kt)	288	693
Ore	(kt)	1,414	4,256
Gold Grade	(g/t Au)	4.34	4.94
Gold Contained	(koz Au)	197	676
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	1,424	4,266
Gold Grade	(g/t Au)	4.33	4.93
Gold Contained	(koz Au)	198	677
Gold Recovery	(%)	92.4%	92.4%
Doré Produced	(kg)	5,693	19,451
	(koz Au)	183	625
Sales			
Doré	(koz Au)	183	625
Commodity Prices			
Gold	(USD/oz)	1,754	1,517
Sales Revenue			
Gold	(USDm)	321	949
Operating Expenditure			
Mining	(USDm)	50	141
Surface Haulage	(USDm)	-	-
Processing	(USDm)	26	79
Other Production	(USDm)	(1)	(1)
Overheads	(USDm)	58	130
Royalties/Other Taxes	(USDm)	21	66
Other Operating	(USDm)	0	0
Total Cash Cost	**(USDm)**	**155**	**415**
Cashflow			
EBITDA	(USDm)	166	533
CIT	(USDm)	23	85
Working Capital	(USDm)	(1)	(1)
Interest/Other	(USDm)	-	-
Operating Cashflow	**(USDm)**	**144**	**449**
Capital Expenditure			
Project	**(USDm)**	**5**	**17**
Exploration	(USDm)	1	1
Development/New Technology	(USDm)	0	0
New Mine Construction	(USDm)	4	16
Sustaining	**(USDm)**	**38**	**106**
Exploration	(USDm)	4	15
Maintenance	(USDm)	15	40
Capital Stripping/Development	(USDm)	10	24
PCR	(USDm)	9	28
Closure/Retrenchment	**(USDm)**	**6**	**6**
Total Capital Expenditure	**(USDm)**	**49**	**129**
Free Cashflow	**(USDm)**	**95**	**321**

Table 7-18: Irokinda LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	847	664
AISC	(USD/oz)	1,086	843
AISC (excluding closure)	(USD/oz)	1,055	834
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	29.63	28.45
	(USD/t_{ore})	35.66	33.07
Mining Capitalised	(USD/$t_{capitalised}$)	17.89	18.82
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	18.41	18.26
Overheads	(USD/t_{feed})	40.17	30.55

Table 7-19: Irokinda Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025
Production							
Total Material Mined	(kt)	2,253	657	718	543	335	-
Waste	(kt)	840	295	354	180	11	-
Capital Waste	(kt)	552	224	242	86	-	-
Operating Waste	(kt)	288	71	112	94	11	-
Ore	(kt)	1,414	363	364	363	324	-
Gold Grade	(g/t Au)	4.34	4.30	4.56	4.60	3.84	-
Gold Contained	(koz Au)	197	50	53	54	40	-
Surface Haulage	(kt)	-	-	-	-	-	-
Processing Feed	(kt)	1,424	363	364	363	335	-
Gold Grade	(g/t Au)	4.33	4.30	4.56	4.60	3.80	-
Gold Contained	(koz Au)	198	50	53	54	41	-
Gold Recovery	(%)	92.4%	92.4%	92.4%	92.4%	92.4%	-
Doré Produced	(kg)	5,693	1,441	1,533	1,543	1,176	-
	(koz Au)	183	46	49	50	38	-
Sales							
Doré	(koz Au)	183	46	49	50	38	-
Commodity Prices							
Gold	(USD/oz)	1,754	1,905	1,791	1,710	1,579	1,500
Sales Revenue							
Gold	(USDm)	321	88.3	88.3	84.8	59.7	-
Operating Expenditure							
Mining	(USDm)	50	13.4	13.7	13.3	10.1	-
Surface Haulage	(USDm)	-	-	-	-	-	-
Processing	(USDm)	26	6.7	6.7	6.7	6.2	-
Other Production	(USDm)	(1)	(0.8)	-	-	-	-
Overheads	(USDm)	58	14.6	14.6	14.6	13.9	-
Royalties/Other Taxes	(USDm)	21	5.2	6.2	5.9	4.2	-
Other Operating	(USDm)	0	0.0	-	-	-	-
Total Cash Cost	**(USDm)**	**155**	**39.1**	**41.2**	**40.5**	**34.2**	**-**
Cashflow							
EBITDA	(USDm)	166	49.2	47.1	44.3	25.5	-
CIT	(USDm)	23	5.3	7.1	7.0	3.5	-
Working Capital	(USDm)	(1)	(0.9)	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**144**	**44.8**	**40.0**	**37.3**	**21.9**	**-**
Capital Expenditure							
Project	**(USDm)**	**5**	**2.7**	**1.1**	**1.1**	**-**	**-**
Exploration	(USDm)	1	0.9	-	-	-	-
Dev/New Technology	(USDm)	0	0.2	-	-	-	-
New Mine Construction	(USDm)	4	1.7	1.1	1.1	-	-
Sustaining	**(USDm)**	**38**	**15.8**	**9.2**	**8.8**	**4.2**	**-**
Exploration	(USDm)	4	2.5	0.5	0.5	0.5	-
Maintenance	(USDm)	15	5.8	2.5	4.8	2.2	-
Capital Stripping/Dev	(USDm)	10	4.5	4.0	1.4	-	-
PCR	(USDm)	9	3.0	2.3	2.1	1.5	-
Closure/Retrenchment	**(USDm)**	**6**	**-**	**-**	**-**	**0.2**	**5.5**
Total Capital Expenditure	**(USDm)**	**49**	**18.5**	**10.3**	**9.9**	**4.4**	**5.6**
Free Cashflow	**(USDm)**	**95**	**26.3**	**29.7**	**27.4**	**17.5**	**(5.6)**

Table 7-20: Irokinda Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024
Standard Statistics						
Total Cash Cost	(USD/oz)	847	843	835	816	906
AISC	(USD/oz)	1,086	1,184	1,023	994	1,023
AISC (excluding closure)	(USD/oz)	1,055	1,184	1,023	994	1,017
Unit Costs						
Mining (excl capitalised)	(USD/t_{mined})	29.63	30.90	28.78	29.03	30.03
	(USD/t_{ore})	35.66	36.91	37.66	36.54	31.03
Mining Capitalised	(USD/$t_{capitalised}$)	17.89	20.01	16.44	16.44	-
Surface Haulage	(USD/$t_{transported}$)	-	-	-	-	-
Processing	(USD/t_{feed})	18.41	18.41	18.41	18.41	18.41
Overheads	(USD/t_{feed})	40.44	40.19	40.06	40.16	41.40

Table 7-21: Irokinda Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026
Production								
Total Material Mined	(kt)	6,210	657	875	976	772	567	692
Waste	(kt)	1,954	295	468	484	286	219	119
Capital Waste	(kt)	1,261	224	323	340	208	111	55
Operating Waste	(kt)	693	71	144	144	78	108	64
Ore	(kt)	4,256	363	407	492	486	349	573
Gold Grade	(g/t Au)	4.94	4.30	4.20	4.04	4.09	4.30	4.23
Gold Contained	(koz Au)	676	50	55	64	64	48	78
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	4,266	363	385	399	421	420	418
Gold Grade	(g/t Au)	4.93	4.30	4.30	4.27	4.31	4.08	4.62
Gold Contained	(koz Au)	677	50	53	55	58	55	62
Gold Recovery	(%)	92.4%	92.4%	92.4%	92.4%	92.4%	92.4%	92.4%
Doré Produced	(kg)	19,451	1,441	1,529	1,576	1,677	1,586	1,785
	(koz Au)	625	46	49	51	54	51	57
Sales								
Doré	(koz Au)	625	46	49	51	54	51	57
Commodity Prices								
Gold	(USD/oz)	1,517	1,905	1,791	1,710	1,579	1,500	1,400
Sales Revenue								
Gold	(USDm)	949	88.3	88.1	86.6	85.2	76.5	80.4
Operating Expenditure								
Mining	(USDm)	141	13.4	16.9	18.1	16.3	13.5	17.5
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	79	6.7	7.1	7.3	7.8	7.7	7.7
Other Production	(USDm)	(1)	(0.8)	-	-	-	-	-
Overheads	(USDm)	130	14.5	14.5	14.5	13.8	13.0	12.3
Royalties/Other Taxes	(USDm)	66	5.7	6.2	6.1	6.0	5.4	5.6
Other Operating	(USDm)	0	0.0	-	-	-	-	-
Total Cash Cost	**(USDm)**	**415**	**39.5**	**44.6**	**46.0**	**43.7**	**39.6**	**43.2**
Cashflow								
EBITDA	(USDm)	533	49.2	43.4	40.5	41.3	36.8	37.1
CIT	(USDm)	85	5.3	6.1	5.4	6.2	5.6	5.9
Working Capital	(USDm)	(1)	(0.9)	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**449**	**44.8**	**37.3**	**35.1**	**35.1**	**31.1**	**31.2**
Capital Expenditure								
Project	**(USDm)**	**17**	**2.7**	**1.1**	**1.1**	**1.6**	**1.6**	**3.5**
Exploration	(USDm)	1	0.9	-	-	-	-	-
Dev/New Technology	(USDm)	0	0.2	-	-	-	-	-
New Mine Construction	(USDm)	16	1.7	1.1	1.1	1.6	1.6	3.5
Sustaining	**(USDm)**	**106**	**15.8**	**14.6**	**18.2**	**13.5**	**10.6**	**11.0**
Exploration	(USDm)	15	2.5	3.7	2.9	2.1	1.3	0.7
Maintenance	(USDm)	40	5.8	2.5	4.8	4.3	4.4	6.5
Capital Stripping/Dev	(USDm)	24	4.5	6.1	6.6	3.7	2.0	0.9
PCR	(USDm)	28	3.0	2.3	3.8	3.3	2.9	2.9
Closure/Retrenchment	**(USDm)**	**5.6**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**129**	**18.5**	**15.7**	**19.2**	**15.1**	**12.2**	**14.5**
Free Cashflow	**(USDm)**	**321**	**26.3**	**21.5**	**15.9**	**20.1**	**18.9**	**16.7**

Table 7-21: Irokinda Base Case LoMp continued

Statistic	Units	Total LoM	2027	2028	2029	2030	2031	2032
Production								
Total Material Mined	(kt)	6,210	539	431	322	162	216	-
Waste	(kt)	1,954	72	11	1	-	-	-
Capital Waste	(kt)	1,261	-	-	-	-	-	-
Operating Waste	(kt)	693	72	11	1	-	-	-
Ore	(kt)	4,256	467	421	322	162	216	-
Gold Grade	(g/t Au)	4.94	4.79	5.78	6.39	8.86	7.85	-
Gold Contained	(koz Au)	676	72	78	66	46	54	-
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	4,266	422	421	429	374	216	-
Gold Grade	(g/t Au)	4.93	4.90	5.78	5.47	5.69	7.85	-
Gold Contained	(koz Au)	677	66	78	75	68	54	-
Gold Recovery	(%)	92.4%	92.4%	92.4%	92.4%	92.4%	92.4%	-
Doré Produced	(kg)	19,451	1,910	2,246	2,170	1,964	1,565	-
	(koz Au)	625	61	72	70	63	50	-
Sales								
Doré	(koz Au)	625	61	72	70	63	50	-
Commodity Prices								
Gold	(USD/oz)	1,517	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue								
Gold	(USDm)	949	86.0	101.1	97.7	88.4	70.5	-
Operating Expenditure								
Mining	(USDm)	141	15.3	12.6	8.5	3.7	5.0	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	79	7.8	7.7	7.9	6.9	4.0	-
Other Production	(USDm)	(1)	-	-	-	-	-	-
Overheads	(USDm)	130	10.9	10.9	10.9	7.6	7.6	-
Royalties/Other Taxes	(USDm)	66	6.0	7.1	6.8	6.2	4.9	-
Other Operating	(USDm)	0	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**415**	**39.9**	**38.3**	**34.1**	**24.4**	**21.5**	**-**
Cashflow								
EBITDA	(USDm)	533	46.0	62.7	63.5	64.0	48.9	-
CIT	(USDm)	85	7.9	11.2	11.4	11.4	8.4	-
Working Capital	(USDm)	(1)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**449**	**38.1**	**51.5**	**52.2**	**52.5**	**40.5**	**-**
Capital Expenditure								
Project	**(USDm)**	**17**	**1.1**	**1.1**	**1.1**	**1.1**	**1.2**	**-**
Exploration	(USDm)	1	-	-	-	-	-	-
Dev/New Technology	(USDm)	0	-	-	-	-	-	-
New Mine Construction	(USDm)	16	1.1	1.1	1.1	1.1	1.2	-
Sustaining	**(USDm)**	**106**	**7.4**	**5.8**	**4.7**	**3.3**	**1.5**	**-**
Exploration	(USDm)	15	0.5	0.5	0.5	0.5	-	-
Maintenance	(USDm)	40	4.2	3.0	2.1	1.3	0.7	-
Capital Stripping/Dev	(USDm)	24	-	-	-	-	-	-
PCR	(USDm)	28	2.7	2.2	2.1	1.5	0.8	-
Closure	**(USDm)**	**5.6**	**-**	**-**	**-**	**-**	**-**	**5.6**
Total Capital Expenditure	**(USDm)**	**129**	**8.5**	**6.9**	**5.7**	**4.3**	**2.7**	**5.6**
Free Cashflow	**(USDm)**	**321**	**29.6**	**44.7**	**46.5**	**48.2**	**37.8**	**(5.6)**

Table 7-22: Irokinda Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	664	843	909	910	813	779	753	651
AISC	(USD/oz)	843	1,184	1,207	1,269	1,063	987	946	772
AISC (excluding closure)	(USD/oz)	834	1,184	1,207	1,269	1,063	987	946	772
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	28.45	30.90	30.58	28.48	28.83	29.60	27.54	28.36
	(USD/t_{ore})	33.07	36.91	41.44	36.82	33.48	38.76	30.59	32.74
Mining Capitalised	(USD/$t_{capitalised}$)	18.82	20.01	19.02	19.33	17.69	17.60	16.44	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	18.41	18.41	18.41	18.41	18.41	18.41	18.41	18.41
Overheads	(USD/t_{feed})	30.76	40.19	37.90	36.53	32.88	31.23	29.67	25.94

Statistic	Units	2028	2029	2030	2031
Standard Statistics					
Total Cash Cost	(USD/oz)	531	489	387	428
AISC	(USD/oz)	612	556	439	457
AISC (excluding closure)	(USD/oz)	612	556	439	457
Unit Costs					
Mining (excl capitalised)	(USD/t_{mined})	29.23	26.26	23.08	23.08
	(USD/t_{ore})	29.99	26.33	23.08	23.08
Mining Capitalised	(USD/$t_{capitalised}$)	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-
Processing	(USD/t_{feed})	18.41	18.41	18.41	18.41
Overheads	(USD/t_{feed})	26.00	25.48	20.49	35.50

8 SUZDAL GOLD MINE

8.1 Introduction

8.1.1 Location

The Suzdal mine is in Znamenskiy District in the East Kazakhstan Region, 50 km south-west of Semey city (Semipalatinsk) and on administrative land of Semey city. The locations of the mine and licence are shown in Figure 3-11, Section 3.3, and in Figure 8-1. The nearest settlement is Znamenka village, about 15 km west of the mine site. Land around the mine is used for agriculture and the closed Zherek gold mine, owned by Nordgold until January 2021, is 25 km north-west of mine site.

Suzdal mine is an underground mine which accesses the three main ore zones: Zone 2, Zone 4 and Zone 137 via four declines, three located in old open pits and one in a dedicated box cut. Two shafts exist for emergency access only. The processing facilities include flotation, bio-oxidation (“Biox”) and carbon-in-leach (CIL), plus a HiTeCC technology (High Temperature Caustic Conditioning) plant for additional recovery from the CIL tailings. The final product from the processing facilities is doré bars. Extractive waste facilities include three waste rock dumps on surface, one of which is being rehabilitated and some waste rock placed underground, and ten tailings storage facilities (“TSF”). Six TSF are dedicated to flotation process tailings, five of which are decommissioned. Four TSF are dedicated for CIL process tailings and one of these is decommissioned. There are also four historical open pits at the mine; pit No.5 is used as a pond to store pit water.

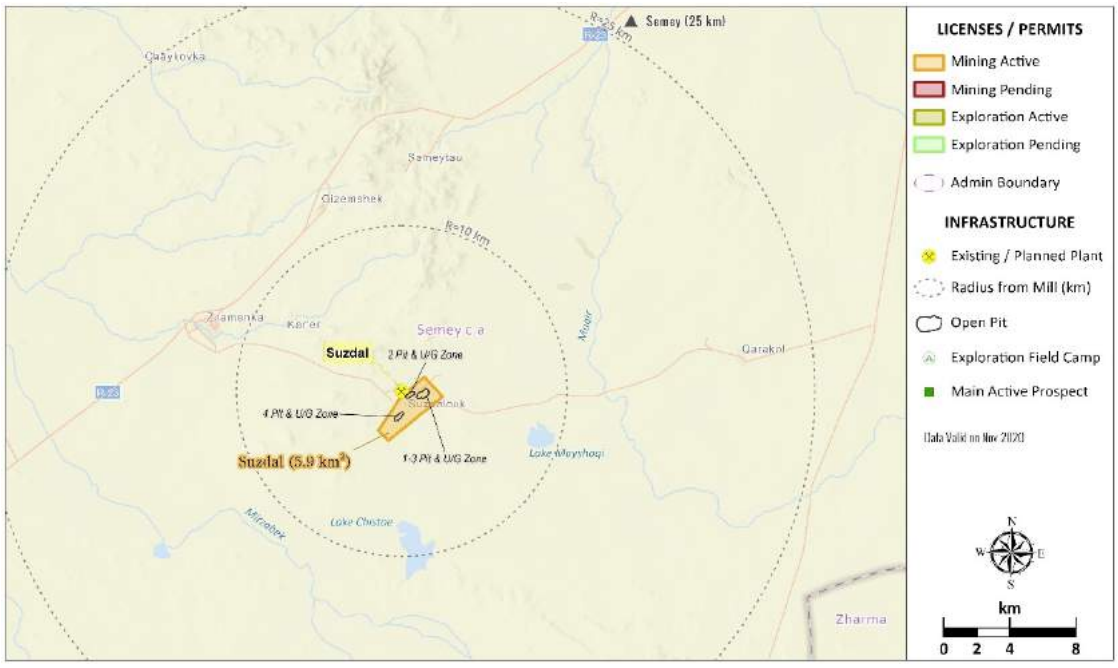


Figure 8-1: Suzdal Gold Mine and Licence Location

8.1.2 Access

The mine site is about 60 km from Semey by the R-139 highway. The road from Znamenka village onwards (approximately 15 km) is gravel.

8.1.3 Climate

The climate in the Suzdal mine area is extreme continental with arid summers and cold winters. It features sharp fluctuations in air temperatures (from an average of -13°C in the winter to an average of +20°C in the summer), plus low humidity, intense wind activity and a rapid rise in air temperature in the spring. Winds, mostly of east and south-east direction, reach speeds of up to 32 m/s. Most rain falls in April – October, with average annual precipitation of around 150 mm per year. Snow is typically present from November to April.

8.2 Mineral Rights and Primary Approvals

8.2.1 Mineral Rights Held

JSC "FIC Alel" is the holder of subsoil right for exploitation of the Suzdal deposit in the form of a Subsoil Use Contract No.47a dated 27 July 1996. This contract has nine addendums of additional agreements relevant to the contract, as shown in Table 8-1. According to Addendum No.9, the contract expires 13 March 2022. SRK notes that LoM will be extended until 2033 and the mining contract will have to be updated accordingly.

Table 8-1: Suzdal Mine Subsoil Use Contract and Additional Agreements

Doc Action	Doc Type	Doc Number	Date of Issue Y-M-D	Date FROM Y-M-D	Date TO Y-M-D
Including geological allotment act (S=28.3 km2)	Licence	MG35a	1995-03-13	1995-03-13	2017-03-13
	Contract	47(a)	1996-07-15	1996-07-15	2017-03-13
Mining and special conditions changed	Addendum 1	495	2000-07-07	2000-07-07	2017-03-13
Special conditions changed	Addendum 2	1155	2003-04-30	2003-04-30	2017-03-13
Special conditions changed	Addendum 3	1297	2003-12-30	2003-12-30	2017-03-13
S=4.5 km^2, Depth=400 m	Mining allotment act	n/a	2004-06-14	2004-06-14	---
Insignificant changes (type of company and address)	Addendum 4	1656	2005-02-15	2005-02-15	2017-03-13
Special conditions changed	Addendum 5	2626	2008-04-28	2008-04-28	2017-03-13
Special conditions changed	Addendum 6	3181	2009-04-02	2009-04-02	2017-03-13
S=5.9 km^2, Depth=500 m	Mining allotment act	n/a	2009-11-25	2009-11-25	---
Special conditions changed (incl. mining allotment area 5.88 km^2)	Addendum 7	3681	2010-08-04	2010-08-04	2017-03-13
Special conditions changed (incl. underground mining)	Addendum 8	4475	2014-10-15	2014-10-15	2017-03-13
Expiry Date Prolongation	Addendum 9	5071	2017-04-04	2017-04-04	2022-03-13

The mining allotments for the mine were issued by "Kazgeoinform" in 2009. It is understood that the Company complies with its contractual obligations pertinent to social development. The operator has signed an agreement with regulatory authority in 2017 which provides for a social – economic development of the region until 2022. According to this agreement, the Company is committed to invest KZT100m during these six years. Reportedly, the Company annually approves a budget for social programs to be implemented in the region. For example, the mine makes donations and participates in charity work to support orphanage and family centre in Semey, World War II veterans, and school in Znamenka village.

In addition to the mining licence, the operator has a subsoil use contract for construction and operation of TSF (contract No.36 dated 11 October 2005). This contract allows an operation of facilities that do not relate to exploration and exploitation of mineral resources. The contract No.36 dated 11 October 2005 has at least four addendums, the last of which was signed on 29 June 2018. Conditions in the contract include a requirement to make financial provision for closure. The liquidation fund must be in the form of bank deposit account.

8.2.2 Land Tenure

The mine has the land permits as presented in the

Table 8-2.

Table 8-2: Suzdal Mine Land Permits

No.	Cadaster No.	Area, ha	Valid until	Target use	Rent agreement	Akim's decree
1	05-252-145-214	1,17	13/03/22	For water supply service and grid maintenance	No.254 as of 23 May 2017	No.537 от 26.04.2017г.
2	05-252-145-191	1,92	13/03/22	For well placement	No.257 as of 23 May 2017	No.537 as of 26.04.2017г.
3	05-252-145-201	18,48	13/03/22	For TSF maintenance	No.188 as of 11 Apr 2017	No.391 от 28.03.2017г.
4	05-252-167-320	0,009	13/03/22	For grid maintenance	No.262 as of 23 May 2017	No.537 от 26.04.2017г.
5	05-252-167-321	0,031	13/03/22	For grid maintenance	No.261 as of 23 May 2017	No.537 от 26.04.2017г.
6	05-252-167-423	0,076	13/03/22	For grid maintenance	No.250 as of 23 May 2017	Decree No.23-p от 04.04.2017г.
7	05-252-145-198	0,258	13/03/22	For water pipeline placement	No.255 as of 23 May 2017	No.537 от 26.04.2017г.
8	05-252-145-171	1,21	13/03/22	For water pipeline placement	No.259 as of 23 May 2017	No.537 от 26.04.2017г.
9	05-252-145-168	1,93	13/03/22	For potable water supply	No.258 as of 23 May 2017	No.537 от 26.04.2017г.
10	05-252-145-172	1,71	13/03/22	For water supply maintenance	No.260 as of 23 May 2017	No.537 от 23.05.2017г.
11	05-252-145-169	3,54	13/03/22	For vehicle parking maintenance	No.252 as of 23 May 2017	No.537 от 26.04.2017г.
12	05-252-145-170	5,56	13/03/22	For camp office maintenance	No.251 as of 23 May 2017	No.537 от 26.04.2017г.
13	05-252-145-093	51,24	13/03/22	For construction and maintenance of mining and metallurgical complex	No.426 as of 11 May 2017	No.1213 от 04.08.2017г.
14	05-252-166-023	19,80	13/03/22	For road Znamensk – Suzdal and pipeline	No.253 as of 23 May 2017	Decree No.24-p от 04.04.2017г.
15	05-252-145-104	45,7	13/03/22	For TSF maintenance	No.401 as of 8 Aug 2019	Akim's decree No.1123 as of 26 Jun 2019
16	05-252-145-261	432,27	13/03/22	For gold mining	No.447 as of 22 Aug 2017. Additional agreement No.636 as of 4 Dec 2019	Akim's decision No.658 as of 8 Dec 1999 and decree No.3-11 as of 15 Aug 2001, No.94 as of 30 Jan 2004, No.343 as of 21 May 2004. Orders No.461 as of 18 May 2012 and No.1 as of 9 Jan 2014 and No. 1550 от 18 Aug 2017. Decree No.2236 dated 22 Nov 2019.

No.	Cadaster No.	Area, ha	Valid until	Target use	Rent agreement	Akim's decree
17	05-252-145-230	7,8	13/03/22	For camp maintenance	No.509 as of 8 Sep 2014. Additional agreement No.634 as of 4 Dec 2019.	Akim's decision No.658 as of 8 Dec 1999 and Akim's decree No.3-11 as of 15 Aug 2001., No.94 as of 30 Jan 2004, No.343 as of 21 May 2004, No.709 as of 19 May 2014. Order No.461 as of 18 May 2012 и No.1 as of 9 Jan 2014. Decree No.2236 as of 22 Nov 2019
18	05-252-145-231	1,4	13/03/22	For grid maintenance	No.508 as of 8 Sep 2014. Additional agreement No.508 as of 4 Dec 2019.	Akim's decision No.658 as of 8 Dec 1999 and Akim's decree No.3-11 as of 15 Aug 2001, No.94 as of 30 Jan 2004, No.343 as of 21 May 2004, No.709 as of 19 May 2014. Orders No.461 as of 18 May 2012 and No.1 as of 9 Jan 2014. Decree No.2236 as of 22 Nov 2019.
19	05-252-145-220	32,5	13/03/22	For TSF maintenance	No.404 as of 12 Jul 2012. Additional agreement No. 632 as of 4 Dec 2019.	Akim's decision No.658 dated 8 Dec 1999 and Akim's decree No.3-11 as of 15 Aug 2001, No.94 as of 30 Jan 2004, No.343 dated 21 May 2004. Orders No.461 dated 18 May 2012 and decree No.770 as of 25 Jun 2012. Decree No.2236 as of 22 Nov 2019.
20	05-252-166-024	7,39	13/03/22	For road	No.256 as of 23 May 2017.	No.537 as of 26 Apr 2017.
21	05-252-145-260	100,41	13/03/22	For TSF construction and maintenance	Additional agreement No.129 as of 26 Feb 2020 to the Contract No.156 as of 15 Mar 2017.	No.323 as of 21 Feb 2020.
22	05-252-145-262	30,06	13/03/22	For TSF construction and maintenance	No.490 as of 25 Sep 2017. Additional agreement No.635 as of 4 Dec 2019.	Akim's decision No.658 as of 8 Dec 1999 And Akim's decree No.3-11 as of 15 Aug 2001, No.94 as of 30 Jan 2004, No.343 as of 21 May 2004. Orders No.461 as of 18 May 2012 and No.1 as of 9 Jan 2014 and No.1550 as of 18 Aug 2017 and Decree No. 1457 as of 19 Sep 2017, decree No.2236 as of 22 Nov 2019.
23	05-252-145-253	1,6	13/03/22	For road construction	No.262 as of 28 May 2019.	Decree No. 682 as of 19 Apr 2019.
24	05-252-145-254	3,6	13/03/22	For grid and water pipeline construction	No.262 as of 28 May 2019.	Decree No. 682 as of 19 Apr 2019.
25	05-252-167-065	0,43	2053	For grid maintenance	No.514 as of 25 June 2004.	No.400 as of 17 Jun 2004.

8.2.3 Environmental Approvals

EIA Approvals

The register of state ecological expertise conclusions on the reports and designs of the mine are presented in the Table 8-3. According to the Sanitary – Epidemiological Review Conclusion No.923 dated 3 October 2013 and 2018 EIA, the mine's SPZ is 1,000 m. SRK understands there are no residential areas or other buildings, including objects of historical heritage, within the boundaries of the Suzdal SPZ.

Table 8-3: Suzdal Mine State Environmental Expertise Conclusions

Reports	Positive Conclusion of State Environmental Expertise No. and Date	Comments
Technical design documentation		
Mining (ore zones No.1-3 and No.4 to horizons of - 500 m)	No. 06-18/952 dated 20 March 2013	Project development technical design documentation
Processing and metallurgy	No.10-02-16/3705-2 dated 14 December 2012	
Mine Plan	No. KZ33VCY00209107 dated 16 January 2019	
Operatorial documentation		
Wastewater treatment facility (domestic)	No. 06-18/1402 dated 29 April 2013	Capacity increased
Reclamation project	No.KZ33VCY00047311 dated 20 November 2015	This mine will continue production until 2033
Construction and Exploitation of flotation and cyanidation TSF (5th stage)	No. F01-0002/18 dated 11 October 2018	TSF expansion. Completed.
Experimental workshop for HiTeCC technology testing	No. F01-0014/17 dated 3 May 2017	A trial of the HiTeCC technology for recovery a gold from the CIL tailings (BIOMIN, South Africa)
Construction of water treatment facility to collect and treat stormwater	No. KZ28DVC00042926 dated 19 November 2015	This project has not been started.
Environmental Emissions		
Air emissions	No. KZ35VCZ00585253 dated 18 May 2020	Limits for air emissions including MAC
Effluent discharge	No. KZ00VCY00070409 dated 26 May 2016	Limits for domestic wastewater discharge including MAC
	No. KZ33VCY00209107 dated 16 January 2019	Limits for pit dewatering including MAC
Solid wastes disposal	No. KZ07VCZ00509806 dated 20 November 2019	Limits for wastes disposal

Environmental emissions permits

The mine has the permits for air emissions, effluent discharges and waste generation listed in Table 8-4.

Table 8-4: Suzdal Mine Environmental Emissions Permits

Emissions type	Permit number	Date of issue	Date of Expiry
Air emissions	KZ35VCZ00585253	18 May 2020	31 December 2022
Effluent discharges	KZ21VCZ00540885	30 December 2019	31 December 2022
Waste disposal (flotation and cyanidation tailings)	KZ07VCZ00509806	20 November 2019	31 December 2022
Waste disposal (solid waste)	KZ07VCZ00509806	20 November 2019	31 December 2020 (being renewed)

The mine has special water use permits as shown in the Table 8-5. These permits are issued by the Yertis Basin Inspection for Regulation of Use and Protection of Water Resources (regional subdivision of the Water Resources Committee).

Table 8-5: Suzdal Mine Special Water Use Permits

Water intake source	Water Permit Number	Water body name	Date of Issue	Date of Expiry
Scherbakovskoye Reservoir	03-1/СПЛ-155	Scherbakovskoye Reservoir	22 July 2016	8 June 2021
Groundwater boreholes (potable water)	KZ31VTE00002253	4P, 5E, 2ETV	22 September 2018	19 April 2021
Groundwater boreholes (technical water)	KZ58VTE00002252	Groundwater, 12ETV, 9T, 7T, mine (pit 1-3)	22 September 2018	19 April 2021
Groundwater boreholes (technical water)	03-1/СПЛ-179	Groundwater	22 September 2018	19 April 2021

Make up water comes from pit dewatering, whereas some technological processes require fresh water (for example, the chemical laboratory) which is supplied from groundwater boreholes. The volume of the consumed water is measured by meters installed at each water intake point.

The permitted effluent discharges are shown in Table 8-6. Pit water is stored in the water recycling reservoirs and then pumped to the processing facilities. Domestic sewage is pumped into a water treatment facility (mechanical and biological) before being discharged to the filtration fields.

There is no engineered facility to collect stormwater on the mine site yet; however, the operation has an approved design to construct a stormwater collection and treatment facility (state environmental expertise conclusion No. KZ28DVC00042926 dated 19 November 2015) but this facility has not yet been constructed.

SRK notes the mine may be required to have a special water use permit for effluent discharge to the filtration field. This requirement is outlined in the Article 66 of Water Code of the Republic of Kazakhstan.

Waste disposal limits that apply at the mine are listed in Table 8-7. These limits include tailings disposal (stored in TSF) and solid domestic waste disposal (on-site landfill).

Table 8-6: Suzdal Mine Permitted Effluent Discharge

Water discharge point	Receiving water body	Permitted total annual water pollutants discharge limit in 2020-2022	Wastewater treatment	Wastewater use
Pit water	Pond 2-9	269.37 t	Decanting	Make up water for processing and metallurgy
Domestic sewage	Filtration fields		Clarification and biological treatment	None

Table 8-7: Suzdal Mine Waste Disposal Limits

Year	Unit	Total waste disposal limits	Tailings disposal limits
2020	t	1,012,199	484,000 flotation tailings 528,000 cyanidation tailings
2021	t	1,012,000	484,000 flotation tailings 528,000 cyanidation tailings
2022	t	1,012,000	484,000 flotation tailings 528,000 cyanidation tailings

Domestic and industrial waste storage facilities at the mine are to be closed and the waste will be sent to licensed off-site facilities starting from 2021.

The mine has a commitment to reduce its environmental footprint in terms of waste generation and disposal. To this end, the following activities are implemented on site:

- All waste rock is used as a material for a back-fill of the mined-out areas (19.4 kt in 2020, 25 kt in 2021, 24.9 kt in 2022).
- Part of tailings (cyanidation only) is used for processing to recover more gold (40.4 kt in 2020, 44.5 kt in 2021, 49.8 kt in 2022).

Mines in Kazakhstan are frequently inspected by regulatory authorities and fines are issued for any non-conformances. Recent fines received by Suzdal following inspections are noted in Table 8-8. The mine prioritises all corrective actions resulting from inspection findings.

Table 8-8: Suzdal Mine Inspection Findings

Year	Explanation of violation	Fine KZTk	Fine USDk
2016	Inappropriate disposal of construction waste and domestic waste	1929	4.5
	Additional source of pollution was identified which was not included in the project design documentation	605	1.4
2017	Exceedance of approved waste disposal limits	18 077	43
	Inappropriate disposal of waste	151	0.3
	Operation without a specific emissions permit (TSF construction)	50 517	120.2
2018	Operation without a specific emissions permit (TSF construction)	3 682	8.7
2019	Exceedance of approved air emissions limits	2 054	4.9

8.3 Geology

8.3.1 Geology of the Suzdal Mine

The Suzdal deposit is located on the northwest flank of the Western Kalba gold-bearing belt, Semipalatinsk Irtysh Region (Semey Ertis), Eastern Kazakhstan, in which numerous gold deposits and gold occurrences of different types are hosted in carbonaceous black shales and clastic rocks of Carboniferous age (Kovalev et al., 2009). The Western Kalba belt is considered a terrigenous accretionary complex, located between island arcs of Devonian–Carboniferous age–Rudnyi Altai in the north-east and Zharma-Saur to the south-west, and divided into two metallogenic zones (Figure 8-2). The Char – Zimunai Belt with Ni-Co and Au mineralization on the southwest and the West Kalba-Koksentau gold zone in the northeast (Kovalev et al., 2012).

The Suzdal deposit is located at the juncture of the NW-trending Char-Gornostai-Zimunai and NE-trending Suzdal fault zones, hosted in carbonaceous carbonate-clastic rocks of the Arkalyk Formation of Serpukhovian stage. These rocks are thrust northeastward over the continental deposits of the Maitubinsk Formation, along the NW-trending Gornostai overthrust.

The host rocks of the deposit comprise calcareous and carbonaceous siltstone, marl alternating with limestone lenses, and limestones. The mineralization is located within a 4 km long and 300 to 400 m wide, NE-trending Suzdal fault-controlled zone as SW-oriented en-echelon structures with dips of 40° to 90° SE (Kovalev et al., 2009).

Gold deposits hosted in carbonate and clastic sedimentary rocks are usually compared with the Carlin-type deposits. While there are several variants of Carlin-type deposits suggested, the Suzdal deposit shows similarities to two subtypes; those hosted in carbonaceous carbonate clastic rock and those hosted in black shale. Although genesis of gold mineralization is still in controversy, a multistage and polygenic character for mineralization in Suzdal deposit is proposed. Most of the gold mineralization is concentrated in silicified and decalcified calcareous polymictic breccias of both sedimentary and tectonic origin, typical of most Carlin-type deposits.

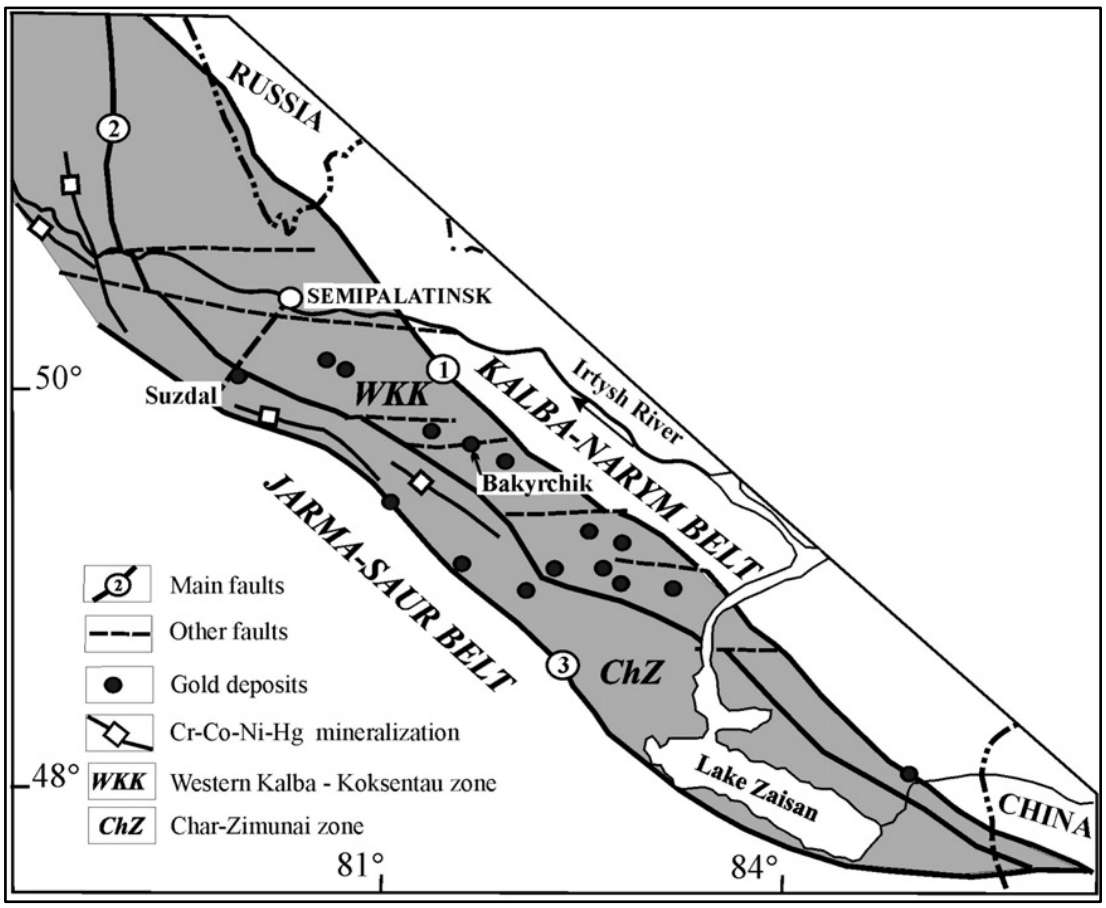


Figure 8-2: Tectonic Units of Western Kalba Belt, Mineralisation Types and Main Faults (Kovalev et al., 2009)

8.3.2 Exploration Summary

The Suzdal gold deposit was discovered in 1980-83 during the geological survey at the scale of 1:50000 (V.A. Denisenko, 1984). JSC Finance and Investment Corporation Alel (previously OJSC Finance and Investment Corporation Alel) mined oxidized ore at the deposit using an open-cut method between 1995 and 2005. Since 2006, the primary sulphide ores have been mined by underground mining methods.

The database used to delineate estimation domains and estimate the Mineral Resources contains 857 diamond drillholes from surface, 5,157 diamond drillholes from underground, 5,605 grade control holes, and channel samples from 17,286 trenches (only used in geological domaining, not used in estimation). Summary statistics of these drillholes and trenches are given in Table 8-9.

Table 8-9: Suzdal Summary Statistics of Drillhole / Trench Types

Drillhole Type	Collar	Mean (m)	Maximum (m)	Total (m)
Surface	857	312.54	1,000.00	267,849.20
Underground	5,157	86.57	397.50	446,416.20
Grade Control	5,605	31.39	150.00	175,945.90
Trench	17,286	6.14	249.50	106,164.00

Sampling was mostly on fixed 1 m intervals, 86% of the assays being equal to or less than 1 m. The entire lengths of holes were sampled due to fine grain nature of the mineralization.

Atomic absorption analysis was used for the initial analysis of samples for gold during all exploration periods at the deposit. Assay results that then contain gold above 2 g/t Au were reanalysed by fire assay with gravimetric finish. Analyses were done in internal laboratories of Nordgold and these have accreditations including ISO/IEC 17025-2009, granted in March 2020.

QA/QC procedures included the use of internal and external duplicates (duplicates that are sent to an independent umpire laboratory VNIITsvetmet. VNIITsvetmet has accreditations including ISO/IEC 17025-2019). Total duplicates comprise approximately 3% of the assays (2%, and 1%, internal and external duplicates, respectively); however, for the intervals that are higher than 1.5 g/t Au, internal duplicates correspond to 28% of the sample stream, while external duplicates correspond to 13% of the corresponding intervals. In other words, although low grade intervals (<1.5 g/t Au) are under-represented, high grade intervals (>1.5 g/t Au) which comprise most of the intervals used in estimation of the mineralized domains are well represented. Insertion of blank samples (2-5% of the number of run-of-mine samples) started in 2020. No Certified Reference Material (“CRM”) is being used at Suzdal at the moment.

The results of the quality control sampling presented reveal no problems with accuracy or precision significant enough to cause material concerns regarding the quality of assay information supporting the Mineral Resource estimate.

8.4 Mineral Resources

8.4.1 Introduction

The Suzdal deposits comprises three main NE striking mineralization zones called Zone 2, 4 and 137. The mineral resource estimate was completed by Nordgold personnel in 2020 and reported as of 31 December 2020. The key aspects of the Mineral Resource estimate are summarised below.

8.4.2 Mineral Resource Estimation

The mineralisation model for Suzdal was produced by Nordgold personnel and undertaken in Leapfrog. A combined approach of using an indicator RBF interpolant and structural trends was adopted. All assay results, including trench samples were used in modelling process. A total of 13 spatially distinct domains were modelled within these three main zones (Figure 8-3 and Figure 8-4). These zones are hosted in NE trending shear zones, dipping towards to SE with varying angles between 35° to 90°. Thickness of these zones vary from a few metres, up to 200 m, and can be traced up to 1.5 km along strike, and 200 m in dip direction.

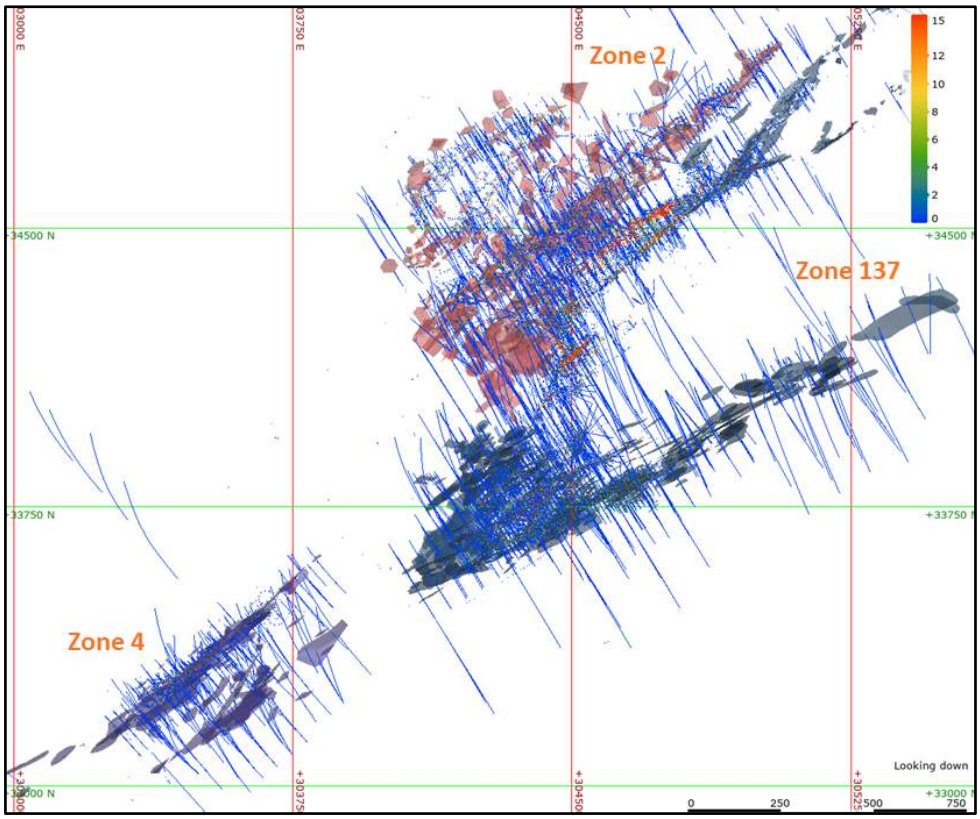


Figure 8-3: Suzdal Deposit Plan View of Main Zones 2, 4 and 137

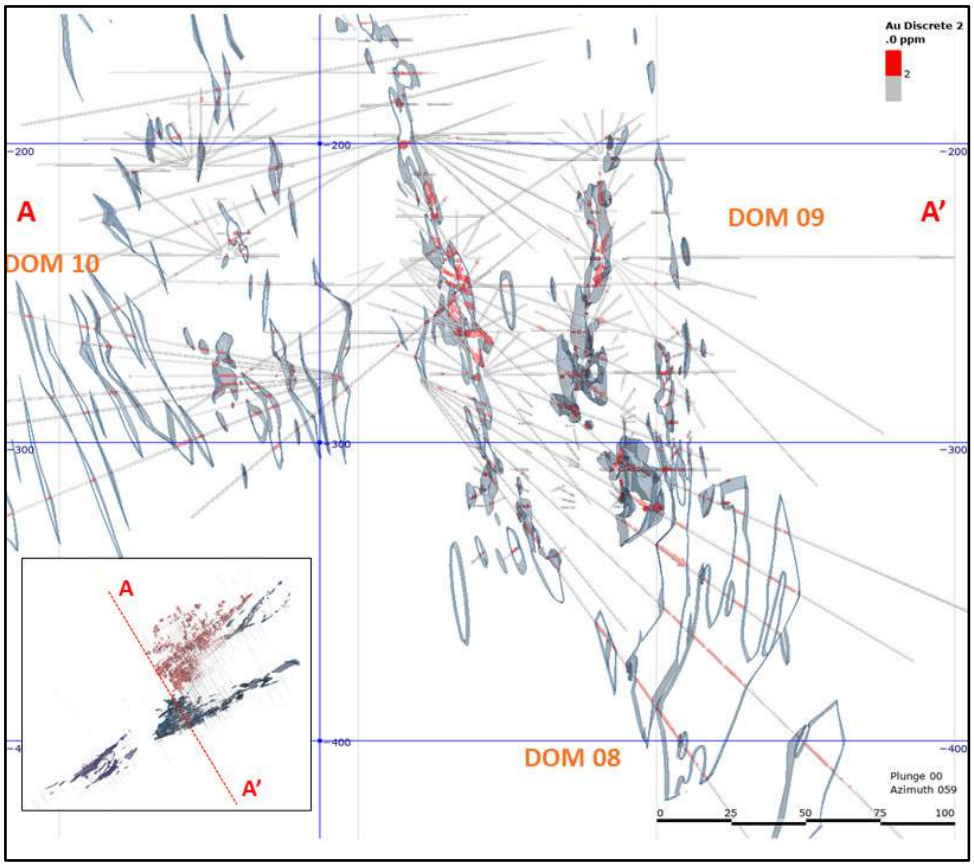


Figure 8-4: Suzdal Deposit Representative Cross-Sectional View from Zone 137, Estimation Domains 8, 9 and 10 Modelled with 2.0 g/t Au Mineralization Cut-off

Gold grades together with the total sulphur, sulphide sulphur, total carbon, organic carbon, total iron and silver in each estimation domains were interpolated using an Ordinary Kriging approach. The estimation approach can be summarized as follows:

- Only grade control and exploration drillholes were used for interpolation, i.e., trench samples were excluded as these samples showed poor correlation to the drillhole samples.
- Assays were composited to 1 m length as most of the assays (approximately 86%) were sampled at or less than 1 m.
- Block size of 10 x 10 x 5 m, sub blocked down to 0.25 x 0.25 x 0.01 m, was used. No rotation was applied to the block model.
- Capping values for gold, varying from 52 g/t Au to 150.9 g/t Au were applied by domain.
- Mineralization boundaries were treated as hard boundaries.
- Normal score experimental variograms for gold were modelled for each domain separately (where possible) and back transformed to the original space. Nugget for the largest domains, 8, 9 and 10, vary between 0.19 and 0.27, first structures varying between 0.56 and 0.74. First order ranges around 5-7 m, second order structures vary between 15 – 35 m.
- Grades were estimated using three passes, with a minimum – maximum sample varying between 4/10 and 4/18 in the first pass for different domains (based on QKNA for each domain). A maximum of number of two samples per drillhole was applied.
- Search volumes were tied to variogram model ranges; horizontal ranges in first pass generally corresponds to variogram ranges, and vertical ranges limited to 5 m. Second and third pass ranges were expanded to 2x and 3x of the variogram ranges with relaxed min/max samples parameters,
- Dynamic anisotropy was used to orient the search volumes.
- The block model was validated visually and statistically against the original input data and against the estimation composites including preparation of swath plots.
- A fixed value of 2.7 g/cm^3 for density is used to calculate the tonnages. Nordgold confirmed that the SG was determined using waxed samples and hydrometer, as part of surface exploration studies and average density (n = 408) of sulphide ores and unweathered rocks were 2.70 g/cm^3.

The classification of Mineral Resources considered the relative confidence in the estimation, represented by the quality, quantity, and distribution of data and confidence in the geological and grade continuity. In general, the classification of Mineral Resources can be reported as follows:

- Measured Mineral Resources: Areas supported by grade control drilling and mineralisation interpretations supported by channel samples from underground mine workings. Drillhole spacing is typically12.5 x 5 m.
- Indicated Mineral Resources: Continuity of mineralization is based on samples from exploration drillholes drilled at a grid spacing of approximately 50 x 10 m. Areas with high abundance of mine developments also considered as Indicated as they represent a high level of confidence in geological continuity,

- Inferred Mineral Resources: All other mineralized ore bodies sampled at a grid spacing of at least 80 x 80 m.

8.4.3 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Suzdal (Table 8-10) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have RPEEE, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 8-10, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the optimised MSO shapes.
3. Depletion is applied for mining up to 31 December 2020.
4. The underground Mineral Resources are reported at 2.08 g/t Au, 2.30 g/t Au and 2.57 g/t Au CoG for Zone 137, Zone 2 and Zone 4 respectively based on a long-term Au price of USD1,750/oz. Processing cost of USD36.30/t milled, general and administrative cost of USD12.3-16.9/t_{ore} milled (includes all power generation costs), average stoping cost of USD15.89–19.62/t_{ore} mined, and variable processing recoveries dependent on metallurgical zones and Au grade was applied. Sustaining capital of USD15.3/t_{ore} is planned.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

Table 8-10: Suzdal Mineral Resource Statement as at 31 December 2020

Deposit	CoG (g/t Au)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
		Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Zone 137	2.08	398	7.89	101	3,968	6.69	853	4,365	6.80	954	961	5.90	182	5,326	6.63	1,136
Zone 2	2.30	-	-	-	525	6.80	115	525	6.80	115	42	5.99	8	566	6.74	123
Zone 4	2.57	95	5.73	17	330	4.59	49	425	4.84	66	711	4.61	105	1,136	4.70	172
Stockpiles		-	-	-	34	5.17	6	34	5.17	6	-	-	-	34	5.17	6
Tailings Retreatment		-	-	-	483	5.60	87	483	5.60	87	-	-	-	483	5.60	87
Total		**492**	**7.48**	**118**	**5,339**	**6.46**	**1,109**	**5,832**	**6.55**	**1,227**	**1,713**	**5.37**	**296**	**7,545**	**6.28**	**1,523**

8.4.4 SRK Comments and Recommendations

SRK has reviewed the Mineral Resource estimate prepared by Nordgold and reported the audited Mineral resource herein. SRK agrees with most of the capping decisions, and length weighted statistics of composites suggest that there is no bias introduced during the compositing procedure. Grade distribution of the assays confirms that 1.5 g/t and 2.0 g/t Au mineralization cut-offs are reasonable for Zone 2 and Zone 4, and Zone 137, respectively. Nordgold utilizes QKNA to optimize the estimation parameters and the use of appropriate validation techniques indicate that the estimated models are a reasonable reflection of the underlying data. Resource categories represent the current confidence in geology and the grade estimates reasonably well. Notwithstanding the above, SRK suggests current mineralization wireframes, especially Zone 137, become locally highly selective, allowing highly discontinuous ore bodies even with only one high grade intersection. SRK suggests that an improvement could be achieved in wireframing by using “economic compositing” feature provided by Leapfrog. Utilising the economic compositing approach, the modeller has greater explicit control on how much internal dilution would be allowed. As internal dilution increases, selectivity decrease and spatially more continuous domains will likely be achieved. These domains will likely comprise more tonnage with lower average grades but will likely better represent the geological continuity of the mineralisation.

8.5 Mining and Ore Reserves

8.5.1 Current Mining Operations, Operating Strategy and Mining Fleet

Current surface operations at Suzdal are shown in Figure 8-5.

Suzdal underground mine comprises three main ore zones, Zone 2, Zone 4 and Zone 137. Workings currently extend to 610 m below surface and will reach 800 m depth upon depletion of the current Ore Reserves.

Development mining is achieved using modern electro-hydraulic single and twin boom drill jumbos to drill blastholes, diesel powered load-haul-dump loaders (“LHD”) to clean the blasted rock from each blasted advance, and diesel powered articulated dump trucks (“ADT”) to haul broken rock to surface (ore) or to underground voids to be used as backfill.

Production is achieved using variants of the long-hole sub-level open stoping method, either top-down “uphole benching” with eventual backfilling, or bottom-up “Avoca” progressively backfilling each sublevel. Blastholes are drilled using dedicated electro-hydraulic long-hole drill rigs, blasted ore is removed with LHD and ore is transported to surface with ADT.

Surface is accessed through four transport declines with 8° inclination. Three declines exit the mine through previously mined open pits, while the fourth, from Zone 4, exits through a dedicated box-cut excavation.

Development waste is used for backfilling and is transported from development faces to filling locations by LHD or truck.

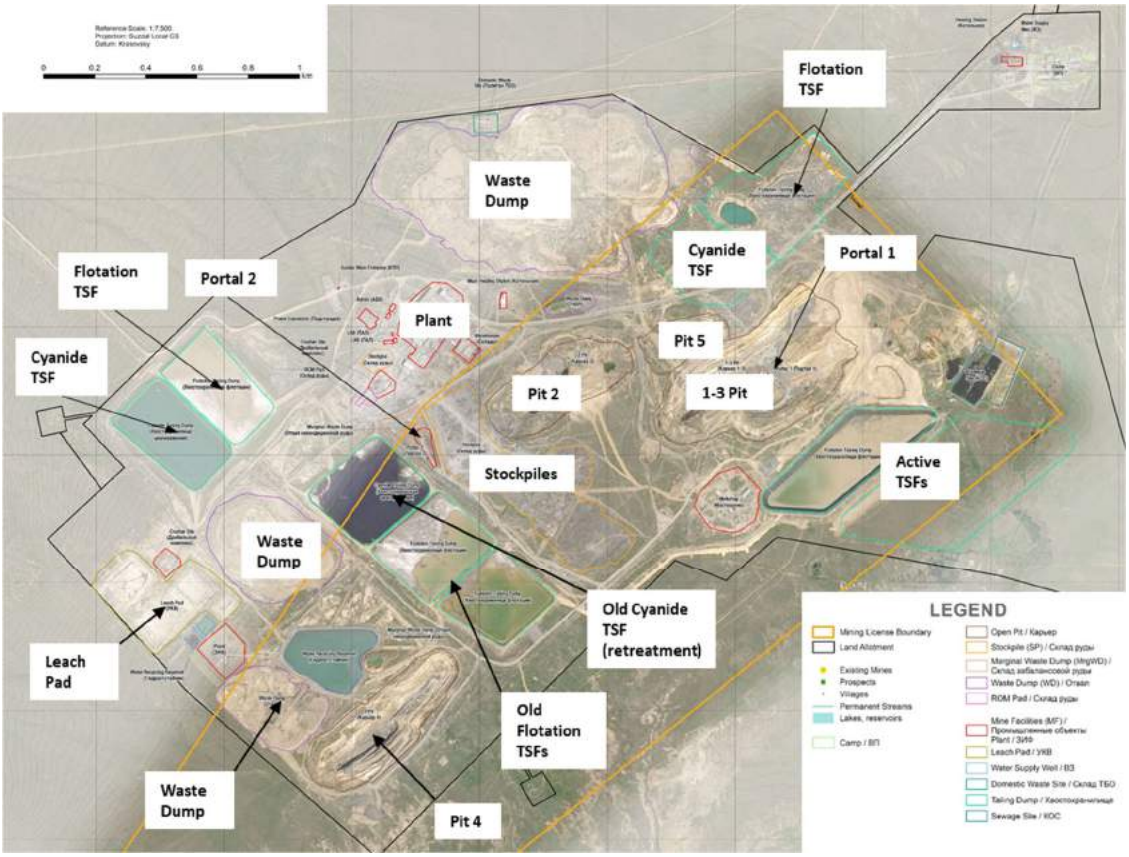


Figure 8-5: Suzdal Mine Layout (Nordgold 2020)

Stability of the workings is maintained by the installation of ground support (friction anchors, mesh sheets, shotcrete), leaving supporting pillars of ore unmined, for later extraction, and filling mined stopes with development waste as backfill when strategically required.

The key items of mining equipment in the current fleet are:

- development drill jumbo, 1 boom (2);
- development drill jumbo, 2 boom (3);
- production long-hole drill (2);
- LHD, 6.7 t (5);
- LHD, 10 t, (2); and
- ADT, 30 t (15).

8.5.2 Historical Mining Production

The most recent production as presented in Table 8-11 from Suzdal have yielded between 553 kt and 570 kt of ore and between 371 kt and 315 kt of waste, for a total material movement of between 925 kt and 885 kt, annually. The ore grade has averaged between 6.43 and 5.96 g/t Au.

Table 8-11: Suzdal Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Mined	(kt)	771	907	911	925	885
Waste	(kt)	220	378	358	371	315
Ore	(kt)	551	528	552	553	570
	(g/t Au)	7.26	7.39	7.02	6.43	5.96
	(koz Au)	129	125	125	114	109

8.5.3 Geotechnical Considerations

Geotechnical Setting

Three orebodies are distributed across a 4 km strike length aligned with the Suzdal Fault with which the ore is associated and across a 300 – 400 m wide zone. The zones are represented by fractured, calcareous-carbonaceous siltstones and limestones. Rock quality is primarily dependent on lithology, degree of fracturing (through to breccia) and alteration, with clayey siltstones being of particular concern in view of the degradation they suffer on exposure to water.

Geotechnical Characterisation and Classification

A variety of sources have been used to classify ore and wall rocks according to the Q classification. Q' (Q-prime) has also been determined which in turn has been used to determine N' (Stability Number) as summarised in Table 8-12. This has enabled stope stability and support requirements to be validated.

Table 8-12: Suzdal Inferred Q' and Q ranges for Ore and Wall Rocks

	Q'		Q		
	Worst	Best	Worst	Best	Rock Mass Quality
Ore	1.4815	7.0833	0.5926	2.8333	Very poor to poor
Wall Rock	2.7778	5.0000	1.1110	2.0000	Poor

Combinations of stope dimensions have been examined using the Matthews Stability Graph, which has shown that performance is broadly consistent with that observed and transitional stability corresponding to equivalent linear overbreak slough ("ELOS"), which it is understood to be high.

Support Design

Current ground support for production (ore) drives comprises 4 x 1.8 m split sets, with heavy-duty (8 mm gauge) sheets of (95 x 95 cm and 140 x 150 cm) mesh. Thin layers of shotcrete have been applied in the past but has been discontinued. Falls of ground are common and noted to encapsulate split sets, suggesting that bolt length is insufficient. Large falls of ground are typically remediated with steel sets and timber lagging.

Based upon the classification referred to in Table 8-12, support should comprise 2.4 m bolts on a 1.6 m spacing with 50 mm of fibre-reinforced shotcrete and therefore current levels of support would seem to be inadequate. Of particular concern is the use of short split sets with longer and more robust (grouted) forms of support being advisable. It is understood that Nordgold is currently investigating mechanised cable bolting options for Suzdal to improve the support in these areas.

Geotechnical Conclusions and Recommendations

Due to variable rock mass conditions coupled with widely spaced exploration / grade control drilling and limited recording of geotechnical characteristics, defining suitably located ore drives and determining the correct levels of support and appropriate stope design is challenging. As a result, high levels of dilution are experienced. SRK recommends the following data collection tasks to ensure a robust geotechnical model can be developed:

- Exploration / grade-control drilling needs to be more closely spaced and scheduled to enable ore drives to be better positioned and designs for support and stopes to be better planned.
- A reconciliation of stope performance should be routinely undertaken, comparing production drilling designs with Cavity Monitoring Surveys of stopes to determine recovery and dilution.
- The stand-off distance of drives needs to be reviewed as it is understood there are instances where these lie in zones of tensile stress which is affecting their stability / longevity.
- A support review is required to be more consistent with the Q System Support chart which currently suggests that longer bolts should be installed, and use made of shotcrete and consideration given to Thin Sprayed Liners ("TSL") to protect carbonaceous (clayey) siltstone from degradation associated with exposure to water.

SRK has been engaged by the Company to develop and assist in the implementation of industry best practice Ground Control Management Plans ("GCMP"), Surface Water Management Plans ("SWMP") and Ground Water Management Plans ("GWMP"). In addition, SRK have also been engaged to complete a mining method review to explore options to improve mining conditions and productivity at Suzdal.

8.5.4 Mine Water Management

Most of the site (including the site discharge channels) drains south towards Lake Chistoe. Surface water channels in the vicinity of the mine are ephemeral, flowing only after periods of heavy rainfall or snow melt.

Overall underground mine inflow at Suzdal is relatively low and of low risk to underground mine development, with a stable average groundwater inflow rate of 150 m^3/hour in Zones 1-3 and 30 m^3/hour Zone 4. It estimated that the majority (approximately 80%) of the groundwater inflow to the mine in Zones 1-3 is via old open exploration boreholes intercepting the mine workings and intentional bypass boreholes, used to convey surface water from the pit to underground. Inflows to the underground mine are conveyed along the mine tunnel floors to sumps on each level. In Zone 1-3, water is then pumped to a pumping station and pond on the +28 m elevation from where it is either pumped to the process plant or (since 2010 and until recently) to storage in an open pit.

Process water demand is approximately 1 Mm^3/annum. Mine dewatering amounts to a total of 1.13 Mm^3/annum based on 2020 figures, although some of this likely relates to re-circulation from water stored in pits. The site therefore has a net positive water balance; however, water management has been made extremely difficult over the past 10 years due dewatering from Zones 1-3 being impacted from a TSF spill.

Approximately 10 years ago a breakthrough in one the tailings dams led to tailings slurry and water entering the 1-3 pit. It is understood that the resultant cyanide levels in the pit lake and groundwater drainage into the underground mine Zones 1-3 were significantly high enough to prevent underground dewatering from Zones 1-3 to be used in the process plant until December 2020. Contaminated mine dewatering water was stored in pits during this time and the shortfall in fresh water for the process plant was made up from increased abstraction from a nearby lake and a number of abstraction wells located around 2.5 km north of the mine.

Since the end of 2020, the cyanide concentrations in dewatering water from Zones 1-3 are understood to have become sufficiently low enough to be used in the process plant again. This means that, if the mine continues its current water management approach, the mine will have a 40% net-positive water balance for 2021 onwards.

The site water management situation is complex with various stores of water of unknown quality held across open pits and these are variably mixing with underground mine dewatering streams.

8.5.5 Mine Design and Planning

Long term mine planning for the purposes of strategic planning and ore reserves estimation uses modern software (Mineable Shape Optimiser, MSO) to prepare economic three dimensional mining shapes, and to prepare plans of the development required to access and extract the economic mining volumes. Technically derived design parameters specify minima and maxima stope dimensions, and records of recent historical costs and mine production are referenced to prepare estimates of the economic and stoping cut-off grades for use during the optimisation.

Cut-off Strategy

The cut-off grades are based on a selling price of USD1,400/oz Au, royalties of 5% of revenue, refining cost of USD0.18/oz, processing cost of USD36.30/t milled, general and administrative cost of USD12.99/t milled, average stoping cost of USD33.16/t ore mined, sustaining capital costs of USD15.27/t mined, and variable processing recoveries dependent on metallurgical zones and gold grade.

Table 8-13: Suzdal Cut-off Grade Parameters

Parameter	Zone 137	Zone 2	Zone 4
Gold Price (USD/oz)	1400	1400	1400
Refining Cost (USD/oz)	0.2	0.2	0.2
Royalty (%)	6.6%	7.4%	7.9%
Metallurgical Recovery by Grade Bin	76%	68%	63%
Mining Fixed Costs	8.1	5.4	6.5
Loading Cost (u/g)	2.0	1.3	1.6
Stoping Cost (u/g)	1.6	1.1	1.3
Transport Cost (u/g & o/p)	8.0	5.4	6.5
Total Processing Costs (USD/t milled)	36.3	36.3	36.3
Overhead Cost (USD/t milled)	12.3	16.4	16.9
Sustaining Capital	15.3	15.3	15.3
Total Ore Based Costs (USD/t milled)	83.5	81.2	84.4
Cut-off grade (g/t Au)	2.60	2.88	3.22

Modifying Factors for Mine Design

Modifying Factors for development (dilution 10% at 0 g/t Au) and stoping (loss 8%, dilution 0%) were used for the Ore Reserve estimate. Reconciliation with production records indicates under-recovery (loss) of designed ore by 8%. The MSO derived production shapes include the dilution from outside ore grade blocks necessary to fill the shapes. Suzdal's historical reconciliation records confirm that this process provides a reliable estimate of mined grade, and hence dilution.

Ore Reserve Case Mine Design

The existing three main ore zones, Zone 137, Zone 2 and Zone 4 workings, and those planned for extraction of known Ore Reserves are shown in the schematic diagram in Figure 8-6. Only stope depletions measured by CMS methods are indicated. Older historical depletions recorded by non-electronic means, principally in the upper levels of the mine, are not indicated.

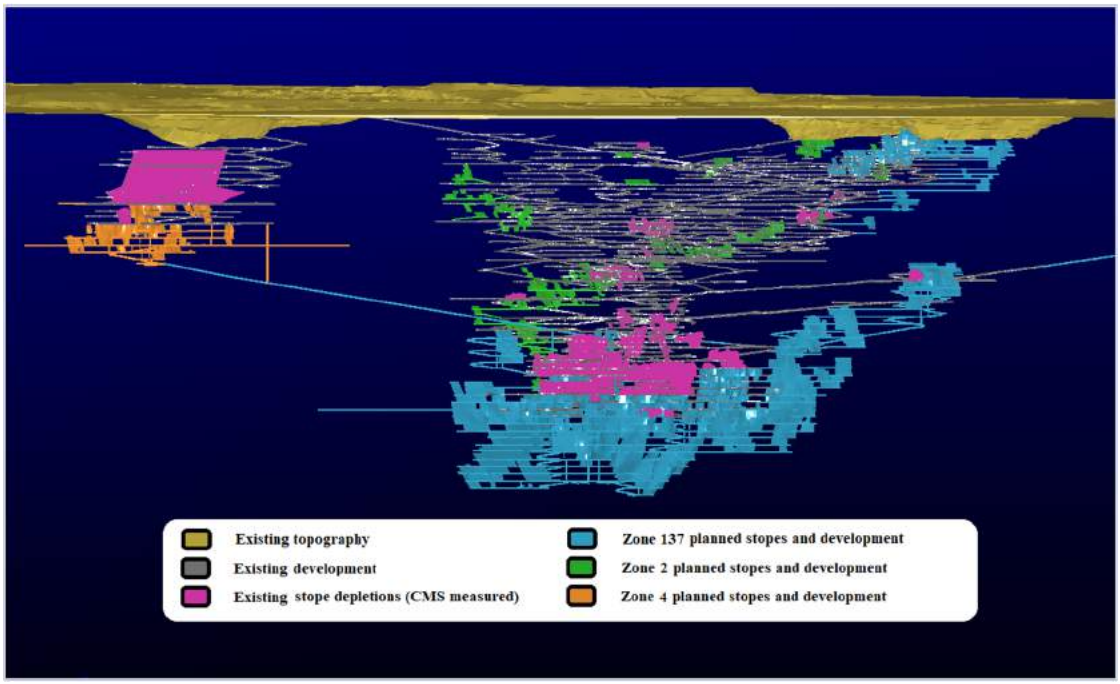


Figure 8-6: Suzdal Mine Schematic (looking North) (Ore Reserve Case)

Base Case Life of Mine Plan

The 2020 Base Case LoMp has been used for the purposes of the CPR. The mining schedule is prepared using modern software to schedule development and production activities according to logical precedences and dependencies, and achievable unit rates of performance.

The Ore Reserve Case LoMp schedule has annual ore production of 550 kt, containing 5.37 g/t Au. Annual waste production averages 350 kt for five years which reduces as development requirements are completed in advance of production. The current Ore Reserve is depleted in 2030.

The Base Case includes Inferred material which is not considered as part of the Ore Reserves. These resources are incremental to the Ore Reserve Case and are accessible from current or planned local extensions to the mine workings. The Base Case extends to 2033, with an average grade of 5.27 g/t Au. The annual rate of ore production is sustained at 550 ktpa until 2032.

SRK considers there to be a low risk of failure to achieve the Ore Reserve Case schedule. Lower confidence Inferred mineralisation in the Base Case in later years implies a higher risk of achieving the plan compared to the Ore Reserve Case. SRK, however, considers the Base Case to be a plausible plan by the Company, with ongoing conversion of Inferred Mineral Resources to Indicated Mineral Resources, and then to Probable Ore Reserves.

Table 8-14 shows the Base Case LoMp forecast for the Suzdal Mine.

Table 8-14: Suzdal Forecast (2021 to 2033) Mining Production Statistics for Base Case LoMp

Statistics	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Zone 137														
Mined	(kt)	817	807	654	764	680	732	380	310	331	334	334	444	148
Waste	(kt)	317	261	171	259	171	214	16	0	0	0	0	0	0
Ore	(kt)	500	547	482	506	509	518	364	310	331	334	334	444	148
	(g/t Au)	5.60	4.90	5.09	4.96	5.11	5.02	5.73	5.70	5.71	5.71	5.71	5.72	5.77
	(koz Au)	90	86	79	81	84	84	67	57	61	61	61	82	27
Zone 2														
Mined	(kt)			76	34	65	88	111	110	110	110	110		
Waste	(kt)			50	34	47	69	1	0	0				
Ore	(kt)			26	0	18	19	111	110	110	110	110		
	(g/t Au)			4.86	2.03	2.87	3.53	5.65	5.66	5.66	5.66	5.66		
	(koz Au)			4	0	2	2	20	20	20	20	20		
Zone 4														
Mined	(kt)	63	12	122	89	99	56	165	204	187	121	108	108	
Waste	(kt)	13	9	81	45	76	43	90	78	81				
Ore	(kt)	50	3	41	44	23	13	75	126	106	108	108	108	
	(g/t Au)	5.93	4.50	4.28	4.77	3.48	3.84	3.86	4.04	4.42	4.54	4.54	4.54	
	(koz Au)	10	0	6	7	3	2	9	16	15	16	16	16	
Total														
Mined	(kt)	880	819	852	888	844	876	656	624	628	565	552	552	148
Waste	(kt)	330	269	302	338	294	326	106	78	81	0	0	0	0
Ore	(kt)	550	550	550	550	550	550	550	546	546	552	552	552	148
	(g/t Au)	5.63	4.90	5.02	4.94	4.97	4.94	5.46	5.31	5.45	5.47	5.47	5.49	5.77
	(koz Au)	100	87	89	87	88	87	97	93	96	97	97	98	27

8.5.6 Ore Reserve Statement

The Ore Reserves are based on the remaining inventory on 31 December 2020 within the Ore Reserve Case optimised mining shapes and designed development. The cut-off grades have been calculated with reference to recent actual costs and production. The audited Ore Reserve Estimate as of 31 December 2020 is shown in Table 8-15.

In reporting the Ore Reserves as stated in Table 8-15, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. The underground Ore Reserves are reported at 2.60 g/t Au, 2.88 g/t Au and 3.22 g/t Au CoG for Zone 137, Zone 2 and Zone 4, respectively, based on a long-term Au price of USD1,400/oz. Processing cost of USD36.30/t milled, general and administrative cost of USD12.3-16.9/t_{ore} milled (includes all power generation costs), average stoping cost of USD15.89–19.62/t_{ore} mined, and variable processing recoveries dependent on metallurgical zones and Au grade was applied. Sustaining capital of USD15.3/t_{ore} is planned.
3. CoG are reported in terms of Au owing to a negligible contribution from contained Ag.
4. Ore Reserves have demonstrated economic viability.
5. The Ore Reserves were constrained within the Company's MSO development and stoping designs.
6. The Ore Reserve comprises a mine life of approximately 9.3 years.
7. Ore Reserves are presented on a 100% basis.

Table 8-15: Suzdal Gold Mine Audited Ore Reserve Statement as at 31 December 2020

Deposit	CoG (g/t Au)	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Zone 137	2.60	310	5.73	57	3,975	5.36	685	4,285	5.39	742
Zone 2	2.88	-	-	-	541	5.57	97	541	5.57	97
Zone 4	3.22	71	5.52	13	226	4.47	32	297	4.72	45
Total Mined Ore		**382**	**5.69**	**70**	**4,741**	**5.34**	**814**	**5,123**	**5.37**	**884**
Stockpiles	2.00	-	-	-	34	5.17	6	34	5.17	6
Tailings Retreatment	2.00	-	-	-	483	5.60	87	483	5.60	87
Total Suzdal		**382**	**5.69**	**70**	**5,258**	**5.36**	**907**	**5,639**	**5.39**	**977**

8.5.7 SRK Comments

In the opinion of SRK, the Ore Reserves estimate prepared for Suzdal Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

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

The modifying factors for underground mining would benefit from improved reliability and confidence if rigorous reconciliation processes were developed to compare actual mined voids and their block model contents, as determined by survey technology such as CMS, with the model contents of the planned voids.

8.6 Mineral Processing

8.6.1 Process Description (Flowsheet)

The Suzdal process plant treats refractory sulphide-hosted gold ore through a plant incorporating flotation and bacterially assisted oxidation of the sulphide ahead of gold recovery using a carbon-in-leach ("CIL") circuit. Doré is produced on site.

Following an earlier heap leach facility on site, the sulphide plant commenced operation in 2005 with a plant capacity of 300 ktpa of ore. In 2010, the plant capacity was expanded to its current capacity of approximately 575 ktpa of ore.

The key unit processes are:

- Crushing: The crushing circuit consists of three stages, a primary jaw crusher and secondary and tertiary cone crushers. The jaw crusher is in open circuit, and there are scalping screens ahead of each of the cone crushers, which otherwise operate in open circuit. The product from the crushing circuits is nominally -15 mm.
- Grinding: The grinding circuit consists of three 2.7 m diameter, 3.6 m long ball mills (380 kW each). Two are configured as primary mills and operate in parallel. These mills operate in closed circuit with a screw classifier. Classifier undersize reports to hydrocyclones, the overflow of which reports to flotation. Cyclone underflow reports to the third ball mill, which also operates in closed circuit with a screw classifier. The grind size feeding flotation is approximately 50% -75 μm.
- Flotation: The flotation circuit consists of two roughing stages, scavenging and two stages of cleaning. The first rougher stage uses two parallel trains of three 16 m^3 mechanically agitated cells, producing final concentrate. Tailings from this stage are reground using two 2.7 x 3.6 ball mills in closed circuit with cyclones, with a target product size of 75-80% -75 μm. The second rougher stage consists of eight 16 m^3 cells, which is followed by scavenging, using six 40 m^3 cells. Scavenger concentrate is recycled to the second rougher feed, and the second rougher stage concentrate reports to cleaning, which uses twelve 6.3 m^3 cells in the first stage and eight 3.2 m^3 cells in the second stage.
- Bioleaching: Suzdal uses Outotec's BIOX® technology. The combined flotation concentrate is thickened, then fed to two parallel BIOX® trains. Each train consists of six 643 m^3 vessels configured as three primary vessels in parallel followed by three secondary vessels is series. The total residence time through the BIOX® circuit is four days.
- Counter-Current Decantation and Neutralisation: BIOX® discharge slurry is washed using a three stage Counter-Current Decantation ("CCD") circuit, with the final thickener underflow reporting to the CIL circuit. The CCD overflow reports to the Neutralisation circuit, where it is mixed with the flotation tailings, and any further pH adjustment is made using lime. The slurry from Neutralisation is thickener for water recovery, the thickener overflow being recycled within the BIOX® circuit. Thickener underflow is pumped to the tailings storage facility ("TSF").
- Cyanidation: CCD underflow is fed through two small preparatory tanks where the pH is raised ahead of cyanidation. The CIL circuit consists of 7 85 m^3 mechanically agitated tanks. Carbon is used in all 10 tanks

- HiTeCC Process: The Suzdal ore is a double refractory ore, containing a preg-robbing fraction in addition to the refractory sulphides. In 2016, Nordgold commissioned an Outotec HiTeCC (high-temperature caustic conditioning) circuit to treat the CIL tailings in order to recover gold that to that point had preg-robbed onto organic carbon. The circuit consists of a regrind mill followed by a hot cyanidation stage and then a lower temperature adsorption stage (both stages undertaken in the presence of carbon). The loaded carbon is processed separately to the CIL circuit carbon in the elution circuit, and the slurry tailings is detoxified using hypochlorite before being pumped to the TSF, where it is stored in a separate cell to the flotation/neutralisation tailings. The HiTeCC circuit is sized so that in the summer months it can also re-process CIL tailings that date from before the installation of the plant, for additional Au recovery from this material.
- Cyanide detoxification: Decant water from the CIL cell of the TSF is returned to the plant where it is treated for detoxification using the Outotec ASTER™ Process. The ASTER™ Process is a biological process for the neutralisation of cyanide species and is particularly suited to recycling water for subsequent use in bacterial leaching. The ASTER™ Process plant was installed in 2013, and the water post treatment is discharged to the main TSF cell.
- Metal recovery: Gold is recovered from the loaded carbon in a conventional pressure Zadra elution circuit, based on a 2.5 t carbon batch size. Metal is electrowon using two electrowinning cells, and the cathode sludge is filtered then smelted.

8.6.2 Supporting Metallurgical Testwork

Available reports of testwork conducted leading into the development of the project and its early years of operation consist of results of diagnostic leach tests undertaken on samples from the various orebodies at Suzdal. These results are summarised in Table 8-16.

Table 8-16: Suzdal Diagnostic Leach Test Results

Association	Orebody 1/3 Sample No 1	Orebody 1/3 Sample No 5	Orebody 1-4 Transition Zone Sample 2	Orebody No 2 Sample T-14	Orebody No 4 Sample No 6	Orebody No 4 Sample 4-3-02	Orebody No 4 Sample T-15
Free (gravity)	14.9	7.1	16.4	31.9	0	3.8	16.4
Cyanide-soluble	10.2	30.5	13.6	5.0	14.8	2.7	3.3
In Sulphides	51.5	18.2	57.1	15.0	56.7	85.9	20.8
In Gangue	23.4	44.2	12.9	48.2	28.5	7.6	59.6

These results show a considerable degree of variance, in the level of “free milling” gold as well as sulphide hosted god as well as that associated with “gangue”. In this case, gangue refers to gold associated both with silicate minerals and with carbonate minerals. While carbonate-hosted gold may be recoverable in the acid environment of a bacterial leach, such minerals are only likely to report to a flotation concentrate through incomplete liberation or by physical entrainment.

A sample of ore from orebody No 4 was submitted to TOMS for testwork in 2017. The sample assayed 4.55 g/t Au, 2.49% S, 0.91 % As and 0.40% Organic C. Mineralogically it contained 3.6% pyrite and 2.0% arsenopyrite, and microscopic analysis identified gold in particulate form alloyed with silver and as aurostibnite. Diagnostic leaching showed that 6.3% of the Au was cyanide soluble, with 88.1% locked in sulphides. Batch flotation tests, replicating the plant conditions but in open circuit, returned Au recoveries of 89-94%, albeit at mass yields of 32-40%. A closed circuit test reported a reduced mass yield (23%) but a similar Au recovery (90%).

According to the 2020 Technical Regulations document, laboratory based total recoveries range from 80-88% for ore zones 1-3 and 7 (137), but are lower for ore zones 2 and 4, at 75-85% and 70-75% respectively. Plant stage recoveries are given as follows:

- flotation: 79-86%;
- CCD: 93-98%;
- CIL: 70-85%;
- overall: 58-65%; and
- overall with HiTeCC: 64-72%.

The site metallurgical laboratory can replicate the entire process, and conducts continuous testwork programs to determine the metallurgical response of incoming ores and to determine the optimum processing conditions to achieve maximum recovery.

8.6.3 Historical Operating Data

Annual plant operating data for the period 2016 to 2020 is shown in Table 8-17.

Table 8-17: Suzdal Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	543	549	551	546	608
Au Head Grade	(g/t)	7.13	7.07	6.53	6.00	6.02
Au Recovery	(%)	66.4	71.3	68.5	67.5	64.4
Au Produced	(koz)	78	92	82	76	76
Operating Cost	(USD/t)	27.49	34.74	38.25	36.05	35.45

8.6.4 Forecast Operating Data

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 8-18. Both cases have a plant through put of approximately 590 ktpa. The Ore Reserve Case includes mining to Q1 2030 with a contribution from old tailings (482 kt) in this period and a small tail of ore from tailings and stockpiles to 2032. The Base Case extends mining and processing to H1 2033.

Table 8-18: Suzdal Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	5,639	7,264
Gold Grade	(g/t Au)	5.39	5.29
	(koz Au)	976	1,235
Gold Recovery	(%)	68.0%	66.9%
Doré Produced	(kg)	20,662	25,708
	(koz Au)	664	827

8.6.5 SRK Comments

The Suzdal processing circuit is one of only a few examples of a bacterial leaching circuit, and was the first to be commissioned in the FSU region. Along with the majority of the installations globally, it uses the bacterial leaching technology licenced from Outotec, and so benefits from ongoing technical support from Outotec.

The ASTER™ and HiTeCC circuits are more recent additions, and are processes developed by Outotec or in conjunction with Outotec that are designed to improve the metallurgical and operational performance of bacterial leaching plants.

The available metallurgical data shows the ore to be variable in its mineralogical composition and hence metallurgical response, particularly in flotation, where the plant performance in further limited by the total tonnage and sulphur tonnage constraints of the subsequent BIOX® process. Constant monitoring of ore feed blends and metallurgical response is required in order to produce optimum metallurgical performance. The addition of the HiTeCC circuit appears to have provided a quantitative benefit in improving recovery, as well as proving the opportunity to recover additional gold from older tailings.

Figure 8-7 shows the relationship between Au head grade and recovery for the historical and forecast data. The historical and forecast data are annual figures for 2014 and 2015 inclusive and 2022 onwards, and monthly figures for 2016-2021 inclusive. The historical data shows a narrow range of recoveries from the low 60%s to the mid 70%s, with a general trend of recovery increasing with increasing head grade. The forecast recoveries show a narrower spread and fall within the range of the historical figures, while reflecting a range of head grades in the lower end of the range of historical head grades.

The Au recovery figures listed in the MPA spreadsheet are given as 76% for ore zones 137, 68% for ore zone 2 and 63% for ore zone 4. These figures are slightly lower than the figures given in the 2020 Technical Regulations document; however, they are stated as being based on 2019 actual data. A further breakdown shows stage recoveries of 73-88% in flotation, 95% in CCD, 89% in CIL and 42% in HiTeCC.

The operating costs in the MPA spreadsheet are based on 9 month 2020 actual costs.

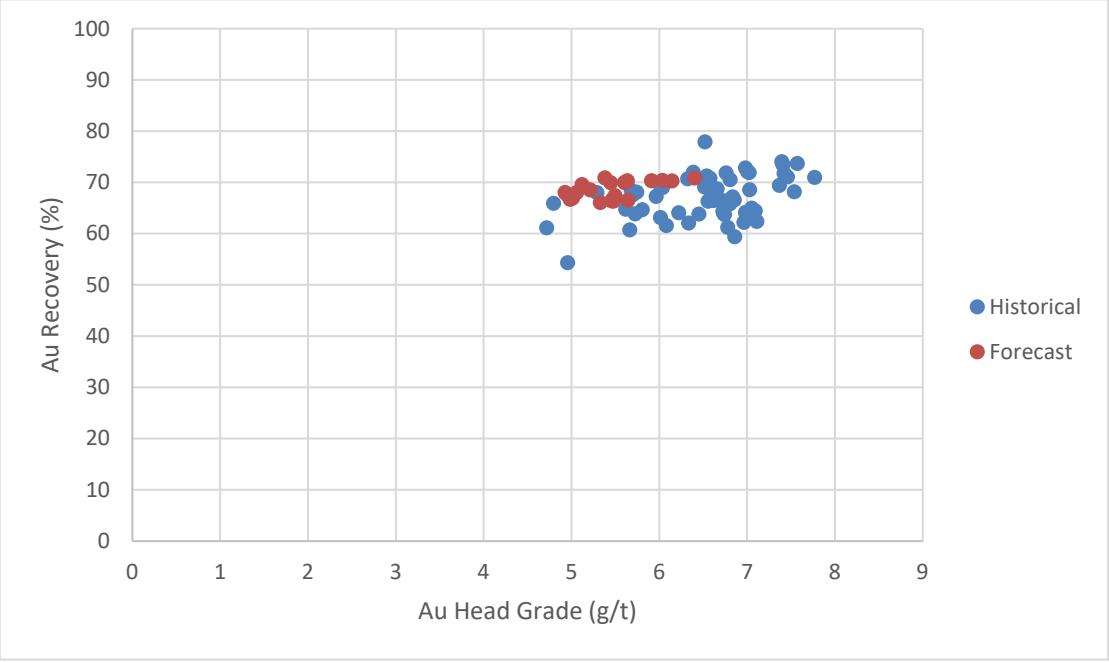


Figure 8-7: Suzdal Gold Recovery versus Head Grade

8.7 Tailings Storage Facility

8.7.1 Introduction

The Suzdal tailings storage facilities ("TSF") consist of a series of single raise, fully lined paddock style cells, which have been constructed progressively over the mine life. A total of nine cells have been constructed, a number of have been filled to capacity. Figure 8-8 illustrates the current status of each consecutive cell (active cells indicated in green).

Approximately 5 Mt of ore will be processed between 2021-2029 inclusive, at a maximum rate of 0.58 Mtpa (Ore Reserve Case). The Base Case includes an extended mine lift until 2033, under this scenario approximately 7.3 MT of ore will be processed. The remaining capacity for tailings in each of the active cells is summarised as follows:

- Cyanide TSF 4.1: 0.63 Mt or 0.42 Mm^3 remaining capacity.
- Cyanide TSF 5: 0.75 Mt or 0.5 Mm^3 remaining capacity.
- Flotation 5: 0.35 MT or 0.2 Mm^3 remaining capacity.

Based on the above, there is currently a shortfall of approximately 3.5 - 5.8 Mt of tailings storage; as such, additional cells would be required to store tailings from 2023 onwards.

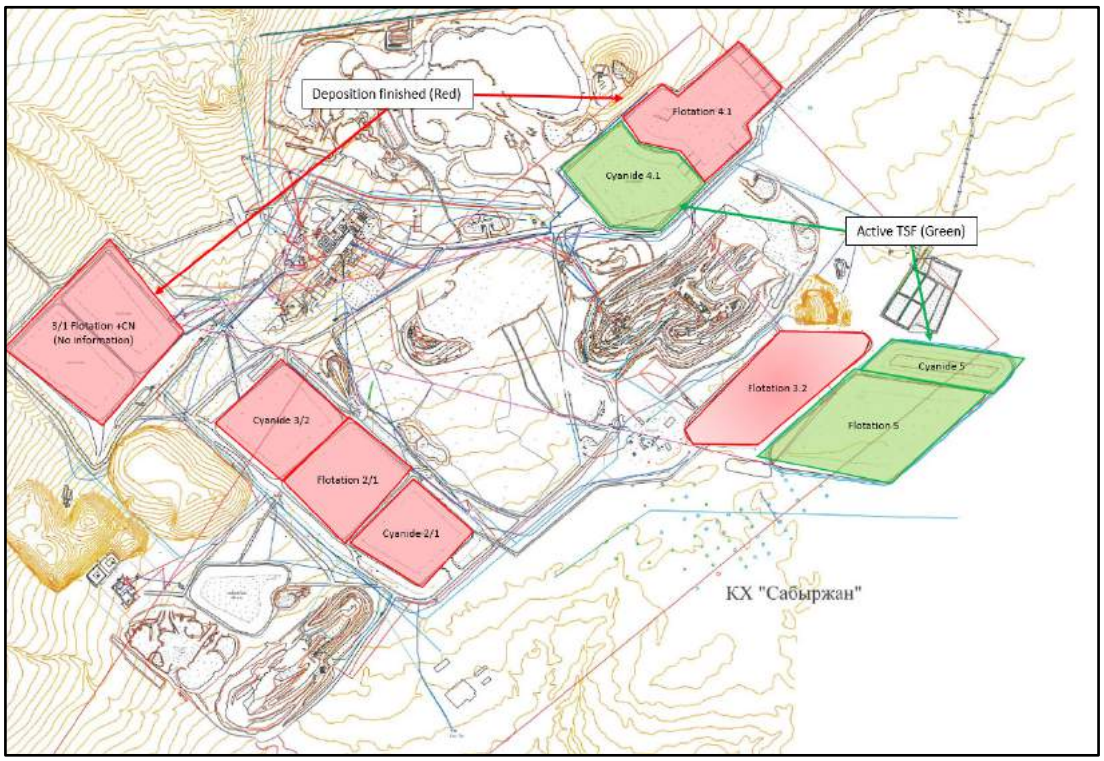


Figure 8-8: Suzdal TSF General Arrangement

8.7.2 TSF Design

Based on review of the Global Seismic Hazard Assessment Programme Map, the site is located in a low seismic hazard zone, with peak ground accelerations of less than 0.2 m/s^2 for the 10% probability of exceedance in 50 years ground motions.

SRK has received no design information related to the historical TSF (shaded red in Figure 8-8). Review of recent satellite imagery from 2020 indicates that none of the TSF have been rehabilitated for closure (i.e. no engineered cover system installed, ponds remain in place). Review of the topography across the site suggests that the construction of each TSF was completed in a similar fashion. According to information available, all TSF appear to be constructed using a single raise embankment with HDPE lined cell. Drawings for TSF 4.1 indicate that the TSF have a HDPE geomembrane, with bedding and filtration layer. No specification for filtration layer was reviewed.

No spillways appear to be installed for any of the TSF and hence stormwater inflows and the operational pond in each cell must be managed using freeboard alone. This is not considered to be problematic as each TSF is a standalone facility with no upstream catchment.

The facilities toward the southwest appear to be constructed with dam walls ranging up to approximately 10-15 m in height above ground. One drawing provided shows slopes of 2.5H:1V for both internal and external slopes. It appears that these facilities may have been constructed using the cut to fill construction technique.

The northern TSF appear to be largely excavations with low height berms (generally less than 2 m high) rising about the natural ground around the perimeter. Nordgold has indicated that Cyanide Cell 3.2 is currently being remined/reprocessed.

Based upon review of recent satellite imagery, ponded water is present against the perimeter embankments in all ponds. Whilst the northern ponds are generally formed from cut into existing ground, the risk associated with this practice is generally lower; however, as the southern TSF have embankments which rise above natural ground, this could be problematic over the long term (seepage from beneath the HDPE has the potential to lead to internal erosion of embankments, high phreatic surface and potentially impacts on slope stability). In addition, SRK notes that some of the cells are located immediately adjacent to open pits. This would increase the potential consequences of a TSF failure (such as mudflow into open pits).

8.7.3 Stability Analysis

No stability analysis completed has been provided for the as-built TSF embankments; however, the design passport documentation for Flotation Pond 3.2 states that the design of all ponds meets Russian State Standards.

SRK recommends that both Effective Strength Analysis (“ESA”) and Undrained Strength Analysis (“USA”) should be undertaken as a matter of priority, adopting a credible estimation of post-peak strength in the stored tailings material and foundations materials. This is necessary to ensure that both as-built and future raise designs are in accordance with accepted international practice.

8.7.4 Hazard and Risk Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
    - Meteorological events: **Moderate**. Mainly land-raise TSF, so storm accumulation unlikely to be a significant issue if freeboard is reasonable.

- Seismic events: **Low**. Area of low seismicity.
- Reservoir environment: **Low**. All TSF are either low height raises above the natural ground or inset into the natural ground.
- Human attacks: **Low**. Remote site; unlikely to have problems from local population.

- Internal:
  - Water or tailings barrier: **Moderate**. Single raise lined TSF; ponds extending close to the perimeter walls in some cases.
  - Hydraulic structures: **Low**. Decant capacity likely acceptable for operations; no spillway; reliant upon freeboard for storm water management.
  - Electrical and mechanical, including automation, protection and controls, communications: **Low**. Remote site so communication is likely to be challenging.

The following key risks have been identified upon completion of this review:

- Overtopping: **Low/Moderate** if appropriate freeboard is always maintained; however, SRK recommends that the water balance is checked and confirmed for each facility.
- Piping/internal erosion: **Low/Moderate.** Low risk for TSF formed in excavations, low to moderate risk for TSF with dam walls; it is unclear if appropriate filters are in place for the dams and it was noted that water is ponding around the perimeter in several TSF.
- Slope instability/loss of strength: **Low/Moderate** as no as-built embankment sections have been provided; the TSF are all relatively low height structures with modest slopes (2.5H:1V or shallower); low seismic hazard area, therefore risk of seismic liquefaction is low.
- Contaminated seepage and/or dust: **Low/Moderate**. It has been inferred that all TSF are lined, but this could not be confirmed with the information reviewed to date; old TSF do not appear to be closed and will likely generate dust.
- Pit stability: **Low/Moderate**. If significant leakage develops from the TSF, this could saturate the ground near the pits and lead to potential instability of the pit walls.

8.7.5 Other Risks

No adjustments have been made to improve the existing TSF given the relatively low height embankments (the condition of the TSF need to be confirmed since no as-built reports or photographs of the current conditions were reviewed).

A total capital expenditure of USD10m for future TSF cells has been allowed for in the Ore Reserve Case (CN + Float cells). Under the Base Case, the total capital allowance increases to USD15m, which SRK considers to be appropriate.

SRK has estimated an order of magnitude closure cost for all cells, assuming 1.2 Mm^2 total area to be rehabilitated (includes all future TSF construction and historical tailings). This includes an allowance for installation of a 0.5 m cover layer (inert waste rock) and 0.3 m topsoil layer as a minimum. The earthworks associated with installation of a cover system alone for all cells is likely to be USD6m. The Company has included an allowance of USD4.1m for closure of the tailings facilities; SRK notes that there could therefore be a shortfall of USD1.9m for tailings related closure. This does not include allowance for water treatment of excess water pumped out of the cells, which could be significant.

8.8 Infrastructure and Logistics

The Suzdal mine is an operating asset and as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- potable water supply from boreholes, heating, and hot water supply;
- waste and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility; and
- explosives storage facility.

The Suzdal Mine is connected the Kazakhstan national grid via a 110 kV transmission line to a main substation at Semipalatinsk and there is secondary 10 kV connection and back up diesel generators. Semipalatinsk is a major industrial hub located 55 km to the north with regional rail and road infrastructure and a national airport. No major capital investment is planned for infrastructure assets.

8.9 Human Resources

Nordgold has provided the following breakdown of staff at the Suzdal Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in H1 2033.

Table 8-19: Suzdal Personnel Breakdown

Business Unit / operation	Total Head Count, FTE				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Suzdal	1,008	985	1,034	1,017	21	18	24	22

8.10 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. The Suzdal mine health and safety management system is being aligned with ISO 45001:2018 and is targeting certification of conformance by the end of 2023.

Table 8-20 shows H&S incidents statistics in 2018-2020.

Table 8-20: Suzdal Mine Accidents and Incidents

Statistic	Own Staff/ Contractors	
	2019	2020
Actual Headcount	972 / 218	1004 / 133
Lost time injury frequency rate ("LTIFR")*	0.43 / 0.00	0.12 / 0.37
Total recordable injury frequency rate ("TRIFR")**	5.91 / 3.28	1.73 / 3.74
Lost Time Accident Days (LTAD)	341/0	249/0
Fatalities	0/0	0/1
Lost Time Incidents - Severe	3/0	1/0
Lost Time Incidents - Minor	1/0	0/0
Medical Treatment Incidents ("MTI")	6/0	2/1
First Aid Incidents ("FAI")	0/0	5/0
Other Incidents	3/0	3/0
Near Misses	2/0	3/0
Unsafe Conditions, Fixed	386/0	483/13

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

8.11 Environmental and Social Matters

8.11.1 Environmental and Social Setting

The mine is on land under the administration of Semey. The livelihoods of people around the mining are based on agriculture and mining. The agriculture includes both crop cultivation and livestock farming. Other mines operating in the vicinity of Suzdal mine are Zherek gold mine (25 km east), Zhanan gold mine (20 km south), and Karazhyra coal mine (60 km west).

There is a 1 km SPZ around the mine infrastructure and there are no residential buildings within 15 km of this infrastructure.

There are no historical monuments and protected areas in the vicinity of the mine.

The topography of the mine area is a combination of flat, shallow hills and low-mountain areas with slight elevations from 390 to 500 m. The topsoil thickness of the area is 10 – 12 cm, soils are represented by loamy soils poor in humus.

There are no constant watercourses in the immediate vicinity to the mine site. The nearest rivers, Muqir and Mirzabek, are located 10 and 12 km away, respectively. There are ephemeral lakes, Lake Chistoe and Lake Mayshoqi, around the mine area. The locations of the lakes and rivers are shown in Figure 8-1.

The flora and fauna of the area is sparse. On the slopes of the hills, there are thickets of pea hips and rose hips. There are also such plants as bird cherry, mountain ash, honeysuckle, viburnum, raspberry, currant, elm, hawthorn, juniper. The fauna is mostly represented by the desert and semidesert species. These include reptiles, rodents and very rarely ungulates.

8.11.2 Approach to Environmental and Social Management

Management Systems

Suzdal intends to obtain certification for its environmental management system to ISO 45001:2018 in 2021.

The mine and the Nordgold corporate office review the mine's compliance with legislation and corporate standards regularly. The operation also has a schedule of internal audits.

There is an environmental action plan for 2020-2022 at the mine that includes activities on protection of water resources, air, land, and waste management. In accordance with the emissions permit, the reports on the plan's implementation are submitted on a quarterly basis to the regulatory authority. The mine has also a waste management program for 2020-2022 and an environmental monitoring program (PEK) for 2020-2022, which includes operational monitoring, emissions monitoring and environmental impact monitoring (on SPZ border). Annual waste reports and quarterly monitoring reports are submitted to the regulatory authority.

Environmental monitoring provides data for emissions payments to be made to government. These are paid quarterly in accordance with tax regulation in the country. Table 8-21 shows the payments in the last three years.

Table 8-21: Suzdal Mine Emissions Payments

Pollution type	2017		2018		2019	
	KZTk	KZTk	KZTk	KZTk	KZTk	KZTk
	Authorised	Unauthorised	Authorised	Unauthorised	Authorised	Unauthorised
Air emissions	10 618	1 559	14 254		18 069	
Effluent discharge	111		108		89	
Waste disposal	56 589		63 151		68 124	
Total	68 877		77 513		86 282	

According to the condition of the environmental emissions permit No.KZ62VCZ00145066 as of 21 November 2017, the Company is committed to install automated monitoring system at some sources of pollution and on the border of SPZ. The deadline for this activity is until the end of 2021. It is understood that 40% of these works have been completed to date, with the remainder planned during 2021.

Stakeholder Engagement

Suzdal mine engages with stakeholders by means of public hearings that are legally required by the Environmental Code as part of OVOS procedure. The mine's grievance mechanism works in accordance with Kazakhstan legislation. Members of the local community can direct grievances to the Company through the Akim (the local government leader). In addition, the mine has a hotline and official website in place that allows stakeholders to address their complaints or requests to the Company by means of telephone or online communication.

8.11.3 Technical Issues

The new Environmental Code (adopted 2 January 2021) has new requirements with cost implications that need to be understood. For example:

- Starting from 2025, the fees for emissions and discharges will be doubled every three years.
- Complex environmental permits for Category I enterprises (which includes mining and processing) will be introduced and implementation of BAT will be encouraged.
- A requirement to collect and treat stormwater at all industrial sites, including mining sites will be introduced.

- Automated environmental monitoring will be required for all Category I operations.
- Improvement in mine waste management practices will be required across all Kazakhstan mine sites.

As outlined in Section 8.5.4, water management at the mine site has been challenging in the last decade. The mine says that the new TSF under development provides additional water holding capacity that will alleviate water management pressures.

The geochemistry of waste rock and tailings has not been characterised to assess ARDML potential as yet. An understanding of this potential is needed for reliable water management and closure plans. The new 2018 Subsoil Code closure regulations recognise this and have introduced a requirement to undertake ARDML studies.

A review of water management at the mine site, taking account of new legislation and good international industry practice is recommended. This review should take a catchment-based approach to water management and consider surrounding land users and the catchment receiving water body (Lake Chistoe) that might be affected if there was an accidental discharge from the mine site.

8.11.4 Closure

Closure planning and cost estimation requirements are defined in the 2018 Subsoil Code and supporting regulations. A closure plan was developed for the mine in 2019 in accordance with the new closure legislation. This was approved by a comprehensive expertise (includes state environmental expertise) by the official letter of the competent authority No.04-2-18/40157-4 dated 26 November 2019. Public hearings were held in August 2019 to provide stakeholder engagement in the closure design.

The 2019 closure plan is for a LoM ending in 2022. A complementary closure cost estimate was prepared. It includes all current mine facilities except for the Cyanidation TSF 4 and Flotation TSF 6. This plan has a closure cost estimate of KZT2,67 billion (approximately USD6.3m). Suzdal mine has recently updated its closure cost estimate for the extended LoM (2033). The updated estimate is lower. Nordgold has made a provision for closure in the Ore Reserve Case model of USD5.3m, and USD6.3m in the Base Case. This is further supplement by a previously accrued USD1.4m. Suzdal mine explains the previous estimate was prepared by an external party, but the mine can undertake the required rehabilitation work for less based on using in-house fleet and more competitive contractors.

Suzdal will officially update its closure plan and cost estimate in 2021 as the LoM has been extended. This information will be needed as part of the application to extend the mining licence.

The above LoM estimate does not include retrenchment costs.

There are risks that the actual closure costs will be much higher. New environmental legislation that comes into effect in 2021 (as outlined in the preceding section and Section 3.5) could influence the approach to closure. In addition, new closure regulations require that the mine undertakes ARDML studies. These studies may reveal a need for more stringent closure measures such as capping of mine waste facilities.

The Company makes a financial provision for closure in line with its contracts No.47 a and No.36. in the amount of 0.5% of operating costs and 1% of operating costs, respectively. Table 8-22 shows the recent contributions to and value of the liquidation fund. When the mining licence for Suzdal is updated, it is likely that the provisions made to the closure fund will have to be substantially increased.

Table 8-22: Suzdal Mine Liquidation Fund Data

Contract	2018 instalment	2019 instalment	2020 instalment	Total per contract, KZT	Total per contract, USD
47 a	USD90.27k	USD131.08k	USD149.12k		1 306.32k
36	KZT5 282.57k	KZT8 888.47k	KZT7 184.07k	21 306.29k	50.72k
Grand total, USD					**1 357.04k**

It is understood that the rehabilitation of some of the mine facilities began in 2016 on the grounds of the project design titled 'Reclamation of disturbed lands during mining of the Suzdal gold ore deposit, East Kazakhstan Region'. This project received a positive conclusion of state environmental expertise conclusion No.KZ33VCY00047311 dated 20 November 2015. In accordance with this, project rehabilitation of WRD No.2 has completed its first stage (technical) and will be followed by second stage of biological cultivation. The WRD No. 1 and 3 will be rehabilitated as soon as operations are completed. Under this project, an historical heap leach pad (area 15.6 ha) has been also rehabilitated (accepted by regulatory authority by the Act dated 4 August 2017).

8.11.5 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Suzdal mine:

- Reviews the potential for mine discharges and undertakes routine monitoring of the quality of water in Lake Chistoe.
- Undertakes geochemical characterisation of waste rock and tailings on site to predict ARDML potential and uses this information in water, mine waste and closure governance.
- Assesses the technical and financial implications of changes in environmental law.
- Updates the closure plan and cost estimate so that it covers the updated LoM, which ends in 2033 (the current plan and cost estimate are for LoM ending in 2022).

8.12 Economic Assessment

8.12.1 Introduction

The following sections present the results of the cashflow analysis undertaken for the Suzdal gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 100% of the Suzdal gold mine.

8.12.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Suzdal cashflow analysis:

- Royalty rate of 5.0% flat on value of gold contained in mined ore;
- Corporate income tax rate of 20% flat;
- property tax payable at approximately USD310k per annum; and
- closure cost allowance of USD5.3m (with a previously accrued USD1.4m, taking the total closure cost to USD6.7m) and retrenchment cost of USD1.6m have been allowed for in the economic assessment for the Ore Reserve Case. For the Base Case these total USD6.3m (taking the total to USD7.7m include previously accrued) and retrenchment allowance of USD1.1m.

8.12.3 Production

Historical processing statistics over 2016-2020 are presented in Table 8-23. The remaining life of mine for the Ore Reserve Case is 12 years (10 years of mining plus a further two years of stockpile processing, albeit at a heavily reduced throughput rate), and 13 years for the Base Case (10 years of mining plus a further three years of stockpile processing).

Table 8-23: Suzdal Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	771	907	911	925	885
Waste	(kt)	220	378	358	371	315
Capital Waste	(kt)	78	95	165	125	99
Operating Waste	(kt)	142	283	193	247	216
Ore	(kt)	551	528	552	553	570
Gold Grade	(g/t Au)	7.26	7.39	7.02	6.43	5.96
Gold Contained	(koz Au)	129	125	125	114	109
Surface Haulage	(kt)	638	834	835	836	-
Processing Feed	(kt)	543	549	551	546	608
Gold Grade	(g/t Au)	7.13	7.07	6.53	6.00	6.02
	(koz Au)	124	125	116	105	118
Gold Recovery	(%)	66.4%	71.3%	68.5%	67.5%	64.4%
Doré Produced	(kg)	2,418	2,851	2,561	2,371	2,354
	(koz Au)	78	92	82	76	76
Sales						
Doré	(koz Au)	81	92	83	76	76
Commodity Prices						
Gold	(USD/oz)	1,260	1,262	1,258	1,412	1,782
Sales Revenue						
Gold	(USDm)	102.5	115.8	105.0	107.0	134.8

8.12.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 8-24. These numbers exclude capital development (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Suzdal, this cost amounts to approximately USD4.70/oz.

The Company has noted that for Suzdal, approximately 80% of the operating costs incurred are denominated in local currency, and 20% in USD.

Table 8-24: Suzdal Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	10.1	12.2	12.7	12.8	13.3
Processing	(USDm)	14.9	19.1	21.1	19.7	21.5
Other Production	(USDm)	(1.2)	0.6	0.0	1.0	(0.3)
Overheads	(USDm)	6.2	6.9	7.6	6.5	7.9
General Site	(USDm)	4.9	5.1	5.6	5.3	6.6
SG&A	(USDm)	1.3	1.7	2.0	1.2	1.3
Royalties/Other Taxes	(USDm)	8.5	7.9	7.9	8.0	10.1
Other Operating	(USDm)	0.1	0.1	0.3	0.3	(0.1)
Total Cash Cost	**(USDm)**	**38.6**	**46.8**	**49.6**	**48.3**	**52.5**

8.12.5 Capital Expenditure

Table 8-25 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for Suzdal, almost 100% of capital expenditure incurred are denominated in local currency.

Table 8-25: Suzdal Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	2.2	1.2	-	0.1	4.5
Exploration	(USDm)	-	0.3	-	0.0	-
Dev/New Technology	(USDm)	2.2	0.9	-	0.1	1.8
New Mine Construction	(USDm)	-	-	-	-	2.7
Sustaining	(USDm)	7.6	10.8	12.8	17.6	15.7
Exploration	(USDm)	0.8	0.5	0.4	1.2	1.6
Maintenance	(USDm)	4.4	8.1	9.2	12.1	10.2
Capital Stripping/Dev	(USDm)	0.7	0.6	1.9	2.5	1.9
PCR	(USDm)	1.7	1.5	1.3	1.8	2.0
Total Capital Expenditure	**(USDm)**	**9.8**	**12.0**	**12.8**	**17.6**	**20.2**

8.12.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Suzdal, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 8-26) and unit cost assessments (Table 8-27);
- for the Ore Reserve Case, annual detailed cashflows (Table 8-28) and annual unit cost assessment (Table 8-29); and
- for the Base Case, annual detailed cashflows (Table 8-30) and annual unit cost assessment (Table 8-31).

Both cases present technically feasible and economically viable plans.

Table 8-26: Suzdal LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	6,848	8,884
Waste	(kt)	1,725	2,136
Capital Waste	(kt)	430	683
Operating Waste	(kt)	1,295	1,453
Ore	(kt)	5,123	6,748
Gold Grade	(g/t Au)	5.37	5.27
Gold Contained	(koz Au)	884	1,143
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	5,639	7,264
Gold Grade	(g/t Au)	5.39	5.29
Gold Contained	(koz Au)	976	1,235
Gold Recovery	(%)	68.0%	66.9%
Doré Produced	(kg)	20,662	25,708
	(koz Au)	664	827
Sales			
Doré	(koz Au)	664	827
Commodity Prices			
Gold	(USD/oz)	1,553	1,519
Sales Revenue			
Gold	(USDm)	1,032	1,256
Operating Expenditure			
Mining	(USDm)	110	147
Processing	(USDm)	207	265
Other Production	(USDm)	(0)	(0)
Overheads	(USDm)	90	112
Royalties/Other Taxes	(USDm)	72	91
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**479**	**614**
Cashflow			
EBITDA	(USDm)	553	641
CIT	(USDm)	97	111
Working Capital	(USDm)	(1)	(1)
Interest/Other	(USDm)	-	-
Operating Cashflow	**(USDm)**	**458**	**532**
Capital Expenditure			
Project	**(USDm)**	**28**	**32**
Exploration	(USDm)	2	2
Development/New Technology	(USDm)	11	11
New Mine Construction	(USDm)	16	19
Sustaining	**(USDm)**	**113**	**136**
Exploration	(USDm)	5	6
Maintenance	(USDm)	83	95
Capital Stripping/Development	(USDm)	8	13
PCR	(USDm)	18	22
Closure/Retrenchment	**(USDm)**	**7**	**8**
Total Capital Expenditure	**(USDm)**	**148**	**175**
Free Cashflow	**(USDm)**	**310**	**357**

Table 8-27: Suzdal LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	721	743
AISC	(USD/oz)	902	917
AISC (excluding closure)	(USD/oz)	892	908
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	17.21	17.93
	(USD/t_{ore})	21.56	21.79
Mining Capitalised	(USD/$t_{capitalised}$)	17.62	19.43
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	36.63	36.50
Overheads	(USD/t_{feed})	15.95	15.37

Table 8-28: Suzdal Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Production									
Total Material Mined	(kt)	6,848	946	937	906	902	804	550	550
Waste	(kt)	1,725	396	385	347	348	249		-
Capital Waste	(kt)	430	115	103	102	68	43	-	-
Operating Waste	(kt)	1,295	281	282	245	280	206		-
Ore	(kt)	5,123	550	552	559	554	555	550	550
Gold Grade	(g/t Au)	5.37	5.63	5.03	5.22	5.18	5.04	5.33	5.09
Gold Contained	(koz Au)	884	100	89	94	92	90	94	90
Surface Haulage	(kt)	-	-	-	-	-	-	-	-
Processing Feed	(kt)	5,639	581	590	596	592	593	588	588
Gold Grade	(g/t Au)	5.39	5.63	5.07	5.24	5.21	5.07	5.34	5.12
Gold Contained	(koz Au)	976	105	96	100	99	97	101	97
Gold Recovery	(%)	68.0%	67.9%	68.2%	68.7%	68.9%	68.6%	68.0%	68.6%
Doré Produced	(kg)	20,662	2,221	2,039	2,146	2,123	2,062	2,137	2,063
	(koz Au)	664	71	66	69	68	66	69	66
Sales									
Doré	(koz Au)	664	71	66	69	68	66	69	66
Commodity Prices									
Gold	(USD/oz)	1,553	1,905	1,791	1,710	1,579	1,500	1,400	1,400
Sales Revenue									
Gold	(USDm)	1,032	136.0	117.4	118.0	107.8	99.4	96.2	92.9
Operating Expenditure									
Mining	(USDm)	110	14.1	13.8	13.6	14.3	13.0	10.0	10.2
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-
Processing	(USDm)	207	23.2	22.0	21.9	21.4	21.4	21.2	21.2
Other Production	(USDm)	-	(0.1)	-	-	-	-	-	-
Overheads	(USDm)	90	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Royalties/Other Taxes	(USDm)	72	9.8	8.3	8.3	7.6	7.1	6.9	6.6
Other Operating	(USDm)	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**479**	**56.0**	**53.2**	**52.8**	**52.3**	**50.4**	**47.1**	**47.0**
Cashflow									
EBITDA	(USDm)	553	80.0	64.3	65.2	55.5	49.0	49.1	45.8
CIT	(USDm)	97	14.7	11.5	11.7	9.8	8.5	8.5	7.8
Working Capital	(USDm)	(1)	(1.3)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**458**	**66.7**	**52.8**	**53.5**	**45.8**	**40.5**	**40.6**	**38.0**
Capital Expenditure									
Project	**(USDm)**	**28**	**9.2**	**5.2**	**5.3**	**3.7**	**0.1**	**0.1**	**0.3**
Exploration	(USDm)	2	1.6	-	-	-	-	-	-
Dev/New Technology	(USDm)	11	6.8	3.5	0.1	0.1	0.0	-	-
New Mine Construction	(USDm)	16	0.7	1.6	5.2	3.6	0.0	0.1	0.3
Sustaining	**(USDm)**	**113**	**16.2**	**15.6**	**16.8**	**14.5**	**10.0**	**10.6**	**9.7**
Exploration	(USDm)	5	0.7	0.5	0.5	0.5	0.5	0.5	0.5
Maintenance	(USDm)	83	11.6	11.2	12.6	10.8	6.5	8.0	7.4
Capital Stripping/Dev	(USDm)	8	2.0	2.0	1.7	1.2	0.7	-	-
PCR	(USDm)	18	2.0	2.0	2.0	2.1	2.3	2.0	1.8
Closure/Retrenchment	**(USDm)**	**7.0**	**-**	**-**	**-**	**-**	**0.1**	**0.1**	**-**
Total Capital Expenditure	**(USDm)**	**148**	**25.4**	**20.8**	**22.1**	**18.2**	**10.2**	**10.8**	**9.9**
Free Cashflow	**(USDm)**	**310**	**41.3**	**31.9**	**31.4**	**27.5**	**30.3**	**29.8**	**28.0**

Table 8-28: Suzdal Ore Reserve Case LoMp continued

Statistic	Units	Total LoM	2028	2029	2030	2031	2032
Production							
Total Material Mined	(kt)	6,848	543	555	155	-	-
Waste	(kt)	1,725	-	-	-	-	-
Capital Waste	(kt)	430	-	-	-	-	-
Operating Waste	(kt)	1,295	-	-	-	-	-
Ore	(kt)	5,123	543	555	155	-	-
Gold Grade	(g/t Au)	5.37	4.94	6.93	5.07	-	-
Gold Contained	(koz Au)	884	86	123	25	-	-
Surface Haulage	(kt)	-	-	-	-	-	-
Processing Feed	(kt)	5,639	581	593	249	60	28
Gold Grade	(g/t Au)	5.39	4.99	6.84	5.21	5.60	5.60
Gold Contained	(koz Au)	976	93	130	42	11	5
Gold Recovery	(%)	68.0%	67.4%	70.9%	63.1%	45.0%	45.0%
Doré Produced	(kg)	20,662	1,952	2,876	821	151	71
	(koz Au)	664	63	92	26	5	2
Sales							
Doré	(koz Au)	664	63	92	26	5	2
Commodity Prices							
Gold	(USD/oz)	1,553	1,400	1,400	1,400	1,400	1,400
Sales Revenue							
Gold	(USDm)	1,032	87.9	129.4	36.9	6.8	3.2
Operating Expenditure							
Mining	(USDm)	110	10.0	9.0	2.5	-	-
Surface Haulage	(USDm)	-	-	-	-	-	-
Processing	(USDm)	207	21.0	21.4	9.1	2.0	0.8
Other Production	(USDm)	-	-	-	-	-	-
Overheads	(USDm)	90	9.0	9.0	5.4	2.7	0.8
Royalties/Other Taxes	(USDm)	72	6.3	8.9	2.0	-	-
Other Operating	(USDm)	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**479**	**46.4**	**48.3**	**19.0**	**4.7**	**1.6**
Cashflow							
EBITDA	(USDm)	553	41.5	81.1	18.0	2.1	1.6
CIT	(USDm)	97	7.0	14.9	2.3	-	-
Working Capital	(USDm)	(1)	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**458**	**34.5**	**66.2**	**15.7**	**2.1**	**1.6**
Capital Expenditure							
Project	**(USDm)**	**28**	**2.1**	**2.1**	**-**	**-**	**-**
Exploration	(USDm)	2	-	-	-	-	-
Dev/New Technology	(USDm)	11	-	-	-	-	-
New Mine Construction	(USDm)	16	2.1	2.1	-	-	-
Sustaining	**(USDm)**	**113**	**9.2**	**8.9**	**1.9**	**-**	**-**
Exploration	(USDm)	5	0.5	0.5	-	-	-
Maintenance	(USDm)	83	6.8	6.5	1.5	-	-
Capital Stripping/Dev	(USDm)	8	-	-	-	-	-
PCR	(USDm)	18	1.8	1.9	0.4	-	-
Closure/Retrenchment	**(USDm)**	**7**	**-**	**-**	**0.7**	**0.4**	**5.6**
Total Capital Expenditure	**(USDm)**	**148**	**11.2**	**10.9**	**2.6**	**0.4**	**5.6**
Free Cashflow	**(USDm)**	**310**	**23.3**	**55.3**	**13.1**	**1.8**	**(4.0)**

Table 8-29: Suzdal Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	721	784	811	765	765	761	686	709
AISC	(USD/oz)	902	1,012	1,049	1,009	978	914	841	855
AISC (excluding closure)	(USD/oz)	892	1,012	1,049	1,009	978	912	839	855
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	17.21	16.94	16.61	16.86	17.12	17.06	18.09	18.54
	(USD/t_{ore})	21.56	25.59	25.08	24.27	25.78	23.40	18.10	18.54
Mining Capitalised	(USD/$t_{capitalised}$)	17.62	17.44	19.14	16.76	17.29	16.95	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	36.63	39.93	37.28	36.70	36.07	36.06	36.11	36.11
Overheads	(USD/t_{feed})	15.95	15.50	15.28	15.12	15.22	15.20	15.32	15.33

Statistic	Units	2028	2029	2030	2031	2032
Standard Statistics						
Total Cash Cost	(USD/oz)	739	523	719	962	706
AISC	(USD/oz)	885	619	817	1,040	3,156
AISC (excluding closure)	(USD/oz)	885	619	790	962	706
Unit Costs						
Mining (excl capitalised)	(USD/t_{mined})	18.48	16.20	16.24	-	-
	(USD/t_{ore})	18.48	16.20	16.24	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	-	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-
Processing	(USD/t_{feed})	36.19	36.06	36.45	33.17	29.69
Overheads	(USD/t_{feed})	15.50	15.20	21.63	44.78	27.49

Table 8-30: Suzdal Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Production									
Total Material Mined	(kt)	8,884	880	819	852	888	844	876	656
Waste	(kt)	2,136	330	269	302	338	294	326	106
Capital Waste	(kt)	683	126	72	76	111	74	62	64
Operating Waste	(kt)	1,453	204	198	226	227	220	264	42
Ore	(kt)	6,748	550	550	550	550	550	550	550
Gold Grade	(g/t Au)	5.27	5.63	4.90	5.02	4.94	4.97	4.94	5.46
Gold Contained	(koz Au)	1,143	100	87	89	87	88	87	97
Surface Haulage	(kt)	-	-	-	-	-	-	-	-
Processing Feed	(kt)	7,264	581	588	588	588	588	588	588
Gold Grade	(g/t Au)	5.29	5.63	4.95	5.06	4.99	5.01	4.98	5.47
Gold Contained	(koz Au)	1,235	105	93	96	94	95	94	103
Gold Recovery	(%)	66.9%	67.9%	67.7%	68.0%	66.7%	66.9%	66.9%	66.7%
Doré Produced	(kg)	25,708	2,221	1,967	2,021	1,954	1,972	1,960	2,145
	(koz Au)	827	71	63	65	63	63	63	69
Sales									
Doré	(koz Au)	827	71	63	65	63	63	63	69
Commodity Prices									
Gold	(USD/oz)	1,519	1,905	1,791	1,710	1,579	1,500	1,400	1,400
Sales Revenue									
Gold	(USDm)	1,256	136.0	113.3	111.1	99.2	95.1	88.2	96.5
Operating Expenditure									
Mining	(USDm)	147	14.1	13.5	14.1	14.1	14.1	13.9	10.1
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-
Processing	(USDm)	265	23.2	21.9	21.6	21.2	21.2	21.2	21.2
Other Production	(USDm)	(0)	(0.1)	-	-	-	-	-	-
Overheads	(USDm)	112	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Royalties/Other Taxes	(USDm)	91	9.8	8.1	7.9	7.2	6.9	6.4	7.1
Other Operating	(USDm)	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**614**	**56.0**	**52.5**	**52.6**	**51.5**	**51.2**	**50.5**	**47.5**
Cashflow									
EBITDA	(USDm)	641	80.0	60.7	58.5	47.7	43.9	37.7	49.1
CIT	(USDm)	111	14.7	10.8	10.4	8.2	7.4	6.2	8.5
Working Capital	(USDm)	(1)	(1.3)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**532**	**66.7**	**49.9**	**48.2**	**39.5**	**36.4**	**31.5**	**40.6**
Capital Expenditure									
Project	**(USDm)**	**32**	**9.2**	**5.2**	**5.3**	**3.7**	**0.1**	**0.1**	**0.3**
Exploration	(USDm)	2	1.6	-	-	-	-	-	-
Dev/New Technology	(USDm)	11	6.8	3.5	0.1	0.1	0.0	0.0	0.0
New Mine Construction	(USDm)	19	0.7	1.6	5.2	3.6	0.0	0.1	0.3
Sustaining	**(USDm)**	**136**	**16.6**	**15.0**	**16.6**	**15.4**	**10.8**	**11.8**	**11.0**
Exploration	(USDm)	6	0.7	0.5	0.5	0.5	0.5	0.5	0.5
Maintenance	(USDm)	95	11.6	11.2	12.6	10.8	6.5	8.0	7.4
Capital Stripping/Dev	(USDm)	13	2.3	1.4	1.5	2.0	1.5	1.2	1.3
PCR	(USDm)	22	2.0	2.0	2.0	2.1	2.3	2.0	1.8
Closure/Retrenchment	**(USDm)**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**175**	**25.7**	**20.2**	**21.9**	**19.1**	**10.9**	**11.9**	**11.3**
Free Cashflow	**(USDm)**	**357**	**40.9**	**29.7**	**26.3**	**20.4**	**25.5**	**19.6**	**29.3**

Table 8-30: Suzdal Base Case LoMp continued

Statistic	Units	Total LoM	2028	2029	2030	2031	2032	2033
Production								
Total Material Mined	(kt)	8,884	624	628	565	552	552	148
Waste	(kt)	2,136	78	81	13	-	-	-
Capital Waste	(kt)	683	50	48	2	-	-	-
Operating Waste	(kt)	1,453	28	33	11	-	-	-
Ore	(kt)	6,748	546	546	552	552	552	148
Gold Grade	(g/t Au)	5.27	5.31	5.45	5.47	5.47	5.49	5.77
Gold Contained	(koz Au)	1,143	93	96	97	97	98	27
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	7,264	585	585	590	590	590	216
Gold Grade	(g/t Au)	5.29	5.33	5.46	5.48	5.48	5.50	5.64
Gold Contained	(koz Au)	1,235	100	103	104	104	104	39
Gold Recovery	(%)	66.9%	66.1%	66.4%	66.4%	66.4%	67.4%	66.5%
Doré Produced	(kg)	25,708	2,058	2,118	2,147	2,147	2,186	811
	(koz Au)	827	66	68	69	69	70	26
Sales								
Doré	(koz Au)	827	66	68	69	69	70	26
Commodity Prices								
Gold	(USD/oz)	1,519	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue								
Gold	(USDm)	1,256	92.6	95.4	96.6	96.6	98.4	36.5
Operating Expenditure								
Mining	(USDm)	147	11.2	11.2	9.8	9.9	8.7	2.2
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	265	21.1	21.1	21.3	21.3	21.3	7.3
Other Production	(USDm)	(0)	-	-	-	-	-	-
Overheads	(USDm)	112	9.0	9.0	9.0	9.0	9.0	3.5
Royalties/Other Taxes	(USDm)	91	6.8	7.0	7.1	7.1	7.1	2.1
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**614**	**48.2**	**48.4**	**47.2**	**47.4**	**46.1**	**15.2**
Cashflow								
EBITDA	(USDm)	641	44.4	47.0	49.4	49.3	52.2	21.3
CIT	(USDm)	111	7.6	8.1	8.6	8.5	9.1	2.9
Working Capital	(USDm)	(1)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**532**	**36.9**	**38.9**	**40.9**	**40.7**	**43.1**	**18.4**
Capital Expenditure								
Project	**(USDm)**	**32**	**3.6**	**3.6**	**0.5**	**0.1**	**0.1**	**-**
Exploration	(USDm)	2	-	-	-	-	-	-
Dev/New Technology	(USDm)	11	0.0	0.0	-	-	-	-
New Mine Construction	(USDm)	19	3.6	3.6	0.5	0.1	0.1	-
Sustaining	**(USDm)**	**136**	**10.2**	**9.9**	**7.8**	**5.8**	**3.9**	**1.1**
Exploration	(USDm)	6	0.5	0.5	0.5	0.3	0.4	-
Maintenance	(USDm)	95	6.8	6.5	5.4	3.6	3.1	1.1
Capital Stripping/Dev	(USDm)	13	1.0	1.0	0.0	-	-	-
PCR	(USDm)	22	1.8	1.9	1.8	1.9	0.4	-
Closure/Retrenchment	**(USDm)**	**8**	**-**	**-**	**-**	**-**	**-**	**7.5**
Total Capital Expenditure	**(USDm)**	**175**	**13.8**	**13.5**	**8.2**	**5.8**	**3.9**	**8.6**
Free Cashflow	**(USDm)**	**357**	**23.1**	**25.4**	**32.7**	**34.9**	**39.2**	**9.7**

Table 8-31: Suzdal Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	743	784	831	809	820	808	802	688
AISC	(USD/oz)	917	1,016	1,068	1,065	1,065	979	988	848
AISC (excluding closure)	(USD/oz)	908	1,016	1,068	1,065	1,065	979	988	848
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	17.93	18.68	18.11	18.13	18.14	18.33	17.03	17.13
	(USD/t_{ore})	21.79	25.59	24.62	25.58	25.62	25.65	25.21	18.45
Mining Capitalised	(USD/$t_{capitalised}$)	19.43	18.55	18.99	19.28	18.14	20.33	19.57	21.04
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	36.50	39.93	37.31	36.80	36.12	36.12	36.12	36.11
Overheads	(USD/t_{feed})	15.37	15.50	15.33	15.33	15.33	15.33	15.33	15.32

Statistic	Units	2028	2029	2030	2031	2032	2033
Standard Statistics							
Total Cash Cost	(USD/oz)	728	710	684	686	657	582
AISC	(USD/oz)	882	856	796	770	712	914
AISC (excluding closure)	(USD/oz)	882	856	796	770	712	625
Unit Costs							
Mining (excl capitalised)	(USD/t_{mined})	19.52	19.41	17.33	18.00	15.77	15.08
	(USD/t_{ore})	20.52	20.58	17.68	18.00	15.77	15.08
Mining Capitalised	(USD/$t_{capitalised}$)	20.49	20.95	17.07	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-
Processing	(USD/t_{feed})	36.15	36.15	36.08	36.08	36.09	33.69
Overheads	(USD/t_{feed})	15.41	15.41	15.26	15.26	15.27	16.35

9 LEFA OPEN PIT GOLD MINE

9.1 Introduction

9.1.1 Location

The Lefa Mine is located in the northwest of the Republic of Guinea, approximately 40 km south of the border with Mali and 134 km from Kankan. The mine is approximately 700 km north-east of Conakry, the capital of the Republic of Guinea. The location of the mine is shown in Figure 3-12, Section 3.3, and in Figure 9-1. Administratively, the project is within the Sous-préfecture of Siguirini, within the Préfecture of Siguiri which falls within the administrative region of Kankan.

Lefa consists of two main open pits and several smaller satellite pits (Figure 9-2), with an 8 km conveyer belt from the Lero-Karta pits to the processing plant at Fayalala. All current operations and planned expansions are within the one concession area. Mining operations commenced in the 1990s and used heap leaching to process oxide ores. A carbon in pulp ("CIP") process plant was installed and commissioned approximately ten years later. The current Lefa Gold Mine was developed by Crew Gold and commissioned in 2007. Nordgold acquired the Lefa Project as part of acquiring Crew Gold at the end of July 2010. Currently, Lefa operates as a typical open cut mining operation through its subsidiary Société Minière de Dinguiraye ("SMD").

To date, a total of approximately 72 Mt of tailings have been deposited into the existing TSF. The original design capacity (originally 45 Mt) has been significantly expanded to cope with the additional tailings requirements and is now close to its maximum capacity. Approximately 57 Mt of ore are expected to be processed in the Base Case LoMp and the Company is currently building a new TSF (TSF2) to accommodate this production. Nordgold is also evaluating options for significant underground extensions to existing open pit operations as well as evaluating additional deposits to the west of the current operating areas. This is expected to extend the life of mine beyond the current Base Case of 2031.

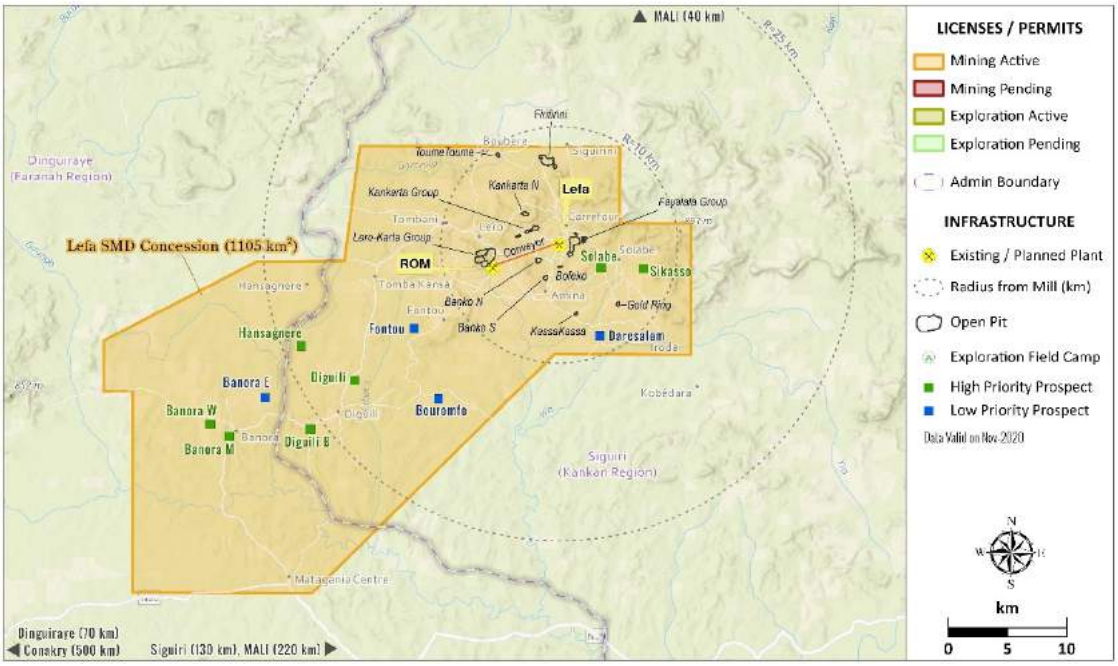


Figure 9-1: Lefa Mine Location and SMD Concession (Nordgold)

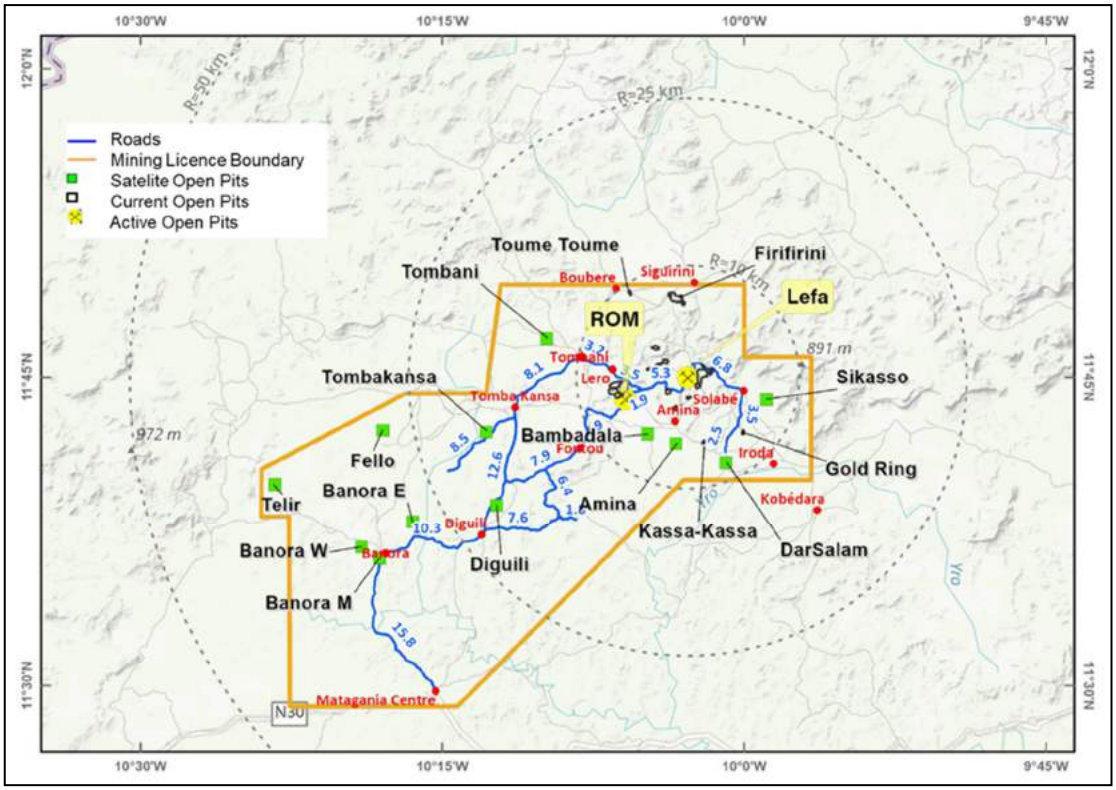


Figure 9-2: Lefa Pits and Concession Infrastructure (Nordgold)

9.1.2 Access

Access to the mine is on an all-weather road from Conakry via Dabola and Dinguiraye. There is also an airstrip adjacent to the Bas Vie accommodation camp that provides access for internal flights to and from Conakry.

9.1.3 Climate

The climate of Guinea is tropical but relatively mild for the latitude. The mine area is characterised by a single wet season, from April to November. Typically, the three wettest months are July, August and September. Dry conditions persist from December through to March when the northerly Harmattan winds prevail. Rainfall averages 1,202 mm during the wet season with negligible rainfall between November and March.

Temperatures range between 16°C and 38°C with the relative humidity ranging between 50% and 80%. Temperatures are highest in March/April and lowest in August. Rain typically falls as intense tropical storms.

9.2 Mineral Rights and Primary Approvals

9.2.1 Mineral Rights

The Lefa mine operates under a Mining Convention between SMD and the Government of Guinea. The original Convention was signed in 1990 by the Minister of Natural Resources and the Environment. It was initially valid for 25 years and has subsequently been extended by various amendments (Avenants) The third and current Avenant was signed in January 2018 and ratified in July 2018. According to Article XXVII, the third amendment to the Convention takes effect from March 2019 and is valid for 15 years and links to the Mining Concession. The mining title is held by SMD by means of the accompanying Mining Concession granted by Presidential Decree. The current Decree was signed on 22 August 2018 and is valid for 15 years.

Obligations in the Mining Convention include:

- All non-specialist jobs will only be carried out by Guinean labour. In addition, expatriate positions will be offered to expatriate Guineans in the first instance where this skill equivalency. The third amendment introduces targets for the reduction of expatriate workers over time with targets for 4 and 8 years following the signature of the amendment. After 8 years the target for superintendent level and below is 100% Guinean nationals (Article 11).
- Also covered by Article 11 are company Health and Safety regulations which must be develop and submitted for approval by the *Direction Nationale des Mines.*
- Article 11 further requires the company to develop a local development plan in conjunction with the affected communities.
- The company must provide professional and technical training to Guinea staff to facilitate promotion of Guinea staff to all levels of responsibility within the company.
- The company commits to implementing a development program to make the company wholly Guinean operated (Article 12).
- The company is committed to prioritise the use of Guinean companies for supply chain sourcing (Article 13). As with Article 11, the third amendment imposes targets for the proportion of contacts warded to national contractors.
- The Company is committed to mining in a manner that minimises environmental impacts. The company is obliged to have a management plan for all mine wastes (Article 14).
- The new Article XV of the 3rd Avenant describes relevant closure obligations and requires the opening of a trust account to cover the cost of closure. It notes that the company has already opened an account with the Ministry of Environment and has already deposited USD5m.

In accordance with the Mining Convention (Addendum 3), Lefa mine intends to restrict the number of expatriates in managerial roles to three by 2026 and have national specialists on all other managerial roles (75 roles). As of 2020, 30 positions (38%) are filled by Guinean nationals.

9.2.2 Environmental Approvals

Table 9-1 summarises the current status of various environmental approvals for the operation.

Approvals still need to be obtained for mining of the Diguili and Banora pits, which is scheduled for 2021 and 2023, respectively. Reportedly the environmental and social impact assessment (ESIA) for Diguili is underway. SMD is confident it will obtain the required approvals by mid-March 2021. SRK notes that this is an ambitious timeline.

Table 9-1: Lefa Status of Environmental Approvals

Area	Approval	Validity	Comment
Mine operations	Environmental certificate (Certificat de Conformité Environnementale - 00869 MEEF/CAB/BGEEE/2020	December 2021	Annual renewal achieved following site inspection visit in December 2020
TSF extension	Environmental Authorisation Granted March 2020	Valid for 1 year to March 2021	Renewal dependent on a satisfactory assessment of the implementation of the ESMP
Solabé resource area	Environmental Authorisation Granted March 2019	Valid for 1 year to March 2020	The Solabé area now forms part of the overall mine site environmental certificate (00869 above)
On site power plant (new)	Environmental certificate (Certificat de Conformité Environnementale - 00709 MEEF/CAB/BGEEE/2020	Valid for 1 year to October 2021	
Water use authorisation	Arrêté A/2012/No. 9011 MEEE/SGG/2012	September 2012 No end date but stated to be provisional.	SMD have indicated the authorisation is valid for 10 years. This is not apparent from the Arrêté provided

The government environment agency, Bureau Guinéen d'Etudes et d'Evaluation Environnementale (BGEEE), carry out annual inspections as part of the validation of the site environmental certificate. The inspection report from 2020 records 'satisfactory' progress on the implementation of the site environmental management plans and contains recommendations for additional actions.

9.2.3 Land Tenure

The land being mined is state-owned. Nordgold is required to resettle people who will be economically and/or physically displaced by mining. Nordgold has a Resettlement Framework that defines its approach to resettlement. This commits to avoiding resettlement where possible and to observing relevant legislation and international standards. The framework recognises that resettlement planning and implementation can take 18 to 24 months.

Resettlement is being planned for new mining development at the Diguili and Banora deposits in 2021 and 2023, respectively. The number of people affected by the Diguili development is relatively small; SMD believes it will complete the required economic resettlement of 37 people ahead of mining. The Company is preparing a resettlement action plan (RAP) for this resettlement and this will include livelihood restoration measures for the affected parties. Development of the Banora deposit will involve physical displacement, Nordgold will begin the resettlement planning process shortly.

9.3 Geology

9.3.1 Introduction

This section summarises the current understanding and interpretation of the geological setting of the various deposits that comprise the Lefa gold mine, where this forms the basis for the reporting of the Mineral Resources. The key aspects of the regional and local geology of the various deposits are summarised below.

9.3.2 Regional Geology

The Lefa gold mine lies within the Siguiri Basin, part of the Paleoproterozoic Birimian terrain of the West African Craton. Host lithologies are typically Paleoproterozoic (2.2-2.1 Ga) volcano-sedimentary greenstone belts, metamorphosed to greenschist facies (or higher) and intruded by felsic plutons. Deformation is associated with a system of NE-SW trending crustal-scale ductile shear zones, related to the Eburnean orogeny, a protracted series of orogenic events spanning 2.2-2.0 Ga. These deformation zones are considered fundamental to the development of gold mineralisation.

The Siguiri Basin is broadly rectangular in shape, extending north-south for approximately 220 km before being covered in the north by Neoproterozoic sandstones of the Taoudenni Basin. The width of the basis varies from 130 to 220 km. A major N-S trending bounding fault occurs on the eastern basin margin in western Mali. Sub-parallel structures occur internally within the centre of the basin and are interpreted to be major controls on the basin structure and sedimentation. Lithologies within the Siguiri Basin are relatively pristine clastic sediments which are weakly metamorphosed (sub-greenschist facies) and do not appear to exhibit strong ductile deformation. Localised finely-laminated white and pale yellow limestones occur towards the north of the licence. Three post-Birimian sedimentary packages occur within the Lefa area, namely:

- Neoproterozoic fluvial and shallow marine sandstones;
- Eocene paleo-valley fill loosely consolidated sandstones; and
- post Post-Eocene transported colluvium.

Intrusive lithologies within the basin consist of basic to intermediate sheet intrusives and the Maléa intrusion. Two sets of dykes are identified, corresponding to a swarm which exhibits trends of circa 105-285° and 055-235°. In addition to the dykes, the basin is also intruded by numerous dolerite sills ranging from a few metres to tens of metres in thickness. The Maléa intrusion is a large monzogranite pluton, located approximately 20 km east of the Lefa area, dated to approximately 2.0 Ga in age.

9.3.3 Local Geology

Mineralisation at Lefa is hosted within the “Lefa Corridor” (Figure 9-3), which lies within the Siguiri Basin. This is a zone which is some 10 km wide, underlain by an upper clay rich formation and a lower coarser arkosic layer, with gold occurrences more common in the latter. Apart from younger dolerites and sandstones, there is virtually no fresh outcrop. Often, the stratigraphy is affected by folding which is observed within the pits. Host lithologies for the mineralisation are typically a mixture of sandstones to finer grained mudstones and claystones. Bedding is moderately to steeply dipping and deformation is dominated by discrete faults. The entire stratigraphy has been intruded by massive dolerite dykes and sills, which typically form prominent hills and bluffs. These intrusions are typically thin (<1 m to >10 m) and tend to be fresh dolerites.

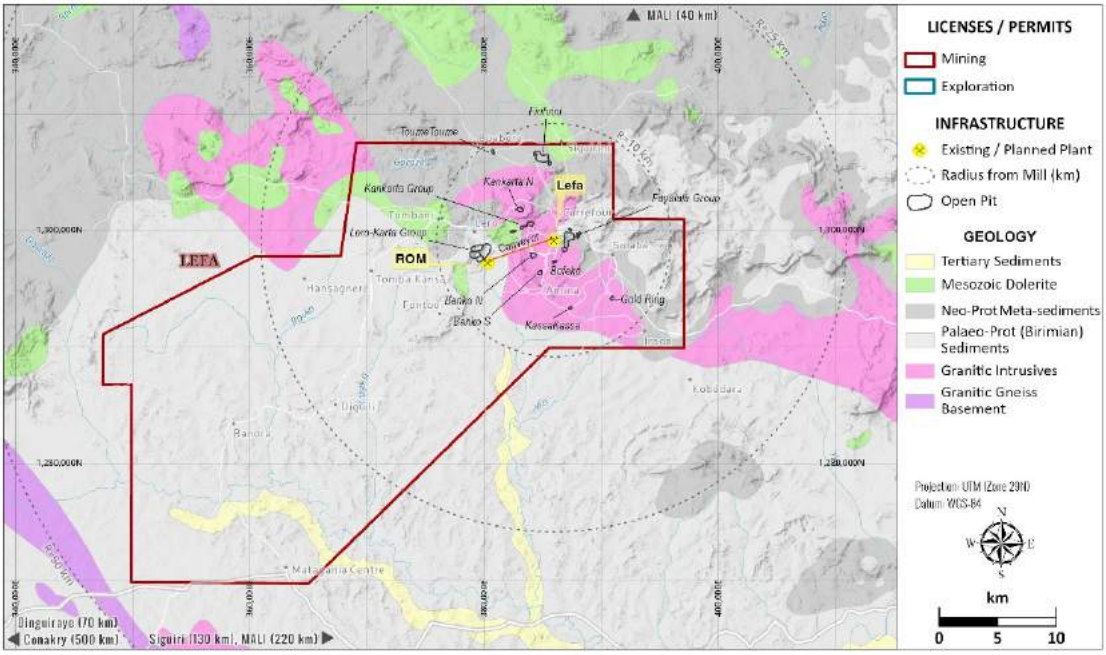


Figure 9-3: Lefa Local Geology

Mineralisation typically occurs in more permeable, altered, coarser grained sediments, within and adjacent to structures and fracture zones. Mineralisation is localised by a combination of lithological and structural controls, and as such, the dip and strike of mineralised zones, and to a lesser extent the style of mineralisation, varies considerably between individual deposits. Gold is often associated with stockwork and sheeted quartz-carbonate sulphide veining, stockworks of albite-carbonate-sulphide veinlets, or as sulphide rich haematitic breccias.

Pyrite is the dominant sulphide species. Gold is largely developed within fractures in pyrite grains, associated with quartz carbonate veining (± sulphides), and albite-carbonate-sulphide veinlets. The degree of sulphidation and silicification can vary. Traces of other sulphides, principally chalcopyrite, galena, pyrrhotite, arsenopyrite, bornite, tennantite, linneite and mackinauwite are present as vein, fracture fill and localised disseminations. Gold grains are rarely larger than 50 µm and is non-refractory. The typical alteration assemblage is albite, quartz, carbonate, pyrite, chlorite, and graphite. Albitisation is known to develop on the contact of faults in the coarser grained sediments but not in finer sediments, due to the reduced permeability.

Deformation and metamorphism appear to have been substantially more subdued within the Lefa Corridor when compared with other West African Birimian terrains. Within the Corridor, the basement stratigraphy is typically sub-horizontal, and fault offsets are rare. Primary mineral assemblages reflect low-grade regional metamorphism and are characterised by broad monoclinal folding.

Extensive weathering and lateritisation has occurred across the project area. Both transported and residual laterites, which can be up to 15 m thick can host gold mineralisation. The base of oxidation extends to over 100 m below surface and may be locally deeper in zones of fracturing and brecciation. The width and grade of primary mineralised zones appear to be little different from their equivalents within the saprolite profile.

9.3.4 SRK Comments/Conclusions

SRK considers that the understanding of the geology of the various deposits which comprise the Lefa mine to be appropriate. SRK notes that the deposits are at varying stages of exploration, through to production, and as such, the level of understanding varies between each. SRK notes that alternative geological interpretations for some of the early stage projects may result in material changes to the declared Mineral Resources, this is to be expected, given the status of the projects, and the information available.

9.4 Mineral Resources

9.4.1 Introduction

SRK has reviewed the Mineral Resource estimates prepared for the Lefa deposits. The estimates were completed by a combination of Nordgold personnel and independent consultants. The key aspects of the Mineral Resource estimates are summarised below.

9.4.2 Exploration History

Exploration

In April 1989 SMD was established as a company, who subsequently commissioned the BRGM to undertake an extensive programme of regional soil sampling following artisanal workings over most of the original Dinguiraye Concession, identifying a number of anomalies, one of which was the Lero-Karta deposit which was subject to a feasibility study in 1993/1994 and the project commissioned in 1995.

Various exploration techniques have been used within the Lefa area, throughout the development of the mine. These techniques include geophysics (radiometrics, gravity and IP surveys), surface sampling, regolith sampling, and mapping. Several structural geology studies have also been conducted, which included geophysical and geochemical interpretation, as well as in-pit and licence wide mapping programmes. Trenching, pitting, and grab sampling are all employed as part of the early stage exploration process, with the data occasionally used to help support Mineral Resource estimates, where appropriate.

Exploration within the Lefa licence area is continuing. Methods include ongoing geophysical surveys, mapping, and exploration drilling. There is a focus on deep drilling, particularly in the Lero-Karta complex, to provide additional information for ongoing PFS level technical studies.

Drilling

Multiple types of exploration drilling have been conducted at Lefa, namely Reverse Circulation ("RC"), Air Core ("AC"), Rotary Air blast ("RAB"), Diamond Drillholes ("DDH"), blast holes ("BH"), water boreholes ("WB") and Auger ("AUG"). A portion of the holes were drilled with RC collar and a DDH tail ("RCD"). The DDH is a mixture of HQ and NQ sized core. Grade control drilling at Lefa is now exclusively undertaken using RC, as shown in Table 9-2. For Mineral Resource estimation, only DDH, RC (including grade control drillholes), and (mostly for the earlier-stage exploration projects) AC is used. Exploration drilling is conducted on sections, orientated, and spaced to best intercept the mineralisation for each individual deposit. The sections can vary between 20 m and 50 m apart, or wider in areas of early exploration. Grade control drilling is conducted on an orientated grid, with drillholes ranging between 7 m and 20 m apart, and is clustered in near surface areas of the deposits which have been mined.

Table 9-2: Lefa Deposits Summary of Exploration and Grade Control Drilling

Deposit	Exploration				Grade Control			
	No. Holes	No. metres	Spacing	Methodology	No. Holes	No. metres	Spacing	Methodology
***Lero Karta OP/UG**	3,644	368,026	variable 25m x 50m	AC (10%), AUG (2%) DD (4%) RAB (3%) RC (67%) RCD (14%)	52,176	858,347	variable7. 5m x 10m	AC (0.1%) AUG (0.3%) BH (17%) RC (83%)
Fayalala East	4,179	372,268	variable 25-100m x 15-50m	DD (2%) RC (91%) RCD (6%)	52,160	931,147	variable 5m x 10m	RC (100%)
Kankarta	2,634	224,699	variable 25-100m x 15-50m	AC (14%) DD (1%) RAB (6%) RC (77%) RCD (3%)	9,398	130,239	variable 5m x 10m	BH (19%) PIT (1%) RC (81%) TR (0.3%)
Toume Toume	294	15,950	Variable: typically 25-50m grid	AC (15%), DD (3%), RAB (4%), RC (76%), RCD (2%)	1,466	29,776	10m x 5m	BH (11%), PIT (0%), RC (89%), TR (0%)
Banora East	3,111	150,996	Variable: typically 25-75m grid	AC (58%), DD (0%), RAB (8%), RC (21%), RCD (5%)	-	-	-	-
Gold Ring	878	31,029	Variable: typically 25-50m grid	AC (15%), DD (0%), RAB (12%), RC (61%), RCD (0%)	811	13,810	10m x 5m	BH (0%), PIT (0%), RC (99%), TR (1%)
Banko South	1,501	95,701	Variable: typically 25-50m grid	AC (6%), DD (2%), RAB (4%), RC (85%), RCD (4%)	14,464	158,289	10m x 5m	BH (37%), PIT (0%), RC (52%), TR (11%)
DTM	688	35,683	Variable: typically 25-40m grid	AC (58%), DD (0%), RAB (8%), RC (21%), RCD (5%)	617	15,026	10m x 5m	-
Sikasso	632	30,208	Variable: typically 30-50m grid	AC (32%), DD (2%), RAB (0%), RC (53%), RCD (0%)	702	13,956	10m x 5m	BH (0%), PIT (0%), RC (99%), TR (1%)
Kassa Kassa	1,680	52,522	Variable: typically 25-70m grid	AC (9%), DD (3%), RAB (2%), RC (73%), RCD (0%)	354	8,864	10m x 5m	BH (0%), PIT (0%), RC (100%), TR (0%)
Dihuili Bougoufe	664	14,336	Clusters of typically 30m to 30x100 m	AC (96%), DD (0%), RAB (0%), RC (0%), RCD (1%)	-	-	-	-
Dar Salaam	532	36,349	Clusters of typically 50m grid	AC (76%), DD (0%), RAB (6%), RC (18%), RCD (0%)	-	-	-	-
Solabe	343	28,195	Variable: typically 30-100m x 12.5-25m	AC (66%), DD (0%), RAB (0%), RC (34%), RCD (0%)	-	-	-	-
Amina	1,175	43,162	Variable: typically 70 x 200m	AC (17%), DD (0%), RAB (1%), RC (45%), RCD (0%)	-	-	-	-
Nyerema	934	68,110	Variable: typically 25-50m grid	AC (22%), DD (0%), RAB (5%), RC (69%), RCD (0%)	278	4,423	10m grid	BH (0%), PIT (0%), RC (100%), TR (0%)
Diguili Central	1,785	71,163	Variable: typically 30-100m grid	AC (38%), DD (0%), RAB (0%), RC (52%), RCD (0%)	-	-	-	-

**Lero Karta UG and OP deposits contain the same drilling database and only differ by a month or so, therefore have been combined in the above table.*

9.4.3 Sampling and Assaying

During exploration, RC samples (exploration and grade control) were collected and split at the drill rig cyclone at 1 m intervals. Typically, primary samples weighed approximately 5 kg, and are split to 2 kg to 3 kg sub-samples using a cone splitter, for delivery to the laboratory. RC chips were logged for lithology, with photographs taken with the chips being both wet and dry.

All core is placed in clean core boxes and sealed for transfer to the core logging facility. Core recovery is measured and in general, core recoveries are very good in saprolite and fresh rock, but recovery decreases closer to surface, in the lateritic material. When the core boxes arrive at the logging facility, the core is logged for colour, lithology, alteration, weathering, veining, structure, and mineralisation. Laterite and saprolite are also logged for colour, composition cohesion, and moisture content. Core is photographed both wet and dry. Dry density measurements were typically taken from core, using standard water displacement or water immersion techniques. Core samples were coated in paraffin wax prior to measurements being taken. Half core samples were collected from core sawn with a diamond saw, or with a knife in soft saprolite material. Sampling intervals were marked by a geologist depending on the logged lithology. Sampling intervals averaged 1 m, although variations to account for lithological boundaries were accounted for during the sample selection.

Samples (exploration and grade control) were prepared at the onsite laboratory, which is operated by SGS (“SGS Lero”). The laboratory is part of the SGS Group of laboratories that operates under a global quality management system accredited to ISO 9001 and participates in international proficiency testing. The onsite laboratory was last audited in 2017. Occasionally, samples were also analysed at SGS in Bamako, using the same methodology. The core and RC sample preparation methodology comprised:

- drying the samples, whether RC chips or core;
- crushing to 85% passing 2 mm, and splitting 500 g sub-sample using a riffle splitter;
- pulverizing the sub-sample to 90% passing 75 µm mesh; and
- two sub-samples of 50 g taken for assay (primary and duplicate samples).

All samples were assayed using a standard fire assay method using a 50 g charge with an atomic absorption spectrometry (“AAS”) finish.

9.4.4 Quality Assurance and Quality Control

The exploration and grade control drilling and sampling programmes are supported by an industry standard Quality Assurance and Quality Control (“QAQC”) system. This includes the incorporation of blanks, duplicates, and certified reference material samples into the sample stream. Certified reference material samples are purchased from Rocklabs. QC assays are checked monthly. The rates at which the QC samples are included are:

- Blanks: 1 in 3, or 1 in 7 for grade control samples.
- Field Duplicates: 1 in 10 or 1 in 20 for grade control samples.
- Certified Reference Materials: 1 in 3, or 1 in 7 for grade control samples.

In addition, Nordgold maintains a library of written procedures and a database management system to ensure the data produced during exploration is of sufficient quality for use in the subsequent Mineral Resource estimates.

9.4.5 Geological Modelling

Geological modelling for the various Lefa deposits is undertaken in Leapfrog. The mineralisation is variable in geometry and orientation, depending upon the host lithology and dominant control. The methodology used to derive the mineralisation models, and the approximate dimensions for each of the deposits is given in Table 9-3. The geological modelling, and grade / tonnage estimation for the Lero Karta deposit is split into two areas, namely the open pit and underground. The model is divided at the base of the USD1,400 optimised shell, as used for reporting open pit Ore Reserves, with open pit Mineral Resources reported above this, and underground, below.

Table 9-3: Lefa Deposits Geological Modelling and Deposit Dimensions

Deposit Name	Geological Modelling Methodology	Deposit Dimensions
Lero Karta OP	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 22 structural trends and pit mapping, 100 m range, 0.3 g/t Au threshold Isovalue of 0.3	Comprised of 5 areas/pits within the larger complex. Open pit and underground sections of the deposit modelled separately. Surface expression - 1.8 x 1.3 km Deepest intersection for mineralisation is 600 m below pre mining topography or 500 m below pit surface
Lero Karta UG	Leapfrog Geo indicator interpolant modelling, using 2 m composites to create two wireframes at 0.3 and 1.0 g/t Au thresholds Spheroidal interpolant, guided by 36 structural trends and 2016 structural pit mapping, Isovalue of 0.4, interpolation range of 300 m, for >0.3 g/t Au and >1.0 g/t Au wireframes	Surface expression - 1.8 x 1.3 km Mineralisation is open at depth in all pits, Karta and Lero South most promising, modelling not restricted by UG/OP reporting limit Deepest intersection for mineralisation is 600 m below pre mining topography or 500 m below pit surface
Firifirini	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 31 structural trends and pit mapping, 30 m range, 0.3 g/t Au threshold Isovalue of 0.3.	Surface expression – 2 x 1.5 km Deepest intersection for mineralisation is 200m below surface Mineralisation in main pit is closed at depth
Fayalala East	Leapfrog Geo indicator interpolant modelling, using 1 m composites Spheroidal interpolant, guided by 47 structural trends and pit mapping, 50 m range, 0.3 g/t Au threshold Global mean trend of -75° with a dip azimuth of 90° also applied Isovalue of 0.3, Laterite zone modelled separately	Comprises approximately 4 separate pits Surface expression – 2 x 2 km Deepest intersection for mineralisation is 330m below surface Mineralisation in main pit is open at depth
Kankarta	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 16 structural trends and pit mapping, 50 m range, 0.3 g/t Au threshold Isovalue of 0.3, 10 m surface resolution	Comprises approximately 8 separate pits Surface expression – 3 x 3 km Deepest intersection for mineralisation is 250 m below surface
Toume Toume	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 35 m range, 0.30 g/t Au threshold Isovalue of 0.4	Surface expression - 0.4 x 0.2 km Deepest intersection for mineralisation is 80m below surface
Banora East	Leapfrog Geo indicator interpolant modelling, using 1m composites	Surface expression - 1.1 x 0.2 km

Deposit Name	Geological Modelling Methodology	Deposit Dimensions
	Spheroidal interpolant, 50 m range, 0.30 g/t Au threshold Isovalue of 0.35	Deepest intersection for mineralisation is 200m below surface
Gold Ring	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 5 structural trends and pit mapping, 50 m range, 0.3 g/t Au threshold Isovalue of 0.3 Laterite zone modelled separately	Surface expression – 1 x 0.4 km Deepest intersection for mineralisation is 120 m below surface Mineralisation in main pit is open at depth
Banko South	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 13 structural trends and pit mapping, 50 m range, 0.3 g/t Au threshold Isovalue of 0.3	2 separate pits Surface expression - 2.5 x 1 km Deepest intersection for mineralisation is 150m below surface
DTM	Leapfrog Geo indicator interpolant modelling, using uncomposited data Spheroidal interpolant, 50 m range, 0.3 g/t Au threshold Isovalue of 0.3	Surface expression - 0.4 x 0.5 km Deepest intersection for mineralisation is 140 m below surface
Sikasso	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 2 structural trends and pit mapping, 50 m range, 0.3 g/t Au threshold Global mean trend of -75° with a dip azimuth of 110° also applied Isovalue of 0.3 Laterite zone modelled separately	Surface expression – 1 x 0.1 km Deepest intersection for mineralisation is 130 m below surface Mineralisation in main pit is open at depth
Kassa Kassa	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, guided by 3 structural trends and pit mapping, 100 m range, 0.3 g/t Au threshold Isovalue of 0.3	3 separate mineralised zones Surface expression - 1.5 x 0.5 km Deepest intersection for mineralisation is 200 m below surface Mineralisation in main area is open at depth
Diguili Bougoufe	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 0.3 g/t Au threshold Isovalue of 0.3	Surface expression - 0.75 x 1 km Deepest intersection for mineralisation is 75m below surface
Dar Salaam	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 0.3 g/t Au threshold Isovalue of 0.3	Surface expression – 2 x 1.5 km Deepest intersection for mineralisation is 120m below surface
Solabe	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 0.3 g/t Au threshold Isovalue of 0.3	Surface expression - 1.5 x 1.4 km Deepest intersection for mineralisation is 150m below surface
Amina	Leapfrog vein modelling visually evident step change in Au grade at HW and FW contacts	Surface expression - 0.8 x 0.8 km Deepest intersection for mineralisation is 150 m below surface
Nyerema	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 0.3 g/t Au threshold Isovalue of 0.3	Surface expression - 1.8 x 1.8 km Deepest intersection for mineralisation is 120 m below surface
Diguili Central	Leapfrog Geo indicator interpolant modelling, using 1m composites Spheroidal interpolant, 0.3 g/t Au threshold Isovalue of 0.3 Laterite zone modelled separately	Surface expression – 2 x 0.4 km Deepest intersection for mineralisation is 225 m below surface
Stockpiles/Heap leach	Modelled using combination of topographic survey, and a lower bounding surface (0.2/0.3 g/t Au threshold)	Surface expression – 1 x 0.75 km

9.4.6 Grade and Tonnage Estimation

Grade and tonnage estimation for the Lefa deposits was undertaken in either Leapfrog or Datamine. The estimates were either completed by external consultants, or Nordgold personnel. The basic parameters used to generate the estimates are reported in Table 9-4. The parameters used for each deposit varied depending on the mineralisation style, and complexity of the deposit in question. In general, the initial search ellipsoids for each deposit were based on the variogram range and rotated to reflect the anisotropy identified during variographic analysis.

Table 9-4: Lefa Deposits Grade and Tonnage Estimation Parameters

Deposit Name	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density Values	Block model validation methodology
Lero Karta OP	1m	Cap of 13 g/t Based on statistical review	Hard boundaries used between waste and mineralisation; no internal boundaries applied	Parent block size: 20m x 20m x 8m Sub-block size: 5m x 5m x 2m No rotation	Variograms: NE between: 20% and 45%, a between: 5m and 376m Min. no. composites: 9 Max. no. composites: 18 Min. drillholes: 3 Search passes: 3, increase factors of 1, 2, and 6 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Lero Karta UG	1m	Variable caps and distance restrictions, per domain (area, regolith and wireframes), Based on statistical review	Hard boundaries between waste and wireframes, though no boundaries between regolith and area domains for samples within 0.3 and 1.0 wireframes respectively.	Parent block size: 15m x 15m x 8m Sub-block size: 1m x 1m x 1m No rotation	Variograms: NE between: 12% and 57%, a between 2m and 175m Min. no. composites: 4 Max. no. composites: 14 Min. drillholes: 3 Search passes: 3, increase factors of 1, 2, and 9 (Dynamic anisotropy applied based off structural trend) Grade estimation: Ordinary Kriging	Laterite: Mineralisation 2.2 t/m^3, Waste 2.2 t/m^3, Dyke 2.2 t/m^3, Saprolite: Mineralisation 1.9 t/m^3, Waste 1.9 t/m^3, Dyke 1.9 t/m^3, Transition: Mineralisation 2.4 t/m^3, Waste 2.4 t/m^3, Dyke 2.3 t/m^3, Fresh: Mineralisation 2.5 t/m^3, Waste 2.75 t/m^3 Dyke 2.6 t/m^3,	Visual checks Swath plots Statistical analysis
Firifirini	1m	Cap of 10 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 20m x 6m Sub-block size: 5m x 5m x 3m No rotation	Variograms: Omnidirectional, NE 25%, a 50m Min. no. composites: 6 Max. no. composites: 16 Min. drillholes: n/a Search passes: 3, increase factors of 1, 1.5, and 3 Grade estimation: Ordinary Kriging	Laterite: 2.25 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots
Fayalala East	1m	Cap of 5 g/t for laterite and 20 g/t for remaining Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 15m x 10m x 4m Sub-block size: 5m x 5m x 4m No rotation	Variograms: Variograms: NE between 50% and 54%, between 9m and 50m Min. no. composites: 6 Max. no. composites: 16 Min. drillholes: 2 Search passes: 3, increase factors of 1, 2, and 4 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis

Deposit Name	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density Values	Block model validation methodology
Kankarta	1m	Cap of 14 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 20m x 8m Sub-block size: 5m x 5m x 2m No rotation	Variograms: NE between 20% and 40%, between 4m and 180m Min. no. composites: 8 Max. no. composites: 20 Min. drillholes: n/a Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Toume Toume	1m	Cap of 10 g/t Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5m x 5m x 3m Sub-block size: not applied No rotation	Variograms: omndirectional, NE: 25%, a: 3.5m Min. no. composites: 4 Max. no. composites: 16 Min. drillholes: not applicable Search passes: 3, increase factors of 1, 2, and 8 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks Swath plots Statistical analysis
Banora East	1m	Cap of 10 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 10m x 10m x 4m Sub-block size: not applied No rotation	Variograms: Variograms: NE between 29% and 38%, between 10 and 50m Min. no. composites: 8 Max. no. composites: 20 Min. drillholes: 3 Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.25 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Gold Ring	1m	Cap of 10 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 10m x 10m x 6m Sub-block size: 2.5m x 2.5m x 1.5m No rotation	Variograms: NE between 31% and 55%, a up to 50m Min. no. composites: 9 Max. no. composites: 20 Min. drillholes: 2 Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks Swath plots Statistical analysis
Banko South	1m	Caps of 10 g/t and 5g/t, per domain Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 20m x 8m Sub-block size: 5m x 5m x 4m No rotation	Variograms: NE 20%, a between 20m and 60m Min. no. composites: 6 Max. no. composites: 16 Min. drillholes: 2 Search passes: 3, increase factors of 1, 2, and 4 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis

Deposit Name	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density Values	Block model validation methodology
DTM	1m	Caps of 6 g/t, 10 g/t and 15 g/t, per domain Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5m x 5m x 4m Sub-block size: 2.5m x 2.5m x 2m No rotation	Variograms: Variograms: NE between 1% and 53%, a up to 60m Min. no. composites: 6 Max. no. composites: 20 Min. drillholes: 2 Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks Swath plots
Sikasso	1m	Cap of 10 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: Variograms: NE between 28% and 37%, a up to 15m Min. no. composites: 8 Max. no. composites: 25 Min. drillholes: 2 Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Kassa Kassa	1m	Cap of 15 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 20m x 8m Sub-block size: 5m x 5m x 2m No rotation	Variograms: Variograms: NE between 35% and 50%, a up to 35m Min. no. composites: 8 Max. no. composites: 20 Min. drillholes: 2 Search passes: 3, increase factors of 1, 1.5, and 2 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Dihuili Bougoufe	1m	No capping reported	Hard boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: not applicable Min. no. composites: 4 Max. no. composites: 20 Min. drillholes: not applicable Search passes: 1, no increase in size Grade estimation: IDW2	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks
Dar Salaam	1m	No capping reported	Hard boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: not applicable Min. no. composites: 4 Max. no. composites: 20 Min. drillholes: not applicable Search passes: 1, no increase in size Grade estimation: IDW2	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks

Deposit Name	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density Values	Block model validation methodology
Solabe	1m	No capping reported	Hard boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: not applicable Min. no. composites: 4 Max. no. composites: 20 Min. drillholes: not applicable Search passes: 1, no increase in size Grade estimation: IDW2	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks
Amina	1m	Caps of 1 g/t, 7.5 g/t, 2.5 g/t, 3.5 g/t, 1.5 g/t and 2 g/t, per domain Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5m x 5m x 4m Sub-block size: not applied No rotation	Variograms: not applicable Min. no. composites: 1 to 3 Max. no. composites: 9 to 18 Min. drillholes: not applicable Search passes: not applicable Grade estimation: IDW2	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks
Nyerema	1m	No capping reported	Hard boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: not applicable Min. no. composites: 4 Max. no. composites: 20 Min. drillholes: not applicable Search passes: 1, no increase in size Grade estimation: IDW2	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks
Diguili Central	1m	Cap of 10 g/t Based on statistical review	Soft boundaries between all estimation domains	Parent block size: 20m x 10m x 8m Sub-block size: 5m x 2.5m x 2m No rotation	Variograms: Variograms: NE between 21% and 58%, a up to 20m Min. no. composites: 9 Max. no. composites: 30 Min. drillholes: 2 Search passes: 3, increase factors of 1, 2, and 6 Grade estimation: Ordinary Kriging	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.65 t/m^3	Visual checks Swath plots Statistical analysis
Stockpiles/Heap leach	1m	No capping reported	Hard boundaries between all estimation domains	Parent block size: 10m x 10m x 4m Sub-block size: not applied No rotation	Variograms: Variograms: not applicable Min. no. composites: not applicable Max. no. composites: not applicable Min. drillholes: not applicable Search passes: not applicable Grade estimation: Nearest Neighbour	Laterite: 2.2 t/m^3 Saprolite: 1.7 t/m^3 Transition: 2.4 t/m^3 Fresh: 2.5 t/m^3	Visual checks

9.4.7 Mineral Resource Classification

Classification of Mineral Resources varied slightly between deposits. The classification applied for each of the individual deposits is typically based on the understanding of geological and grade continuity, data quality, and the spacing of the available drilling. The typical classification scenarios are described below. In some areas, these broad guidelines maybe varied to account for variations between individual deposits.

- Measured Mineral Resources – areas drilled at a spacing of less than 25 m, typically relating to mineralisation located adjacent to open pit mining operations, where for the operating mines this is typically supported by close-spaced (10 m) grade control information.
- Indicated Mineral Resources – typically in areas covered by drillholes at a 25 x 25 m spacing or less.
- Inferred Mineral Resources - typically in areas covered by drillholes at a spacing of greater than 25 x 25 m spacing, up to a maximum of approximately 75 x 75 m.

9.4.8 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Lefa (Table 9-5) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 9-5, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design and within the optimised MSO shapes for the underground portion.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.22-0.48 g/t Au CoG, and underground Mineral Resources are presented at a 1.40 g/t Au CoG, based on a long term Au price of USD1,750/oz. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 104-113% dilution and 91-96% recovery, and 81-92% processing recovery depend on material type per pit, open pit mining cost of USD1.14-2.46/t, processing cost of USD7.22-20.79/t dependent on pit location and lithology, G&A at USD3.14/t_{ore}. Sustaining capital of USD0.33/t mined and USD0.74/t processed.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

Table 9-5: Lefa Consolidated Mineral Resource Statement as at 31 December 2020

			Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
Mineral Asset	**Deposit**	**CoG Au (g/t)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**
Lefa	Lero Karta OP	0.22 - 0.32	-		-	21,167	1.12	759	21,167	1.12	759	756	0.88	21	21,923	1.11	781
	Lero Karta UG Crown Pillar	1.40	-	-	-	500	2.23	36	500	2.23	36	1,220	2.48	97	1,720	2.40	133
	Lero Karta UG	1.40	-	-	-	4,358	2.77	388	4,358	2.77	388	9,955	2.39	766	14,313	2.51	1,154
	Firifirini	0.31	-		-	6,289	1.08	219	6,289	1.08	219	894	1.15	33	7,183	1.09	252
	Fayalala East	0.29	-		-	34,478	0.78	866	34,478	0.78	866	4,867	1.07	167	39,345	0.82	1,033
	Kankarta	0.33	-		-	5,127	1.23	202	5,127	1.23	202	733	1.10	26	5,860	1.21	228
	Toume Toume	0.33	-		-	234	1.04	8	234	1.04	8	600	1.16	22	834	1.12	30
	Banora East	0.48	-		-	2,655	1.51	129	2,655	1.51	129	480	1.57	24	3,135	1.52	153
	Gold Ring	0.31	114	1.35	5	493	1.38	22	606	1.38	27	136	1.81	8	742	1.46	35
	Banko South	0.30	-		-	1,023	1.16	38	1,023	1.16	38	618	1.26	25	1,641	1.19	63
	DTM	0.28	24	1.84	1	223	1.93	14	247	1.93	15	159	1.81	9	406	1.88	25
	Sikasso	0.32	130	1.19	5	680	1.08	24	810	1.10	29	306	1.09	11	1,116	1.10	39
	KassaKassa	0.33	41	0.86	1	917	1.12	33	959	1.11	34	484	1.41	22	1,443	1.21	56
	Dihuili Bougoufe	0.40	-		-	-	-	-	-	-	-	210	1.22	8	210	1.22	8
	Dar Salaam	0.32	-		-	-	-	-	-	-	-	801	1.04	27	801	1.04	27
	Solabe	0.31	-	-	-	-	-	-	-	-	-	179	0.99	6	179	0.99	6
	Amina	0.28	-	-	-	-	-	-	-	-	-	503	0.95	15	503	0.95	15
	Nyerema	0.28	-	-	-	330	1.00	11	330	1.00	11	111	1.09	4	441	1.02	14
	Diguili Central	0.43	-	-	-	3,045	1.03	101	3,045	1.03	101	3,125	0.73	73	6,170	0.88	174
	Stockpiles / HL		-	-	-	12,559	0.58	234	12,559	0.58	234	-	-	-	12,559	0.58	234
	Lefa Total		**309**	**1.25**	**12**	**94,078**	**1.02**	**3,083**	**94,387**	**1.02**	**3,095**	**26,137**	**1.62**	**1,365**	**120,524**	**1.15**	**4,460**

9.4.9 SRK Comments and Recommendations

In general, for the Lefa deposits, there are certain areas where SRK notes that data quality or block model refinements are warranted; however, these are not considered material issues. SRK considers that any impacts on the block model would be considered to have generally small volumetric significance. These include the following observations and recommendations:

- SRK notes the potential occurrence of a small to moderate number of QAQC mainly CRM sample ID mix-ups. Further investigation is recommended to address this issue ahead of future exploration drilling; however, given that multiple samples are used to estimate block grades, any assay anomalies are likely to be averaged. Furthermore, the deposits that have been mined and have support from mining reconciliation are based on drilling that have been analysed using the same protocols at the same (on-site) laboratory, suggesting no overall material issues with laboratory performance.
- There are a small number of poorly informed mineralised lenses based on one or two exploration drillhole intercepts, mainly located at the deposit peripheries (or the less well drilled parts of early-stage exploration projects) which should be excluded from the current MRE and would currently be better suited to exploration targets.
- Downgrading (to Inferred) of the small, poor continuity features/ lenses picked up in GC drilling at the base/ edge of the pits, currently classified as Measured or Indicated, but better suited to Inferred based on low confidence in the grade continuity in these areas.
- Exclude from the current indicator interpolant mineralisation wireframes the small number of internal lenses/ discs that result in local exclusion of low-grade intercepts (below modelling cut-off), which have the potential to locally bias grade estimates towards high grades.
- Conduct further infill drilling in the small number of areas where there are possible collar and assay discrepancies between early AC and later RC drilling (resulting in locally anomalous geometries), where material currently classified as Indicated would be better suited to Inferred.

Further to the general comments, SRK makes the following specific comments as identified for specific deposits:

Lero Karta OP

- SRK considers the block model to be a reasonable representation of the mineralisation at the deposit above the current USD1,400 pit shell used to support the Ore Reserve studies, however below this surface the interpretation becomes less robust. For these reasons SRK does not consider it appropriate to report a Mineral Resource below this surface using the open pit model, where this has been superseded by the separate Lero Karta Underground (“UG”) model.
- Nordgold has not replaced absent sample intervals, presumed to be waste with waste values in either the geological modelling or grade estimate processes. This impacts some 4% of the total drilled metres, but typically occurs in deeper exploration holes. As such, the impact on the OP Mineral Resources is minor, and largely superseded by the UG modelling and Mineral Resource estimation.

- Areas of the model have been classified as Indicated based on very few drillhole intercepts and wide drillhole spacing (between 40 m and 70 m), although SRK notes that this has been addressed in the UG portion of the model, and as such, is not material to the reported OP Mineral Resources.

Lero Karta UG

- Additional infill drilling is being undertaken in areas of the UG model classified as Inferred to increase the confidence in the geological continuity and associated grade estimates in these areas.
- Additional exploration drilling is being undertaken to increase the known mineralisation extents of the model and or identify where mineralisation terminates.
- Expand the reconciliation studies to incorporate the UG model.

Firifirini

- SRK notes that the capping strategy applied to produce the block models is conservative.
- The use of the indicator approach for modelling the wireframes may have resulted in non, or weakly mineralised samples being included, which could lead to the wireframes being extended in some areas. This may lead to the overstatement of tonnages. SRK would recommend these areas be reviewed to ensure that mineralisation is being modelled appropriately in the future.

Fayalala East

- SRK considers the block model to be a reasonable representation of the mineralisation at the deposit and that the techniques used to derived grade and tonnage estimates and the Mineral Resource classification applied to be free from material bias or error; however, SRK has identified some areas where wireframes may have been extended beyond the limits of the existing drilling. SRK does not consider this to be material, as this falls outside of the classified Mineral Resources, and therefore only has minimal impact on the up-dip continuity/interpretation. SRK would recommend these areas be reviewed to ensure that mineralisation is being modelled appropriately in the future.

Kassakassa

- SRK notes that a reasonable proportion of the material classified as Inferred Mineral Resources at depth relates to a structurally complex feature where there are also potential differences observed between RC and DD drilling data. SRK does not consider this be a material concern given the low confidence nature of this part of the model; however, significant targeted infill and verification drilling will be required in this area before it will be possible to consider elevating it to higher resource confidence levels.

9.5 Mining and Ore Reserves

9.5.1 Current Mining Operations, Operating Strategy and Mining Fleet

The Lefa gold mine operates a typical modern open pit operation with drilling and blasting followed by load and haul allowing for selective mining of the ore. The material lithologies are divided into four main categories Laterite, Saprolite, Transition and Fresh. Saprolite and Laterite are also referred to in combination as oxide material. SMD has taken over the ownership and operation of the mining fleet as well as undertaking the mine planning, scheduling, grade control, surveying and quality control.

There are currently 28 trucks with a payload of 100 t used for production from the open pits, supplemented by eight 40 t trucks to assist with stockpile loading. Assumed cycle times average 24 minutes.

Total production for 2020 was 40 Mt (33 Mt waste; 7 t ore), with 37 Mt planned in 2021, comprising less waste (28 Mt) and an increase in ore production to 9 Mt. Waste stripping will continue to reduce according to both the Ore Reserve Case and the Base Case SBP. The current fleet capacity is sufficient, with only rebuilding and some replacement capital necessary over the remaining period of the Base Case LoMp to Q1 2030.

Current mining operations at Lefa are focused on various open pits. Figure 9-4 displays the layout of the Lero Karta and Fayalala complex. Total planned mining production, as per the Base Case schedule, from 2021 onwards is approximately 36 Mtpa going down to 28 Mtpa from 2025 to 2028 after which it tapers down to the end of the LoM in 2031.

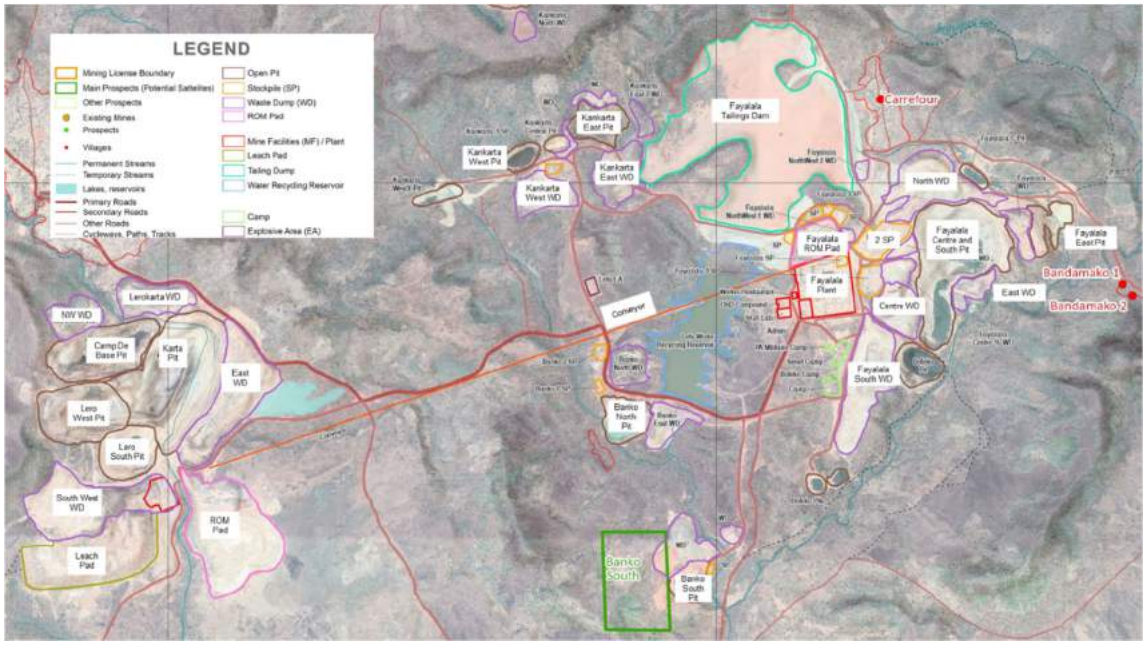


Figure 9-4: Lefa Mine Layout: Main Lero Karta and Fayalala Mining Areas

9.5.2 Historical Mining Production

Total tonnage mined since 2018 has been approximately 40 Mtpa, with the ore tonnes going up from 6.2 Mt in 2016 to 7.0 Mt in 2020 at an average grade of around 1.05 g/t Au. The average stripping ratio of the combined pits was below 5 except for in 2019. Historical production for the Lefa operation is presented in Table 9-6.

Table 9-6: Lefa Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Open pit						
Total Mined	(kt)	26,473	34,539	38,155	41,104	40,045
Waste Mined	(kt)	20,336	28,076	31,466	34,349	33,062
Ore Mined	(kt)	6,137	6,463	6,689	6,755	6,983
	(g/t Au)	1.07	1.13	1.08	1.06	1.02
	(koz Au)	211	234	221	230	230
Stripping ratio	(t_{waste}:t_{ore})	3.31	4.34	4.70	5.09	4.73

9.5.3 Open Pit Geotechnical Considerations

The Lefa gold mining complex in Guinea is formed of a number of open pits of varying degrees of maturity. The largest open pit is the Lero-Karta-Camp de Base operation which is the main source of ore and mines both oxide and fresh material. The Fayalala, Banko, Kankarta and Firifirini open pits also mine oxide and transition/fresh material while the remaining open pits mine oxide only. The oxide pits vary in size but are generally small.

A characteristic of the sandstone and siltstone protoliths is that relics of the rock fabric, bedding and jointing are typically retained in the regolith. The saprolite and transitional zone rocks may thus have anisotropic strength. In very weak siltstone and sandstone saprolite the very low shear strength of the intact material approaches that of the relic defects and it may be appropriate to assume isotropic mass-strength. In general, the fresh rock within the pits can be considered Fair to Good with slope design and performance controlled by structural related instability rather than rock mass failure.

A recent photograph of the Lero South pit is presented in Figure 9-5.

Figure 9-5: Lero South Pit looking South

All open pits have been assigned specific mine design criteria to allow for mine planning. Slope angles within the Saprolite, Transition and Fresh have been based on minimal geotechnical data and analyses. While the proposed slope angles in the Transition and Fresh material appear to be appropriate, slope angles in saprolite have been designed on the assumption that the Saprolite slopes will be depressurised.

SRK understands that no slope depressurisation has taken place in the past, and neither is it clear if the Saprolite slopes can be depressurised given recharge and transient conditions. In addition, slope angles for the smaller satellite oxide pits have been extrapolated from the slopes of Lero pit (with the exception of some minor adjustments). Table 9-7 presents the slope design criteria for the Lero-Karta-Camp de Base operations.

Table 9-7: Lero, Karta and Camp de Base Slope Design Criteria used to Develop 2020 LoM Pits

Pit	Slope	Regolith	BFA (°)	BH (m)	B Width (m)	IRA (°)	Max. Stack Height(m)	GT Berm Width (m)
Karta	North	Laterite	45	8	4	34	32	10
		Saprolite	35	8	4	27	48	10
		Saprolite (below 376mRL)	45	8	4	34	48	10
		Transition	60	16	8	43	32	10
		Fresh	70	16	8.5	48	80	15
Karta	East	Laterite	45	8	4	34	40	13
		Saprolite	35	8	4	28	43	
		Saprolite (below 376mRL)	45	8	4	35	45	
		Transition	60	16	8	46	40	10
		Fresh	75	16	8	52	80	13
Karta	West	Laterite	45	8	4.5	33	10	15
		Saprolite	45	8	4.5	33	40	10
		Transition	55	16	8	42	40	10
		Fresh	75	16	8	49	80	13
Camp de Base	North	Laterite	40	8	5.5	28	40	30
		Saprolite	40	8	5.5	28	40	20
		Transition	50	16	8	42	40	12
		Fresh	75	16	8	49	80	14
Camp de Base	East	Laterite	45	8	4	34	40	30
		Saprolite	45	8	4	34	40	11
		Transition	60	16	8	46	40	11
		Fresh	75	16	8	52	80	13
Camp de Base	South	Laterite	40	8	4	31	40	30
		Saprolite	45	8	4	34	40	20
		Transition	55	16	8	42	40	12
		Fresh	75	16	8	52	80	16
Lero West	West	Dev	20	20	6	18	40	
		Laterite	30	8	4.5	24	40	30
		Saprolite	44	8	4.5	32	40	20
		Transition	60	8	5	40	80	10
		Fresh	64	16	8	45	80	
Lero West	East	Laterite	45	8	4	34	40	30
		Saprolite	45	8	4	34	40	
		Transition	60	8	5	40	40	
		Fresh	75	16	8	52	80	
Lero South	East/West	Laterite	40	8	4	31	40	10
		Saprolite	45	8	4	34	40	
		Transition	60	16	8.5	45	40	10
		Fresh	75	16	9	50	80	14

The following range of inter-ramp angles have been used to design the remaining pits within in the Lefa mining complex:

- Laterite 28° to 37° (46° at Fayalala South and West Slopes)
- Saprolite 27° to 37° (24° at Fayalala North Slope)
- Transition 34° to 41° (46° at Fayalala South, East and West Slopes)
- Fresh 49° to 55°

Within the current operations, transition and fresh rock slopes appear stable with regards to large-scale instability. Where present, instability is controlled by the presence of adversely orientated, persistent structures which on occasion has resulted in multi-bench instability and risk to haul roads.

A number of the operations have experienced significant failures within the Boulder Laterite and Saprolite slopes. Such failures have caused significant operational challenges in the past. The failures are a result of design that is forced to make a number of assumptions with regards material strength, remnant structure and pore pressure. It should be noted that not all saprolite slopes exhibit significant failure.

Development of structural, lithological, rock mass and hydrogeological models will enable a more robust geotechnical model to be developed. Whilst large scale geotechnical data collection is not necessary at every pit, a more thorough understanding of the saprolite strength and the effects of transient pore pressure are required to ensure robust slope designs are implemented.

SRK has been engaged by the Company to develop and assist in the implementation of a standard set of industry best practice Ground Control Management Plans (“GCMP”), Surface Water Management Plans (“SWMP”) and Ground Water Management Plans (“GWMP”) for each of the operations. As such, SRK will be working to incorporate the current processes used at Lefa into the new plans, define gaps and assist Nordgold to put in place actions plans to resolves these gaps in knowledge.

9.5.4 Mine Water Management

There are two principal surface water catchment areas within the concession, the Karta river and the Siguiriniko river. Both rivers run SSE, converging to the south of the mining operations.

A surface water channel was built in the mid-2000s to divert the Karta river around Lero and Karta pits and accommodate proposed pit expansions. The diversion runs along the northern and eastern slopes of the Karta pit, within the saprolite at approximately 390 masl. In 2016, the channel failed and overtopped after a series of high-intensity rainfall events which resulted in significant flooding of Karta pit. Several seepages along major structures were also recorded on the pit slope below this diversion during a site visit in 2016. The channel has since been widened in some sections and is maintained on an annual basis as per recommendations made by a review by SRK in 2017, although it is not currently lined.

There are four main hydrogeological units present at Lefa, a superficial laterite and saprolite with intergranular flow properties overlying a weathered bedrock transition zone and bedrock, where groundwater flow through geological structures (faults, fractures, joints) dominates.

Pit slopes are sensitive to pore water pressures at Lefa and transient pore pressure changes during the wet season frequently produce minor pit slope instability, especially in the weaker Saprolite. Slope stability analysis for the site assumes dry slopes which is not valid and could lead to an overestimation of the stable pit slope angles; however, the Company currently has work planned to review the hydrological and hydrogeological understanding of the site and produce plans for pore water pressure monitoring. This work will be undertaken as part of a wider scope of general ground control management improvements, including the production of updated ground control, groundwater and surface water management plans.

Sump dewatering mostly comprises surface water runoff with modest groundwater inflows of between around 60 $m^{3/}$day (in Campo De Base Pit) up to around 323 m^3/day (in Karta pit). According to a review by Weir in 2019, pumps used in pit sumps are undersized for all pits at Lefa, which is likely impacting on mining production.

9.5.5 Open Pit Mine Design and Planning

For future planning and operations going forwards at Lefa, Nordgold uses its Base Case Design and associated schedule, which can be considered equivalent to the LoMp. The Base Case Design and schedule is comprised of the 2021 BP (as prepared in Q3 2020) for the first year, and the Strategic BP for 2022 onwards (as prepared in Q4 2020 and Q1 2021). Further description of Nordgold's planning process is presented in Section 2.4 "Nordgold Technical Study Standards and Planning Process".

The Base Case designs and schedules include Inferred material, which is captured within a USD1,400 pit shell or MSO stope shapes that define the long-term mine planning economics. The inventory within the Base Case is thus not an Ore Reserve. In order to constrain Ore Reserves, Nordgold has undertaken a separate Ore Reserve Case exercise, which only includes Measured and Indicated Resources in the optimisation and associated design and schedule. The Ore Reserve Case Design (including pushbacks and ramps) defines the open pit that contains the Proved and Probable Ore Reserves, and the Ore Reserve Case schedule demonstrates that the Ore Reserves are economically viable on a stand-alone basis, and is supported by an integrated financial model that includes a mineral processing schedule and recoveries, and all operating and capital costs. Nordgold does not mine to the Ore Reserve Case Design and schedule. The Base Case Design and schedule includes the full inventory of Ore Reserves, but the Ore Reserve Case is not simply a sub-set within the Base Case and the schedules may differ, based on economic and practical planning considerations.

SRK's due diligence process in reporting Ore Reserves at Lefa is therefore as follows:

- review optimisation parameters and Mine Planning Assumptions ("MPA") for the Ore Reserve Case (LTP USD1,400);
- review Ore Reserve Case Design and Ore Reserves inventory in the USD1,400 pit shell;
- review Base Case schedule and associated financial model to assess technical feasibility and economic viability for Ore Reserves sign-off;
- review Base Case Design and schedule to present the Company's LoMp and overall project economics.

Cut-off Strategy

The cut-off grade (CoG) calculation is done based on the economic assumptions, mining modifying factors, processing recoveries and processing costs with the main components listed in Table 9-8. From these, the marginal CoG are calculated for each material type. Further to this, grade bins for each material lithology type was defined as set out in Table 9-9. If the CoG is higher than the minimum of a grade bin, this becomes the new minimum for the grade bin, for some pits this can eliminate the marginal and low grade bin for a certain material type.

Table 9-8: Lefa Cut-off Grade Parameters

Parameter	Lat	Sap	Trans	Fresh
Gold Price (USD/oz)	1400	1400	1400	1400
Selling Cost (USD/oz)	85	85	85	85
Refining Cost USD/oz)	1.00	1.00	1.00	1.00
Royalty (%)	6.00	6.00	6.00	6.00
Metallurgical Recovery (%)	83-88	81-92	85-88	83-89
Total Mining Cost (USD/t mined)	1.79 to 2.52	1.14 to 1.88	1.60 to 2.33	1.73 to 2.46
Grade Control (USD/t milled)	0.35 to 0.71	0.45 to 0.92	0.32 to 0.65	0.29 to 0.59
Stockpile REH (USD/t milled)	0 to 8.80	0 to 8.80	0 to 8.80	0 to 8.80
General & Admin. (USD/t milled)	3.14	3.14	3.14	3.14
Other (USD/t milled)	1.29 to 1.56	1.18 to 1.56	1.43 to 1.56	1.35 to 1.56
Treatment Costs (USD/t milled)	6.48	5.21	7.87	10.05
Total Ore Based Costs (USD/t milled)	11.53 to 20.42	10.36 to 19.25	12.89 to 21.77	15.04 to 23.93
Mining Sustaining (USD/t mined)	0.33	0.33	0.33	0.33
Process Sustaining (USD/t milled)	0.74	0.74	0.74	0.74
Cut-off grade (g/t Au)	0.31 to 0.57	0.27 to 0.54	0.35 to 0.61	0.40 to 0.69

Table 9-9: Lefa Ore Grade Bins

Material	Lat	Sap	Trans	Fresh
High Grade Ore	1.2	0.81	1.2	1.2
Medium Grade Ore	0.9 to 1.19	0.66 to 0.80	0.9 to 1.19	0.9 to 1.19
Low Grade Ore	0.65 to 0.89	0.50 to 0.65	0.65 to 0.89	0.65 to 0.89
Marginal Ore	CoG to 0.64	CoG to 0.49	CoG to 0.64	CoG to 0.64
Mineral Waste	0.29 to 0.34	0.22 to 0.29	0.32 to 0.40	0.43 to 0.51
Waste	< 0.29	< 0.22	< 0.32	< 0.43

Modifying Factors for Mine Design

The modifying factors for the Lefa design are shown in Table 9-10.

Table 9-10: Lefa Modifying Factors

Parameter	Unit	Value
Minimum Mining Width Ore	m	20
Dilution	%	104 to 113
Mining Recovery	%	72 to 113
Bench Height	m	3 to 8
Face Angle	°	30 to 75
Berm Width	m	4 to 9
Ramp Width – Double Lane	m	23
Ramp Width – Single Lane	m	15
Ramp Gradient	%	10

Ore Reserve Case Mine Design

The pit designs for Lefa are shown in Figure 9-6, Figure 9-7 and Figure 9-8. The pits have been designed based on the geotechnical parameters presented in the previous section. The ramps have been designed at a gradient of 10% at 23 m width. The mining benches are between 6 m and 8 m high and are loaded out in 3 m and 4 m fletches.

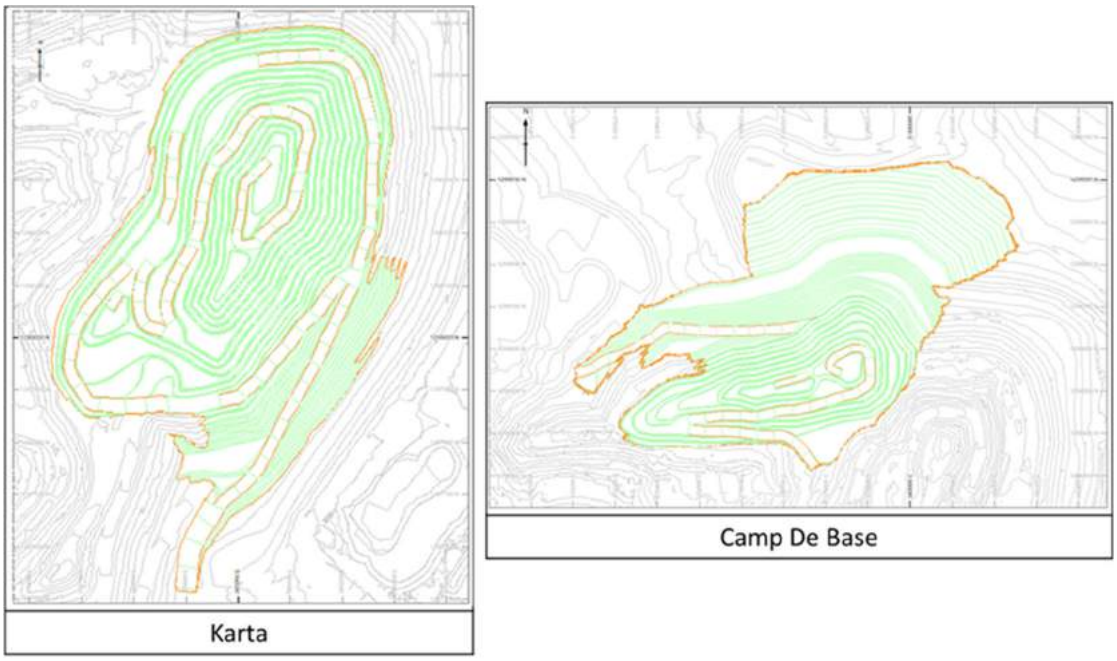


Figure 9-6: Lero Karta Mine Pit Design (Ore Reserve Case and Base Case) (Nordgold 2021)

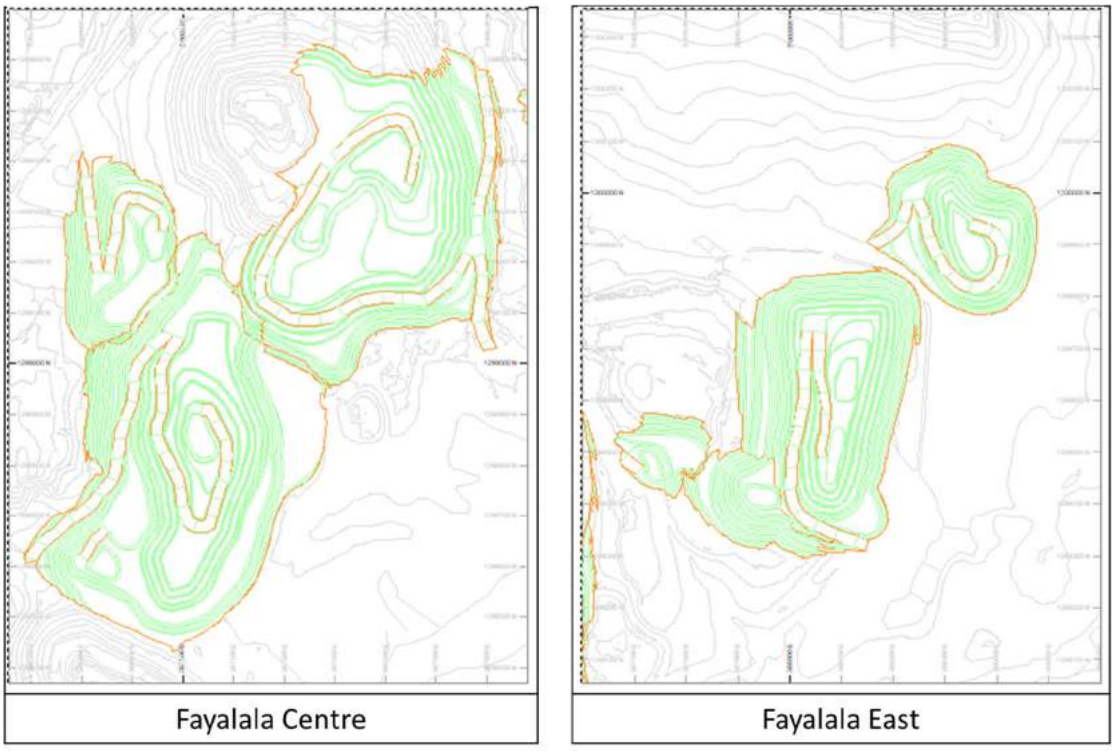


Figure 9-7: Fayalala Mine Pit Design (Ore Reserve Case and Base Case) (Nordgold 2021)

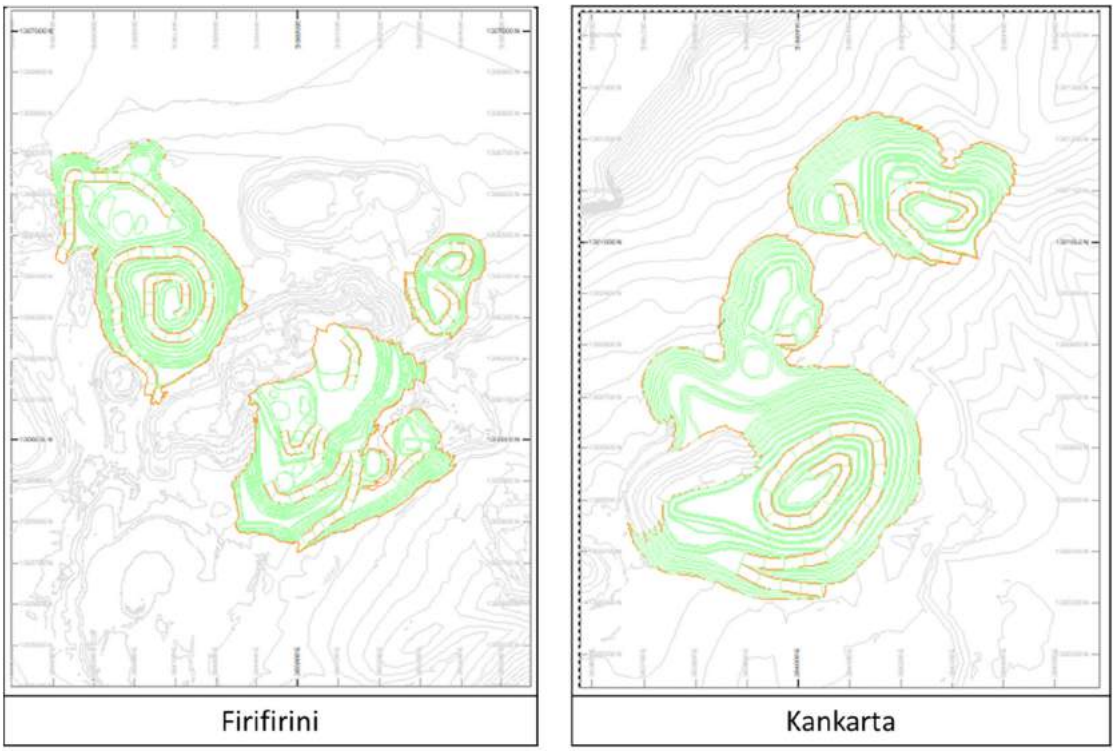


Figure 9-8: Firifirini and Kankarta Mine Pit Design (Ore Reserve Case and Base Case) (Nordgold 2021)

Base Case Life of Mine Plan

The Base Case Design and schedule is comprised of the 2021 Business Plan (BP) (as prepared in Q3 2020) for the first year, and the Strategic Business Plan for 2022 onwards (as prepared in Q4 2020 and Q1 2021). Further description of Nordgold's planning process is presented in Section 2.4 "Nordgold Technical Study Standards and Planning Process".

Table 9-11 shows the Base Case LoMp forecast for the Lefa open pit.

Table 9-11: Lefa Forecast (2021 to 2029) Mining Production Statistics for Base Case LoMp

Statistics	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Mined	(kt)	200,792	37,423	33,394	32,936	32,354	20,907	13,540	13,639	9,799	6,183	616
Waste	(kt)	144,005	28,024	24,166	25,746	26,363	15,243	8,727	8,748	5,119	1,870	-
Ore[1]	(kt)	56,787	9,400	9,228	7,190	5,992	5,664	4,813	4,891	4,680	4,313	616
	(g/t Au)	1.22	0.91	0.95	1.12	1.25	1.43	1.36	1.47	1.41	1.53	1.94
	(koz Au)	2,221	276	282	258	241	260	210	231	212	212	38
Stripping ratio	(t_{waste}:t_{ore})	2.5	3.0	2.6	3.6	4.4	2.7	1.8	1.8	1.1	0.4	0.0

SRK Comments

The Base Case LoMp includes 6.8 Mt at a grade of 0.6 g/t Au from stockpiles which represents 13% of the total ore mined during the life of the mine. The Base Case LoMp also includes 10.8 Mt ore from the Lero Karta Underground area which is not in the Ore Reserves. The Ore Reserve represents 86% of the Base Case LoMp Ore tonnes.

9.5.6 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 9-8. The Audited Ore Reserve Estimate as of 31 December 2020 is shown in Table 9-12.

In reporting the Ore Reserves as stated in Table 9-12, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.28-0.58 g/t Au CoG based on a long term gold price of USD1,400/oz within a final pit design. Applied open pit mining factors are 104-113% dilution and 91-96% recovery, and 81-92% processing recovery depend on material type per pit, open pit mining cost of USD1.14-2.46/t, processing cost of USD7.22-20.79/t dependent on pit location and lithology, G&A at USD3.14/t_{ore}. Sustaining capital of USD0.33/t mined and USD0.74/t processed.
3. Ore Reserves have demonstrated economic viability.
4. The pit inventories were constrained within the Company's existing LoM pit designs.
5. The Ore Reserve comprises a mine life of approximately 9 years.
6. Ore Reserves are presented on a 100% basis.

Table 9-12: Lefa Gold Mine Ore Reserve Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Proved			Probable			Proved + Probable		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Lefa	Lero Karta	0.3	-	-	-	10,362	1.1	370	10,362	1.1	370
	Fayalala	0.3	-	-	-	12,407	0.8	319	12,407	0.8	319
	Kankarta	0.3	-	-	-	2,322	1.2	91	2,322	1.2	91
	Firifirini	0.3	-	-	-	3,307	1.0	108	3,307	1.0	108
	Banko South	0.4	-	-	-	104	1.7	6	104	1.7	6
	GoldRing	0.4	80	1.1	3	277	1.1	10	357	1.1	13
	Banora	0.4	-	-	-	1,028	1.4	45	1,028	1.4	45
	Toume Toume	0.6	-	-	-	137	1.0	4	137	1.0	4
	Diguili Central	0.3	-	-	-	2,313	1.1	78	2,313	1.1	78
	Kassa Kassa	0.5	-	-	-	180	1.5	9	180	1.5	9
	Sikasso	0.4	101	0.8	3	10	1.0	0	111	0.9	3
	Nyerema	0.4	-	-	-	123	0.8	3	123	0.8	3
	Total Ore Mined		**181**	**0.9**	**6**	**32,571**	**1.0**	**1,042**	**32,751**	**1.0**	**1,048**
	LK Stockpiles		-	-	-	2,541	0.6	46	2,541	0.6	46
	Fayalala Stockpiles		-	-	-	4,259	0.6	78	4,259	0.6	78
	Total Stockpiles		-	-	-	**6,800**	**0.6**	**124**	**6,800**	**0.6**	**124**
	Heap Leach		-	-	-	5,659	0.6	109	5,659	0.6	109
	Total Lefa		**181**	**0.9**	**6**	**45,029**	**0.9**	**1,275**	**45,210**	**0.9**	**1,281**

9.5.7 SRK Comments and Recommendations

In the opinion of SRK, the Ore Reserves estimate prepared for Lefa Open Pit Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

The Ore Reserves are contained within the Lefa Base Case pit designs and this drives the Base Case schedule. Inclusion of Inferred material in the Base Case pushbacks increases the overall size of the Lefa pits, but only marginally, and this does not affect the overall practical mining or geotechnical considerations.

As stated in Section 9.5.3, all open pits have been assigned geotechnical mine design criteria to allow for mine planning. Slope angles within the Saprolite, Transition and Fresh have been based on minimal geotechnical data and analyses. While the proposed slope angles in the Transition and Fresh material appear to be appropriate, slope angles in Saprolite have been designed on the assumption that the Saprolite slopes will be depressurised. Historically, there have been failures which have caused operational challenges.

The risk of these failures happening in the future can be mitigated by development of structural, lithological, rock mass and hydrogeological models and will enable a more robust geotechnical model to be developed. All of these areas are included in the Nordgold standard GCMP currently under development for all sites. Whilst large scale geotechnical data collection is not necessary at every pit, a more thorough understanding of the Saprolite strength and the effects of transient pore pressure are required to ensure robust slope designs are implemented.

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

9.6 Mineral Processing

9.6.1 Process Description (Flowsheet)

The Lefa process plant treats non-refractory oxidised saprolite and transitional and fresh saprock hosted gold ore through a conventional carbon-in-pulp (“CIP”) circuit, producing doré on site.

The plant is a second hand facility that was relocated from Indonesia. It commenced production at Lefa in 2007. The plant was expected to have a capacity of 6 Mtpa for an ore blend consisting of 25% Oxide and 75% Fresh rock, or up to 7.2 Mtpa for a more typical ore blend of 40% Oxide and 60% Fresh rock.

The key unit processes are:

- Crushing: There are two primary crushing station, one adjacent to the plant that treats ore from the Fayalala pit, and one distant that treats ore from the Lero-Karta pit. Each crushing station consists of a jaw crusher that is preceded by a vibrating grizzly. Crushed ore from Lero-Karta is transported to the Fayalala site via a 6 km overland conveyor. The crushers are designed to direct feed the mills; however, both crushers can feed a single emergency stockpile.
- Grinding: The grinding circuit consists of two 8.4 m diameter, 3.2 m long SAG mills (3500 kW each) and two 5.5 m diameter, 7.3 m long ball mills (3500 kW each). The mills operate as parallel lines of one SAG and one ball mil, with one line fed from the Fayalala crusher and the other from the Lero-Karta crusher. It is possible, however, for either SAG mill to be fed from either crusher, and for the circuit to operate with one SAG mill and one or both ball mills offline, depending on operating and maintenance requirements. The SAG mills are closed circuited with a pebble recycle circuit, and a pebble crusher was installed on this recycle line in the third quarter of 2018. The ball mills are close circuited with hydrocyclones, with one cyclone installation per ball mill. The target grind size is 75%

passing 106 μm.

- Cyanidation: The cyanidation circuit consists of 12 tanks. The tanks are all of the same diameter; however, they decrease in height down the train, giving volumes ranging from 4200 m^3 in the first tank to 3000 m^3 in the last. The circuit has a residence time of 24 hours at 6 Mtpa. The circuit is operated in CIP format, with the first six tanks for leaching and the last six for adsorption, although in order to improve carbon gold loadings carbon can be directed into tank 4 from which flows concurrently with the slurry into tank 6. The tanks are fitted with Kemix interstage screens, and carbon is transferred using recessed impeller pumps.
- Tailings: Tailings are pumped to the TSF without thickening.
- Metal recovery: Gold is recovered from the loaded carbon in a conventional Anglo American Research Laboratory ("AARL") elution and electrowinning circuit. Elution is based on a 10 t carbon batch size and the circuit is sized for one elution cycles per day. Metal is electrowon using three electrowinning cells, and the cathode sludge is filtered then smelted using a diesel fired smelting furnace. There are three electrowinning cells.

A heap leach was also commissioned in 2007; however, it was largely unsuccessful due to percolation, and hence recover, problems caused by high clay contents in the ores placed on the heap. The "spent" leach pad material is now considered a potential ore source for the CIP plant.

9.6.2 Supporting Metallurgical Testwork

Metallurgical testwork was undertaken in support of the DFS for the project in 2004, testing samples of ore from Lero-Karta and Fayalala as well as some of the satellite orebodies. Preliminary testwork on ore samples from Firifirini was undertaken by Wardell Armstrong International ("WAI") in 2008, and further testwork was undertaken by Mintek, AMMTEC and WAI in 2012 on ore samples representing the expected ore feed over the period 2012-17.

The initial (DFS) testwork showed that Au recoveries approaching 95% were possible for Oxide ores, reducing to around 90% for Fresh ores. The gravity-recoverable component ranged from 10% to 45%. The WAI testwork on Firifirini ores showed high recoveries (94-95%) for both Oxide and Fresh material, but with relatively low gravity recoveries (10-12%). The 2012 AMMTEC testwork tested composite samples from Firifirini and Toume Toume, generally returning Au recoveries of the order of 95%. The 2012 WAI testwork confirmed the behaviour of Fayalala ore, however testwork on Banora ore indicated that it was refractory.

Ore hardness testwork showed a very wide range of hardness values from very soft Oxide material to very hard Fresh material.

Since 2013, the site metallurgical laboratory has conducted approximately 900 bottle roll leach tests on numerous ore sources, varying parameters such as grind size and testing the effect of reagents such as peroxide and lead nitrate. Some work has also been conducted at external labs such as UMT, Tarkwa, Ghana. Samples of spent heap leach pad have also been tested.

Table 11-20 summarises the testwork conducted initially at the external labs, then in more recent years largely at the site laboratory. Where head grade a reshown, they are averages for all of the tests conducted on the particular ore source and type.

Table 9-13: Lefa Project Ore Testwork Results Summary

Orebody	Type	Au Head Grade (g/t)	Au Recovery (%)
Testwork at external labs until 2012			
Fayalala	Laterite		97.3
	Oxide		94.2
	Fresh		89.6
Lero-Karta	Laterite		96.2
	Oxide		92.3
	Fresh		89.7
Firifirini	Oxide		93.9
	Fresh		94.8
	Combined		96.4
Banko			94.2
Kankarta			92.6
Pharmacie			92.0
Tambico			94.8
Toume Toume	Saprolite		84.1
	Combined		94.9
Testwork since 2013			
Fayalala	Saprolite	2.79	91.7
	Transition	0.57	77.7
	Fresh	1.56	83.4
Lero-Karta	Laterite	1.09	83.0
	Saprolite	3.27	86.1
	Transition	1.88	81.0
	Fresh	1.60	85.3
Firifirini	Saprolite	1.53	90.2
	Transition	1.56	89.1
	Fresh	4.01	85.7
Banko	Laterite	0.76	83.5
	Saprolite	3.66	67.0
Banora	Transition	2.39	86.8
	Fresh	2.47	82.6
Camp de Base	Fresh	2.29	84.0
DTM	Laterite	0.92	84.1
Gold Ring	Saprolite	1.00	88.3
Kankarta	Fresh	0.74	86.7
Karta	Saprolite	2.29	80.6
	Transition	3.01	81.0
	Fresh	1.44	83.9
Kassakassa	Saprolite	2.88	93.3
	Fresh	4.20	84.0
Lero West	Saprolite	1.25	87.3
	Transition	4.02	90.3
Sikasso	Saprolite	2.04	91.4
Toume Toume	Saprolite	2.79	87.9
Heap Leach		0.67	77.8

9.6.3 Historical Operating Data

Annual plant operating data for the period 2016 to 2020 is shown in Table 11-21.

Table 9-14: Lefa Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	6,599	6,911	6,181	6,026	5,791
Au Head Grade	(g/t)	1.05	1.09	1.08	1.14	1.09
Au Recovery	(%)	87.7	86.7	87.4	85.8	86.4
Au Produced	(koz)	195	209	188	190	176
Operating Cost	(USD/t)	9.25	9.53	11.74	11.98	11.25

9.6.4 Forecast Operating Data

Summary forecast annual plant operating data for the Ore Reserve Case and Case LoMPs are shown in Table 9-15. The Ore Reserve Case processes a maximum of 6.2 Mtpa and ceases mining in Q1 2027, with additional processing from lower grade stockpiles to end 2028. The Base Case has a similar profile, but with mining extended to H1 2030 and lower grade stockpile feed to the plant from then on to end 2031.

Table 9-15: Lefa Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	45,210	63,587
Gold Grade	(g/t Au)	0.88	1.15
	(koz Au)	1,281	2,345
Gold Recovery	(%)	84.8%	84.5%
Doré Produced	(kg)	33,774	61,595
	(koz Au)	1,086	1,980

9.6.5 Discussion

The Lefa processing circuit is of conventional format and is consistent with the testwork on which its design was based. The plant was thoroughly reviewed to ensure it was suited to the processing duty required of it treating the Lefa ores – this included the additional of what was a spare ball mill for its previous duty. High gravity recoveries in the ores tested as part of the project design lead to the incorporation of a gravity circuit in the early years, but due to operational issues the circuit was decommissioned and has now been dismantled.

For several years the plant was plagued with availability problems due to the use of second-hand equipment, compounded by supply chain difficulties, however at this point the underlying issues appear to have been adequately addressed and the plant has been able to achieve and at times exceed the target 6 Mtpa throughput at this stage. The inclusion of a pebble crusher was proposed for several years before being finally installed in 2018 as a means of maintaining throughput as the proportion of Oxide ores in the feed mix decreased due to ore availability.

The extreme range of ore hardness exhibited across the orebodies has led to difficulties in operating the SAG circuit, where too much Fresh ore in the feed significantly reduces the possible throughput; however, some proportion of Fresh ore is required to maintain a load in the mills and to provide ore media.

Due to lower head grades than what the design was based on, and slightly lower recoveries, metal production in recent years has been well below the design capacity of the metal recovery circuit of approximately 350 kozpa.

Figure 9-9 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as recoveries from the testwork results on Oxide, Transition and Fresh ore. The historical and forecast data are annual figures for 2007 to 2015 inclusive and 2022 onwards, and monthly figures for 2016-2021 inclusive. The historical data shows a relatively narrow range of recoveries, varying from 82% to 93%, with a general trend of recovery increasing with increasing head grade. Comparing these figures with the testwork data, the variation is within the range of testwork results shown, which do not vary significantly between Oxide, Transition and Fresh ores. The forecast recoveries are similar or towards the lower end of the range of historical values; this is likely to be due to processing a greater proportion of less metallurgically favourable ores going forward.

The MPA spreadsheet lists recoveries for each orebody and ore type (Oxide, Fresh etc). These are shown in Table 9-16.

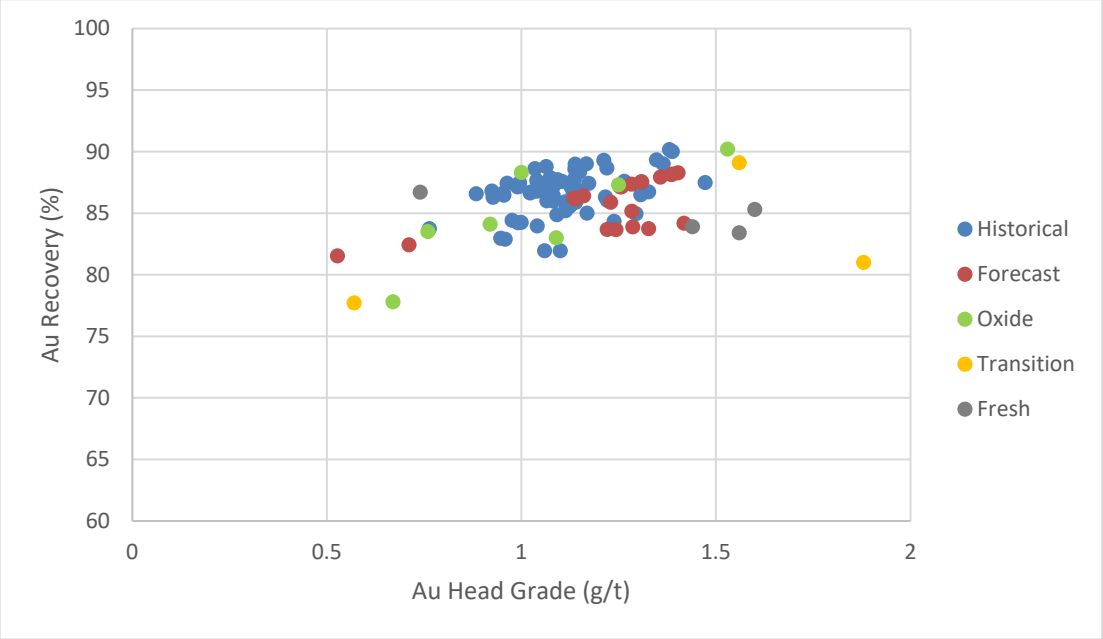


Figure 9-9: Lefa Gold Recovery versus Head Grade

Table 9-16: Lefa MPA Forecast Recoveries

Orebody	Au Recovery (%)			
	Laterite	Saprolite	Transition	Fresh
Lero-Karta	88	90	88	89
Kankarta	88	90	88	89
Banko	83.5	81.3	85	85
Fayalala	88	90	88	84
Firifirini	88	92	88	89
Toume Toume	88	92	88	89
DTM	88	90	88	89
Kankarta Far West	88	90	88	89
Gold Ring	88	90	88	89
Banora East	85	85	85	82.6
Banora West	85	85	85	82.6

Orebody	Au Recovery (%)			
	Laterite	Saprolite	Transition	Fresh
Sikasso	88	90	88	89
Diguili Centre	85	85	85	85
KassaKassa	88	90	88	89
Dare Salam	85	85	85	85
Solabe	85	85	85	85
Hansagnere	85	85	85	85
Nyerema	85	85.9	84.6	84.0
Diguili Boufe	85	85	83.6	85
Diguili North	85	85	83.6	85
Diguili South	85	85	83.6	85
Bouremfe	85	85	83.6	85
Fayalala West	85	85	83.6	85
Fello	85	85	83.6	85
Tikoni	85	85	83.6	85
Fontou	85	85	83.6	85
Heap Leach	70	70	70	70

SRK expects that there is a more metallurgical data that supports these figures in addition to that which has been covered in this review. The forecast recoveries for the main orebodies and those with the most testwork reported, Lero-Karta, Fayalala, Kankarta, Banko, Firifirini and Banora, generally align with the reported testwork recoveries, although not all weathering types have been tested in each case, also noting that the “post 2013” results listed in Table 9-16 are average figures rather than maximum or optimum figures. For the orebodies with no testwork report, i.e. those in the bottom half of the list in Table 9-16, recoveries appear to be assumed and are at the low end of the range for those samples with adequate testwork reported, i.e. 84-85% recovery for all weathering types. The forecast recoveries for the spent heap leach material appear to be reasonable if not slightly conservative.

In summary, the forecast recoveries are generally supported by the testwork that has been reviewed, however there is a lack of data for several of the listed ore types.

The operating costs slightly higher than benchmark costs for a plant of a similar configuration and capacity. While the unit cost for site generated power will be relatively high, this will be offset somewhat by low labour costs.

The operating costs in the MPA spreadsheet are based on 2019 plus 9 month 2020 actual costs, with a reduction applied for Oxide and Transition ore and a supplement applied for Fresh ores. Costs are also designated per orebody depending on haulage distance, whether it is conveyed from Lero-Karta, rehandling and a contribution to grade control drilling.

9.7 Tailings Storage Facility

9.7.1 Introduction

The tailings storage facilities at Lefa consist of two valley impoundment TSF, located immediately west of the plant site. TSF No.1 has reached terminal capacity and is no longer used for tailings storage. Banko Tailings Storage Facility is currently in operation, providing storage until December 2021 (Figure 9-10).

Knight Piésold (2019) report that two of the as-built TSF embankments, namely the Tambico embankment and Kankarta causeway, exhibit low slope stability Factors of Safety ("FOS") at or below recommended guidelines (specifically ANCOLD 2012). The TSF facility has not been developed in accordance with the design intent for several years and due to a number of ongoing embankment stability concerns, further raising of the facility is not recommended.

There is currently a detailed design in place covering future construction of a third facility, referred to as TSF No.2. Construction of this facility is due to commence during 2021. The TSF No 2 design provides sufficient storage capacity for up to 68 Mt of tailings from 2021.

The latest design report (Knight Piésold, 2020) indicates that the Stage 7 downstream raise will provide sufficient capacity to store 45 Mt of tailings produced from the Ore Reserve Case. The facility will require construction to Stage 11 to provide storage capacity for the 64 Mt of tailings produced under the Base Case.

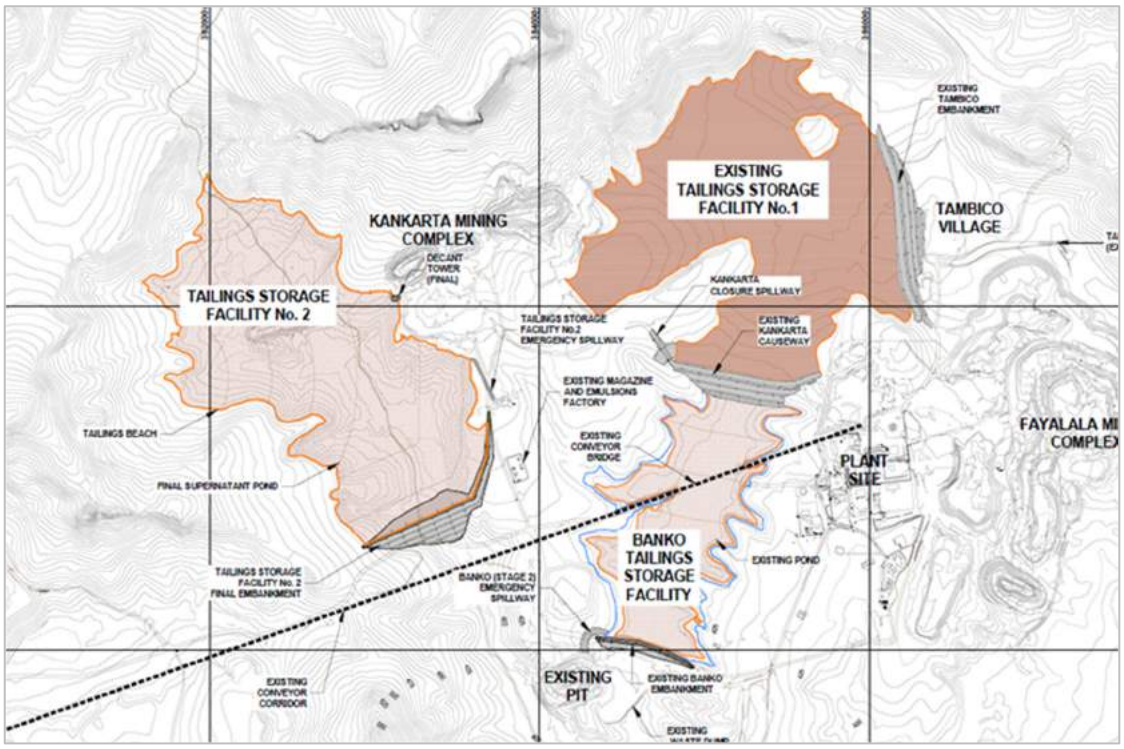


Figure 9-10: Lefa Existing and Planned Tailings Storage Facilities

9.7.2 TSF Design

TSF No.1 was commissioned in 2007 and has been used for tailings deposition continuously since that time (approximately 12 years). The last embankment raise construction was completed in late 2018 / early 2019.

The Tambico Embankment (located to the NE of the facility) has been constructed to approximately 30 m above the existing ground level. Originally, all raises were constructed using the upstream method, predominantly in a series of 2.0 m lifts. Lifts were constructed using locally won low permeability fill (saprolite soils). The original downstream slope was over steepened, being constructed with a slope gradient of 1V:1.5H in places. During 2018, a rockfill buttress was constructed with a 1v:3.5H overall downstream slope. This was necessary as the main embankment did not meet the required FOS against slope failure.

The Kankarta Causeway was originally designed as a downstream raised facility, with the first embankment raise being constructed of low permeability material. Three subsequent raises have been constructed since then, using the modified centreline method. All downstream slopes were over steepened and as per the main embankment, a waste rock buttress was installed during 2018 to reduce slope inclinations to acceptable values. All embankment raises have been constructed using run of mine waste rock material. Significantly, it is noted that the Kankarta downstream buttress has been constructed on previously deposited tailings material, deposited in the Banko Tailings Facility to the south.

During 2019, Knight Piésold was engaged to review survey and vibrating wire monitoring data obtained from both TSF No.1 embankments and the Banko Embankment. The data had been collected over a six-month period. No significant displacements or changes in porewater pressure were noted by KP at that time. Knight Piésold recommended that regular surveys of both embankments continued, to check the rate of displacements (horizontal and vertical) on each embankment section.

9.7.3 Stability Analysis

Stability analysis was undertaken by Knight Piésold for TSF No.1 Kankarta Causeway, Banko TSF Embankment and TSF No.2 embankments, as part of the 2020 detailed design for TSF No.2. Both Effective Strength Analysis (“ESA”) and Undrained Strength Analysis (“USA”) were undertaken, adopting credible estimation of post-peak strength; therefore, design analysis is in accordance with accepted international practice.

ESA parameters and geometries are considered to be representative of as-built conditions through the existing and future planned embankments. Conservative USA parameters have been assumed in potentially liquifiable materials (i.e. historical tailings which underly the buttress of TSF No.1 Kankarta Causeway).

The analysis took into account the presence of a layer of previously deposited tailings beneath the Kankarta Causeway. Results indicate that adequate factors of safety were obtained using both peak and post-peak undrained strength parameters in this material and hence the buttressed as designed appears to be appropriate.

Scenarios were also analysed which included high water levels (2.0 m from the crest). These all returned acceptable FOS values, but indicates the importance of maintaining drained conditions adjacent to the main embankments. Knight Piésold recommends that additional penstocks should be considered in the upstream slope of the tailings, to reduce the phreatic surface adjacent to the Kankarta Causeway.

9.7.4 Hazard and Risk Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
    - Meteorological events: **Medium**. Significant upstream catchment area in all facilities, so storm accumulation likely to be an issue. This should be managed with freeboard and the proposed future spillway designs (not yet constructed).
    - Seismic events: **Low.** Area of low seismicity.

- Human attacks: **Medium.** Villages located nearby; potential to have ingress of local population.

- Internal:
  - Water or tailings barrier: **Medium.** Upstream raise dam (TSF No.1 and Banko embankments); large pond extending close to the perimeter walls; previous issues related to rapid placement of upstream raises on previously deposited material. Embankments have been buttressed with significant volumes of waste rock, which has partially alleviated this issue.
  - Hydraulic structures: **Medium.** Decant capacity unlikely acceptable for operations; no spillway; reliant upon freeboard for storm water management.
  - Electrical and mechanical, including automation, protection and controls, communications: **Medium.** Communications likely challenging, potential for vandalism/theft.

The following key risks have been identified upon completion of this review:

- Overtopping: **Medium.** Assuming that design freeboard is maintained at all times; however, water balance must be checked and confirmed (note the large footprint pond covering the TSF upper surface).
- Piping/internal erosion: **Medium**. Large waste rock buttresses have been installed on the downstream slopes of as-built embankments, which have coarse filters only (consisting of -500 mm diameter rockfill). No fine filters have been installed, the requirement for these should be checked, to further mitigate the risk of piping through the waste rock material. Nordgold reports that drainage towers with pumps have been installed on the upstream slope of the Kankarta Causeway during Q1 2021, which will partially alleviate this risk.
- Slope instability/loss of strength: **Medium.** Calculated FOS values (Knight Piésold) meet international requirements; however, previous raises have been constructed over the pond and/or saturated tailings zones; latest stability analysis indicates FOS values are broadly acceptable; however, close monitoring of TSF No.1 and Banko embankments is required to confirm. Presence of low strength tailings beneath the TSF No.1 Embankment buttress is of concern.
- Contaminated seepage and/or dust: **Low.** The TSF is unlined; however, there is low permeability compacted saprolite in the foundations materials across much of the site.

9.7.5 Comments

As part of the 2020 design for TSF No. 2, Knight Piésold estimated capital and sustaining capital costs associated with all proposed construction activities (to provide storage for 68 Mt of tailings). The latest Ore Reserve Case and Base Case schedules include provision for processing of an additional 45 Mt and 64 Mt of tailings. This requires construction of TSF No.2 to the stage 7 raise elevation for the Ore Reserve Case (USD22.3m) and the Stage 11 elevation for the Base Case (USD31.6m).

Nordgold has included allowance for modifications to the TSF No.1 and Banko TSF embankments to ensure continued safe storage of tailings of USD1.3m. This includes allowance for emergency spillway construction and final raise construction at Banko TSF, plus installation of a drainage tower adjacent to the Kankarta main embankment.

Finally, Knight Piésold has estimated a combined closure and rehabilitation cost for all three TSF, which equates to USD25m. This is marginally higher than the current provision of USD21.3m included in the current Nordgold rehabilitation budget for the TSF. An additional USD3.7m may be necessary to make up this shortfall.

9.8 Infrastructure and Logistics

The Lefa mine is an operating asset and, as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- potable water supply, waste, and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility (HFO and Diesel) and supplier operated by fuel supplier under contract; and
- explosives storage facility.

The Lefa Mine and processing operation is currently powered by a standalone HFO powerplant consisting of 8 generators with a nameplate installed capacity of 36 MW; however, in recent times the available power has reduced due to the age of the plant and related reliability issues which has the potential to impact production. To mitigate this risk, Nordgold has committed to the construction of a new HFO powerplant. Construction for the new powerplant has commenced with commissioning planned in Q4 2021. The new powerplant will provide both a reliability of power supply and will optimise the cost of generation. Nordgold estimates that installation of the new HFO powerplant will reduce processing costs by approximately USD1.0/tonne.

9.9 Human Resources

Nordgold has provided the following breakdown of staff at the Lefa Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2031. Mining finishes in early 2030, with stockpiles feeding the plant for the remainder of the Life of Mine, hence the commensurate reduction in staff.

Table 9-17: Lefa Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Lefa	1,306	1,287	1,240	840	43	38	44	41

9.10 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Lefa mine has a health and safety management system that is being aligned with ISO 45001:2018. The mine is targeting certification of conformance to this standard in 2022.

Table 9-18 summarizes the key health and safety indicators for the Lefa mine.

Table 9-18: Lefa Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	1221/981	1242/978
Lost time injury frequency rate (“LTIFR”)*	0.00/0.20	0.00/0.007
Total recordable injury frequency rate (“TRIFR”)**	3.85/2.70	2.70/0.74
Lost Time Accident Days (LTAD)	0/17	0/18
Fatalities	0/0	0/0
Lost Time Incidents (“LTI”)	0/3	0/1
Medical Treatment Incidents (“MTI”)	5/4	4/1
First Aid Incidents (“FAI”)	15/23	7/16
Near Misses	4/29	4/6
Unsafe Conditions, Fixed	32/45	51/73

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

9.11 Environmental and Social Matters

9.11.1 Environmental and Social Studies Completed

No ESIA was conducted for the original mine development in the 1990s, but numerous social and environmental studies have been carried out in the last two decades. An EIA was carried out by Knight Piésold in 2004 for the construction and operation of the CIP plant and TMF and the report was approved in 2005. The baseline information in this document has been relied on for many subsequent studies, such as the TSF extension assessment carried out by Croix Verte in January 2020. Further smaller scale assessments have been completed for the extension of the Firifirini and Toume-Toume pits in 2011 and for the new power generating facility for the mine in 2020.

9.11.2 Environmental and Social Setting

The location of the mine and climate are outlined in Section 9.1. Of relevance to the social and environmental management is the seasonal nature of the rains which results in the requirement to manage large volumes of water at specific times of the year associated with tropical rainfall and conversely dust management in the dry season when hot dry winds blow from the north (Harmattan).

The mine sits within the upper reaches of the Niger River catchment. The principal operating areas of Fayalala and Lero Karta are drained by two rivers that have their sources immediately to the north of the open pits. The rivers drain to the south and in the case of the Karta River are diverted around the Lero-Karta open pit complex (Figure 9-11). All rivers from the concession drain towards the Tinkisso River which is a tributary of the Niger.

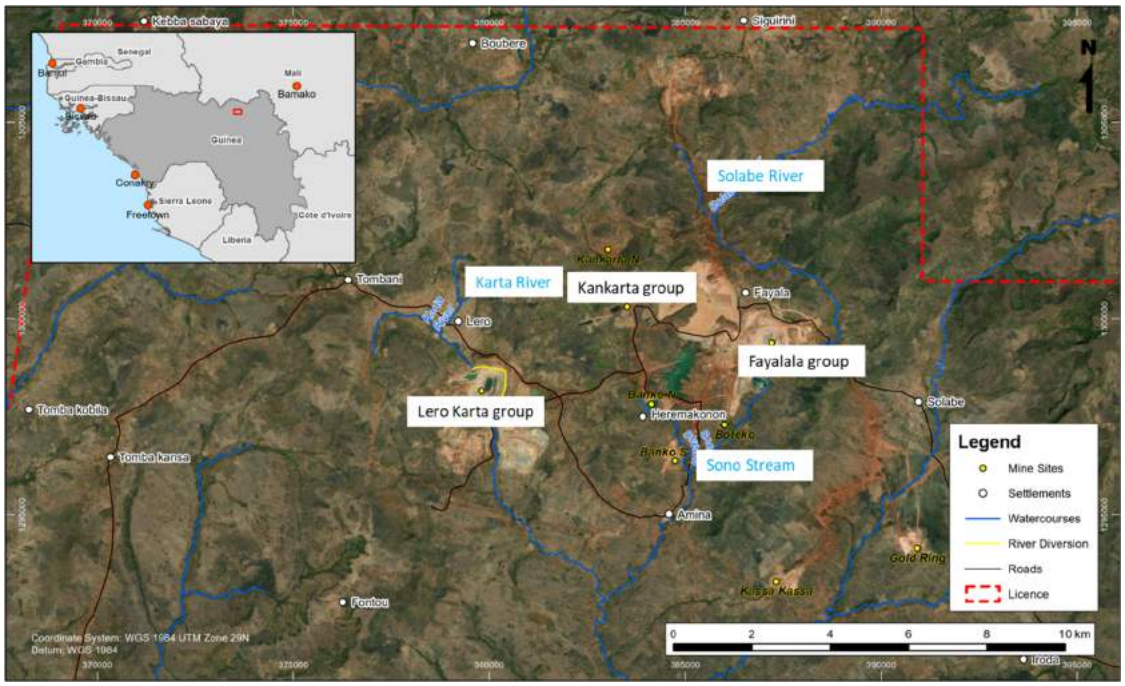


Figure 9-11: Lefa Main Operating Areas and Drainages

Vegetation within the mine area is typically savannah grassland with areas of woodland. Patches of dense shrubs and wooded savannah exist primarily along the drainage channels. The flatter ground typically has less wooded areas probably due to clearing for agriculture and/or flooding during the wet season.

Wildlife is limited due primarily to the effects of hunting and forest clearing. Larger mammals native to the region are in danger of local extinction and their presence within the region is extremely rare. The 2004 EIA baseline suggest the biological environment has few sensitive receptors in the vicinity of the mine due to human pressure on habitats and wildlife.

The town of Lero is immediately adjacent to the main Lero-Karta operations. As is typical of mines in West Africa, the local population has grown extensively over the last 20 years as a result of in-migration due to socio-economic opportunities linked to the mine. Lero village expanded from a population of less than 100 to over 8,200 residents between the mid-1990s and 2014.

Livelihoods of people not employed directly or indirectly by the mine are heavily reliant on subsistence farming and agriculture. There is one village (Amina) located immediately downstream of the Fayalala complex on the Solabé River.

9.11.3 Approach to Environmental and Social Management

Management Systems

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Lefa mine has an environmental management framework that is being aligned with ISO 14001:2015. The mine is targeting certification of conformance to this standard in 2022.

Key points about the existing management systems are given below.

- Human rights training is undertaken.

- The impact management plans are too generic.
- Tracking of compliance obligations needs improvement.
- Monitoring of impacts needs improvement so there is more focus on tracking impacts on surrounding and downstream land users and water users and habitats.

The Lefa mine has an HSE department consisting of an HSE Manager and 11 superintendent and officer/technicians.

SRK has reviewed an HSE report dated 11 March 2019 and three government inspection reports, two dated 2019 and one from December 2020, carried out by BGEEE. The October 2019 reports had findings relating to the management of non-mineral waste, the storage of reagents and the management of hydrocarbons around mobile equipment and workshops. A number of similar recommendations are repeated in the 2020 report. The mine reports that these matters are being addressed.

Stakeholder Engagement and Community Development

Lefa has a stakeholder engagement plan and contributes to various community programs that provide regular local stakeholder engagement opportunities. Lefa has a conflict prevention and management plan and a complaints handling procedure.

SMD has a series of ongoing community investment initiatives in the sounding villages and towns. The focus of the efforts is linked to education, health services and provision of water in the villages but also extends to local infrastructure projects.

Community expectations of the mine are high, and while the mine regularly engages the local community, the 2019 and 2020 BGEEE inspection reports recommend even more proactive engagement. The mine is responsive to these recommendations.

Initiatives to Reduce the Carbon Intensity of Operations

Nordgold has several initiatives in place to reduce the carbon intensity of its operations, as outlined in Section 3.5.2. A specific initiative at Lefa mine is the establishment of a new efficient power plant, which is to be completed by the end of 2021. This is expected to reduce fuel consumption for electricity generation by 15% and engine oil by 30%, resulting in a 17,000 t reduction of greenhouse gas emissions per year (CO_2-eq).

9.11.4 Resettlement

The mine undertakes resettlement in accordance with its resettlement framework as outlined in Section 9.2.3. The RAP for the Carrefour resettlement was completed in December 2020. Economic resettlement of land users at the site of Diguili pit is being planned and will be undertaken in 2021. SMD are recording and following up on issues raised by the community as a result of the access road construction. Physical resettlement of people living at the Banora site needs to be completed in early 2023; the resettlement planning has not commenced yet but is planned for 2021. SMD recognises the importance of carrying out resettlement to international standards and will need to take this into account in the scheduling of resettlement relative to the mine planning requirements.

9.11.5 Other Issues

Artisanal Mining

In Guinea artisanal and small-scaled mining ("ASM") remains a key source of revenue for some local communities. ASM does occur across the Siguiri region and within the Lefa concession area. Understanding the risk of the potential conflicts with the artisanal miners, SMD has established dialogue with the local ASM communities. This takes the form of awareness campaigns with a focus on safety and the environmental impacts of the use of mercury. These campaigns allow SMD to mitigate the risks of conflicts with the artisanal miners.

Water Quality and Quantity

As described above, Lefa has a water monitoring program in place and it is intended that follow up actions being required when exceedances are recorded will form part of the SWMP. The existence of a historical heap leach pad that has not been formally closed or rehabilitated raises questions about long-term leaching to groundwater from this facility. SRK understands that this facility may be reworked and the rock excavated as a lower grade mill feed.

SRK understands that excess water from the mine is discharged to the environment without treatment and there is no requirement for a specific discharge permit. There is no evidence of a site wide water balance and no groundwater model to assess mining impacts on water supplies for the mine or surrounding users. The 2004 Knight Piésold EIA report suggests groundwater will be impacted within a 2 to 3 km radius of the open pits but SRK is not aware of any update or confirmatory modelling having been carried out. SRK understands that Nordgold intends to undertake further water studies to improve water governance at the mine site.

Nordgold also intends to undertake further work on ARDML potential at the mine.

9.11.6 Closure

There is a closure plan for Lefa mine that was developed by Knight Piésold in 2004. This has been used as the basis for subsequent closure planning and closure cost updates. SRK understands that SMD is in the process of developing a more detailed and updated closure plan that should be available in early 2021.

A review of the Lefa mine closure plan and cost estimate was undertaken by Micon in February 2020. This review was focused on checking the legal and policy obligations as well as the asset retirement obligation ("ARO") estimate for the mine. The review also commented on the adequacy of the LoMp. Micon noted that general improvements need to be made to the closure plan, including:

- The closure plan is conceptual and requires updating. This should include clearer reference to closure obligations in permits, licences and agreements and commitments made in public reports.
- Improvement of the vision for closure, including stakeholder engagement and definition of closure domains, post-closure land use, closure success criteria in line with ICMM guidance.
- Improvement of the water and geochemistry knowledge base.
- Preparation for the social transition at closure to ensure a positive legacy.

- Closure execution, maintenance, monitoring, relinquishment.
- Justify the estimates for mobilisation, demobilisation and decommissioning.
- Consider the use of recognised closure cost estimator software such as SRCE.
- SRK understands that these recommendations will be taken into account in the updated closure plan.

The ARO for the end of 2019 was estimated to be approximately USD24.3m.

Nordgold has used the ARO to develop a LoM estimate for Lefa mine. The LoM estimate takes account of new TSF development. The estimate is USD35m for the Ore Reserve Case and USD38m for the Base Case.

With respect to the funding of closure, SRK understands that Nordgold established a fund of USD5m several years ago and this is acknowledged by the Guinean authorities in Addendum No. 3 to the Mining Convention.

Nordgold intends to review the Company's mine closure practices against the Responsible Gold Mining Principles and other international industry standards. Products of this review will be a Nordgold closure framework and updates to closure plans and cost estimates.

9.11.7 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Lefa mine:

- Continues with strengthening of the environmental management system on site and obtains certification for this as planned.
- Improves the compliance obligations database for obligations in permits and agreements and systematic tracking of conformance.
- Upgrades monitoring programs to better understand impacts on land and water users and habitats around and downstream of the mine sites.
- Undertakes further water studies as intended.
- Monitors outcomes of community investments and livelihood restoration programs.
- Maintains the proactive and continuous community stakeholder engagement.
- Further strengthens dialogue with artisanal miners.
- Conducts ARDML studies as planned.
- Updates the closure plans and cost estimates in accordance with the new group closure framework when this has been established.

9.12 Economic Assessment

9.12.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Lefa gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 85% of the Lefa gold mine, all number presented below are on a 100% (unattributable) basis.

9.12.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Lefa cashflow analysis:

- Royalty rate of 6.0% flat;
- An annual allowance of USD172k for land taxes, payable at USD150/km^2
- Corporate income tax rate of 30% flat;
- Lefa is following its convention due an old VAT reimbursement of USD27m, which is included in the economic assessment under Interest/Other over 2022-2025 ; and
- Closure cost allowance of USD29.8m (with a previously accrued USD5.0m, taking the total closure cost to USD34.8m) and retrenchment cost of USD8.7m have been allowed for in the economic assessment for the Ore Reserve Case. For the Base Case these total USD33.2m (taking the total to USD38.2m include previously accrued) and retrenchment allowance of USD9.5m.

9.12.3 Production

Historical processing statistics over 2016-2020 are presented in Table 9-19. The remaining life of mine for the Ore Reserve Case is 8 years (7 years of mining plus a further 1 year of stockpile processing), and 11 years for the Base Case (10 years of mining plus a further 1 year of stockpile processing).

Table 9-19: Lefa: Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	26,473	34,539	38,155	41,104	40,045
Waste	(kt)	20,336	28,076	31,466	34,349	33,062
Capital Waste	(kt)	12,787	15,813	14,250	15,374	11,815
Operating Waste	(kt)	7,549	12,263	17,216	18,975	21,247
Ore	(kt)	6,137	6,463	6,689	6,755	6,983
Gold Grade	(g/t Au)	1.07	1.13	1.08	1.06	1.02
Gold Contained	(koz Au)	211	234	221	230	230
Surface Haulage	(kt)	-	-	-	-	-
Processing Feed	(kt)	6,599	6,911	6,181	6,026	5,791
Gold Grade	(g/t Au)	1.05	1.09	1.08	1.14	1.09
	(koz Au)	222	243	215	220	204
Gold Recovery	(%)	87.7%	86.7%	87.3%	85.8%	86.4%
Doré Produced	(kg)	6,065	6,494	5,840	-	5,478
	(koz Au)	195	209	188	190	176
Sales						
Doré	(koz Au)	195	209	188	190	177
Commodity Prices						
Gold	(USD/oz)	1,241	1,263	1,273	1,389	1,764
Sales Revenue						
Gold	(USDm)	241.8	263.5	239.0	263.6	312.2

9.12.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 9-20. These numbers exclude capitalised waste stripping (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Lefa, this cost amounts to approximately USD3.10/oz.

The Company has noted that for the west African Mineral Assets in general, approximately 25% of the operating costs incurred are denominated in local currency, 55% in USD and 20% in EUR.

Table 9-20: Lefa: Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	38.5	52.1	55.4	67.5	70.0
Surface Haulage	(USDm)	-	-	-	-	-
Processing	(USDm)	61.0	65.9	72.5	72.2	65.2
Other Production	(USDm)	(0.5)	(4.2)	(7.4)	2.0	(4.6)
Overheads	(USDm)	26.7	19.2	18.8	18.3	22.3
General Site	(USDm)	21.3	13.0	13.3	12.9	17.9
SG&A	(USDm)	5.4	6.3	5.5	5.4	4.5
Royalties/Other Taxes	(USDm)	13.1	15.5	13.3	18.2	19.5
Other Operating	(USDm)	(0.3)	0.4	(1.1)	3.9	(2.5)
Total Cash Cost	**(USDm)**	**138.5**	**148.9**	**151.6**	**182.1**	**169.9**

9.12.5 Capital Expenditure

Table 9-21 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for the west African Mineral Assets, in general, approximately 10% of capital expenditure incurred are denominated in local currency, 65% in USD and 25% in EUR.

Table 9-21: Lefa: Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	1.2	-	-	6.6	8.0
Exploration	(USDm)	-	-	-	0.8	2.1
Dev/New Technology	(USDm)	1.2	-	-	5.8	5.9
New Mine Construction	(USDm)	-	-	-	-	-
Sustaining	(USDm)	59.5	47.9	74.6	77.9	66.7
Exploration	(USDm)	4.8	4.8	6.6	5.3	6.4
Maintenance	(USDm)	20.0	9.1	32.3	33.3	24.5
Capital Stripping/Dev	(USDm)	27.5	29.1	30.8	33.2	26.9
PCR	(USDm)	7.1	4.9	4.9	6.0	8.9
Total Capital Expenditure	**(USDm)**	**60.6**	**47.9**	**74.6**	**84.3**	**74.7**

9.12.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Lefa, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 9-22) and unit cost assessments (Table 9-23);
- for the Ore Reserve Case, annual detailed cashflows (Table 9-24) and annual unit cost assessment (Table 9-25); and
- for the Base Case, annual detailed cashflows (Table 9-26) and annual unit cost assessment (Table 9-27).

Both cases present technically feasible and economically viable plans.

Table 9-22: Lefa: LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	150,454	200,792
Waste	(kt)	112,044	144,005
Capital Waste	(kt)	26,973	27,003
Operating Waste	(kt)	85,070	117,002
Ore	(kt)	38,410	56,787
Gold Grade	(g/t Au)	0.94	1.22
Gold Contained	(koz Au)	1,157	2,221
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	45,210	63,587
Gold Grade	(g/t Au)	0.88	1.15
Gold Contained	(koz Au)	1,281	2,345
Gold Recovery	(%)	84.8%	84.5%
Doré Produced	(kg)	33,774	61,595
	(koz Au)	1,086	1,980
Sales			
Doré	(koz Au)	1,086	1,980
Commodity Prices			
Gold	(USD/oz)	1,647	1,546
Sales Revenue			
Gold	(USDm)	1,788	3,063
Operating Expenditure			
Mining	(USDm)	309	796
Surface Haulage	(USDm)	-	-
Processing	(USDm)	495	719
Other Production	(USDm)	(3)	(14)
Overheads	(USDm)	104	177
Royalties/Other Taxes	(USDm)	109	186
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**1,014**	**1,864**
Cashflow			
EBITDA	(USDm)	774	1,199
CIT	(USDm)	27	86
Working Capital	(USDm)	2	2
Interest/Other	(USDm)	(27)	(27)
Operating Cashflow	**(USDm)**	**771**	**1,138**
Capital Expenditure			
Project	**(USDm)**	**75**	**107**
Exploration	(USDm)	3	8
Development/New Technology	(USDm)	72	75
New Mine Construction	(USDm)	-	24
Sustaining	**(USDm)**	**178**	**236**
Exploration	(USDm)	5	6
Maintenance	(USDm)	72	86
Capital Stripping/Development	(USDm)	65	113
PCR	(USDm)	36	31
Closure/Retrenchment	**(USDm)**	**39**	**43**
Total Capital Expenditure	**(USDm)**	**292**	**387**
Free Cashflow	**(USDm)**	**479**	**752**

Table 9-23: Lefa: LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	934	941
AISC	(USD/oz)	1,134	1,082
AISC (excluding closure)	(USD/oz)	1,098	1,060
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	2.50	4.58
	(USD/t_{ore})	8.05	14.01
Mining Capitalised	(USD/$t_{capitalised}$)	2.42	4.17
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	10.95	11.31
Overheads	(USD/t_{feed})	2.30	2.78

Table 9-24: Lefa: Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Production										
Total Material Mined	(kt)	150,454	37,952	30,907	31,161	32,765	13,630	3,872	168	-
Waste	(kt)	112,044	28,694	23,415	24,162	24,946	8,540	2,232	54	-
Capital Waste	(kt)	26,973	6,026	8,981	5,954	5,132	624	255	-	-
Operating Waste	(kt)	85,070	22,668	14,434	18,207	19,814	7,916	1,977	54	-
Ore	(kt)	38,410	9,258	7,491	6,999	7,819	5,091	1,639	114	-
Gold Grade	(g/t Au)	0.94	0.92	0.99	0.97	0.94	0.93	0.68	0.57	-
Gold Contained	(koz Au)	1,157	273	239	217	237	152	36	2	-
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	45,210	6,008	6,030	6,193	5,822	6,144	5,408	5,154	4,450
Gold Grade	(g/t Au)	0.88	1.13	1.13	1.02	1.06	0.88	0.63	0.51	0.51
Gold Contained	(koz Au)	1,281	219	218	203	198	175	109	84	73
Gold Recovery	(%)	84.8%	86.3%	86.2%	85.1%	85.7%	84.3%	82.3%	81.4%	81.4%
Doré Produced	(kg)	33,774	5,884	5,852	5,384	5,281	4,580	2,796	2,139	1,859
	(koz Au)	1,086	189	188	173	170	147	90	69	60
Sales										
Doré	(koz Au)	1,086	189	188	173	170	147	90	69	60
Commodity Prices										
Gold	(USD/oz)	1,647	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	1,788	360.4	337.0	296.0	268.1	220.9	125.8	96.3	83.7
Operating Expenditure										
Mining	(USDm)	309	81.2	55.2	59.1	71.6	30.9	9.4	1.5	0.4
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-
Processing	(USDm)	495	70.2	64.7	64.2	61.6	64.7	57.4	59.4	53.0
Other Production	(USDm)	(3)	(14.6)	1.7	0.8	(5.3)	9.4	5.3	-	-
Overheads	(USDm)	104	21.7	17.3	17.3	17.3	12.1	6.1	6.1	6.1
Royalties/Other Taxes	(USDm)	109	21.8	20.4	17.9	16.3	13.4	7.7	5.9	5.2
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**1,014**	**180.3**	**159.4**	**159.4**	**161.4**	**130.5**	**85.9**	**72.9**	**64.7**
Cashflow										
EBITDA	(USDm)	774	180.0	177.6	136.7	106.7	90.4	39.9	23.4	19.0
CIT	(USDm)	27	-	14.7	9.2	3.4	0.1	-	-	-
Working Capital	(USDm)	2	2.5	-	-	-	-	-	-	-
Interest/Other	(USDm)	(27)	-	(6.8)	(6.8)	(6.8)	(6.8)	-	-	-
Operating Cashflow	**(USDm)**	**771**	**177.6**	**169.7**	**134.2**	**110.0**	**97.1**	**39.9**	**23.4**	**19.0**
Capital Expenditure										
Project	**(USDm)**	**75**	**40.0**	**13.2**	**3.6**	**6.4**	**5.8**	**3.0**	**3.2**	**-**
Exploration	(USDm)	3	1.8	0.5	0.5	0.4	0.2	-	-	-
Dev/New Technology	(USDm)	72	38.2	12.7	3.1	6.0	5.7	3.0	3.2	-
New Mine Construction	(USDm)	-	-	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**178**	**43.7**	**45.8**	**37.9**	**23.3**	**9.7**	**13.6**	**4.4**	**-**
Exploration	(USDm)	5	4.6	-	-	-	-	-	-	-
Maintenance	(USDm)	72	19.2	18.4	16.3	5.3	4.1	5.5	3.1	-
Capital Stripping/Dev	(USDm)	65	16.3	20.7	14.3	12.7	1.3	-	-	-
PCR	(USDm)	36	3.5	6.7	7.3	5.2	4.3	8.1	1.3	-
Closure/Retrenchment	**(USDm)**	**39**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**38.5**
Total Capital Expenditure	**(USDm)**	**292**	**292**	**83.7**	**59.0**	**41.5**	**29.7**	**15.5**	**16.6**	**7.6**
Free Cashflow	**(USDm)**	**479**	**93.9**	**110.6**	**92.7**	**80.3**	**81.5**	**23.4**	**15.8**	**(19.5)**

Table 9-25: Lefa: Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Standard Statistics										
Total Cash Cost	(USD/oz)	934	953	847	921	951	886	956	1,060	1,082
AISC	(USD/oz)	1,134	1,184	1,091	1,139	1,088	952	1,107	1,125	1,727
AISC (excluding closure)	(USD/oz)	1,098	1,184	1,091	1,139	1,088	952	1,107	1,125	1,082
Unit Costs										
Mining (excl capitalised)	(USD/t_{mined})	2.50	2.54	2.52	2.35	2.59	2.37	2.60	9.11	-
	(USD/t_{ore})	8.05	8.77	7.37	8.45	9.15	6.06	5.73	13.43	-
Mining Capitalised	(USD/$t_{capitalised}$)	2.42	2.71	2.31	2.40	2.48	2.10	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	10.95	11.69	10.73	10.36	10.57	10.54	10.61	11.52	11.92
Overheads	(USD/t_{feed})	2.30	3.61	2.87	2.80	2.98	1.97	1.12	1.18	1.36

Table 9-26: Lefa: Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026
Production								
Total Material Mined	(kt)	200,792	37,423	33,394	32,936	32,354	20,907	13,540
Waste	(kt)	144,005	28,024	24,166	25,746	26,363	15,243	8,727
Capital Waste	(kt)	27,003	4,143	3,406	4,352	8,958	3,458	2,060
Operating Waste	(kt)	117,002	23,881	20,760	21,394	17,404	11,785	6,666
Ore	(kt)	56,787	9,400	9,228	7,190	5,992	5,664	4,813
Gold Grade	(g/t Au)	1.22	0.91	0.95	1.12	1.25	1.43	1.36
Gold Contained	(koz Au)	2,221	276	282	258	241	260	210
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	63,587	6,095	6,018	5,770	5,877	5,858	6,255
Gold Grade	(g/t Au)	1.15	1.12	1.14	1.23	1.28	1.42	1.22
Gold Contained	(koz Au)	2,345	220	220	228	243	267	246
Gold Recovery	(%)	84.5%	86.2%	86.2%	85.9%	85.2%	84.2%	83.7%
Doré Produced	(kg)	61,595	5,885	5,909	6,095	6,426	6,993	6,390
	(koz Au)	1,980	189	190	196	207	225	205
Sales								
Doré	(koz Au)	1,980	189	190	196	207	225	205
Commodity Prices								
Gold	(USD/oz)	1,546	1,905	1,791	1,710	1,579	1,500	1,400
Sales Revenue								
Gold	(USDm)	3,063	360.5	340.2	335.1	326.2	337.3	287.6
Operating Expenditure								
Mining	(USDm)	796	85.7	73.6	79.3	87.5	113.6	88.9
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	719	71.1	64.1	61.3	62.1	65.6	69.3
Other Production	(USDm)	(14)	(13.8)	-	-	-	-	-
Overheads	(USDm)	177	22.1	22.1	22.1	22.1	17.7	14.2
Royalties/Other Taxes	(USDm)	186	21.8	20.6	20.3	19.7	20.4	17.4
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**1,864**	**187.0**	**180.4**	**183.0**	**191.4**	**217.3**	**189.8**
Cashflow								
EBITDA	(USDm)	1,199	173.5	159.9	152.1	134.8	120.0	97.8
CIT	(USDm)	86	-	7.3	13.6	12.9	9.6	7.6
Working Capital	(USDm)	2	1.6	-	-	-	-	-
Interest/Other	(USDm)	(27)	-	(6.8)	(6.8)	(6.8)	(6.8)	-
Operating Cashflow	**(USDm)**	**1,138**	**171.9**	**159.3**	**145.3**	**128.6**	**117.2**	**90.2**
Capital Expenditure								
Project	**(USDm)**	**107**	**46.3**	**18.6**	**12.8**	**14.9**	**5.5**	**3.0**
Exploration	(USDm)	8	5.4	1.0	1.0	0.5	0.2	-
Dev/New Technology	(USDm)	75	38.6	12.7	3.3	5.8	5.4	3.0
New Mine Construction	(USDm)	24	2.2	4.9	8.5	8.6	-	-
Sustaining	**(USDm)**	**236**	**38.4**	**34.5**	**46.5**	**53.4**	**26.4**	**13.7**
Exploration	(USDm)	6	5.6	0.1	0.1	0.0	-	-
Maintenance	(USDm)	86	18.3	15.3	14.8	4.3	7.6	5.3
Capital Stripping/Dev	(USDm)	113	10.9	12.2	23.8	43.3	15.8	4.9
PCR	(USDm)	31	3.5	6.9	7.9	5.7	3.0	3.5
Closure/Retrenchment	**(USDm)**	**43**	**-**	**-**	**-**	**-**	**-**	**-**
Total Capital Expenditure	**(USDm)**	**387**	**84.6**	**53.1**	**59.3**	**68.3**	**31.9**	**16.8**
Free Cashflow	**(USDm)**	**752**	**87.2**	**106.2**	**86.0**	**60.4**	**85.2**	**73.4**

Table 9-26: Lefa: Base Case LoMp Continued

Statistic	Units	Total LoM	2027	2028	2029	2030	2031	2032
Production								
Total Material Mined	(kt)	200,792	13,639	9,799	6,183	616	-	-
Waste	(kt)	144,005	8,748	5,119	1,870	-	-	-
Capital Waste	(kt)	27,003	-	583	42	-	-	-
Operating Waste	(kt)	117,002	8,748	4,536	1,828	-	-	-
Ore	(kt)	56,787	4,891	4,680	4,313	616	-	-
Gold Grade	(g/t Au)	1.22	1.47	1.41	1.53	1.94	-	-
Gold Contained	(koz Au)	2,221	231	212	212	38	-	-
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	63,587	5,781	5,616	5,857	5,234	5,226	-
Gold Grade	(g/t Au)	1.15	1.33	1.29	1.24	0.71	0.53	-
Gold Contained	(koz Au)	2,345	247	232	234	120	89	-
Gold Recovery	(%)	84.5%	83.7%	83.9%	83.7%	82.4%	81.5%	-
Doré Produced	(kg)	61,595	6,426	6,061	6,093	3,070	2,247	-
	(koz Au)	1,980	207	195	196	99	72	-
Sales								
Doré	(koz Au)	1,980	207	195	196	99	72	-
Commodity Prices								
Gold	(USD/oz)	1,546	1,400	1,400	1,400	1,400	1,400	-
Sales Revenue								
Gold	(USDm)	3,063	289.2	272.8	274.2	138.2	101.1	-
Operating Expenditure								
Mining	(USDm)	796	96.3	78.3	66.3	24.6	1.8	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	719	66.2	64.6	68.2	63.4	63.1	-
Other Production	(USDm)	(14)	-	-	-	-	-	-
Overheads	(USDm)	177	14.2	14.2	14.2	7.1	7.1	-
Royalties/Other Taxes	(USDm)	186	17.5	16.5	16.6	8.5	6.2	-
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**1,864**	**194.2**	**173.5**	**165.3**	**103.6**	**78.2**	**-**
Cashflow								
EBITDA	(USDm)	1,199	95.0	99.3	109.0	34.6	22.9	-
CIT	(USDm)	86	7.2	9.7	14.4	-	3.5	-
Working Capital	(USDm)	2	-	-	-	-	-	-
Interest/Other	(USDm)	(27)	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	**1,138**	**87.8**	**89.6**	**94.6**	**34.6**	**19.4**	**-**
Capital Expenditure								
Project	**(USDm)**	**107**	**3.2**	**3.2**	**-**	**-**	**-**	**-**
Exploration	(USDm)	8	-	-	-	-	-	-
Dev/New Technology	(USDm)	75	3.2	3.2	-	-	-	-
New Mine Construction	(USDm)	24	-	-	-	-	-	-
Sustaining	**(USDm)**	**236**	**6.2**	**6.2**	**5.7**	**5.3**	**-**	**-**
Exploration	(USDm)	6	-	-	-	-	-	-
Maintenance	(USDm)	86	5.6	4.4	5.5	5.3	-	-
Capital Stripping/Dev	(USDm)	113	-	1.7	0.1	-	-	-
PCR	(USDm)	31	0.6	0.2	-	-	-	-
Closure/Retrenchment	**(USDm)**	**43**	**-**	**-**	**-**	**-**	**-**	**42.7**
Total Capital Expenditure	**(USDm)**	**387**	**9.4**	**9.4**	**5.7**	**5.3**	**-**	**42.7**
Free Cashflow	**(USDm)**	**752**	**78.4**	**80.2**	**88.9**	**29.3**	**19.4**	**(42.7)**

Table 9-27: Lefa: Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	941	988	950	934	927	966	924	940
AISC	(USD/oz)	1,082	1,191	1,131	1,172	1,185	1,084	991	970
AISC (excluding closure)	(USD/oz)	1,060	1,191	1,131	1,172	1,185	1,084	991	970
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	4.58	2.57	2.46	2.77	3.74	6.51	7.74	7.06
	(USD/t_{ore})	14.01	9.11	7.98	11.03	14.60	20.05	18.47	19.69
Mining Capitalised	(USD/$t_{capitalised}$)	4.17	2.63	3.57	5.46	4.83	4.57	2.38	-
Surface Haulage	(USD/$t_{transported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	11.31	11.67	10.64	10.63	10.56	11.21	11.08	11.45
Overheads	(USD/t_{feed})	2.78	3.63	3.68	3.83	3.76	3.02	2.26	2.45

Statistic	Units	2028	2029	2030	2031
Standard Statistics					
Total Cash Cost	(USD/oz)	890	844	1,049	1,083
AISC	(USD/oz)	922	873	1,103	1,083
AISC (excluding closure)	(USD/oz)	922	873	1,103	1,083
Unit Costs					
Mining (excl capitalised)	(USD/t_{mined})	8.49	10.79	40.02	-
	(USD/t_{ore})	16.72	15.37	40.02	-
Mining Capitalised	(USD/$t_{capitalised}$)	2.85	2.89	-	-
Surface Haulage	(USD/$t_{transported}$)	-	-	-	-
Processing	(USD/t_{feed})	11.50	11.65	12.11	12.07
Overheads	(USD/t_{feed})	2.52	2.42	1.35	1.35

9.13 Future Projects – Lero Karta Underground Mine

9.13.1 Introduction

SRK completed in April 2020 a positive Scoping Study for an underground mine below the current Lero-Karta Pit. Following this study, Nordgold engaged SRK to undertake a mining study on the proposed Lefa Lero-Karta Underground Gold Mine to support a PFS.

SRK notes the completion of the mining study is scheduled for the end of 2021; however, an initial mine design and schedule have been developed as an interim step to provide support to the underground project based on an authored MRE update with data received 28 September 2020.

9.13.2 Scope of Work

SRK has developed a Base Case scenario for the underground mine and aims to complete an Ore Reserve Case at the end of the PFS after the update of the MRE with the information from the ongoing drilling program to be complete by the middle of 2021.

SRK has prepared an underground LoMp considering that the final open pit is defined by Karta 6 stage and CDB 2 stage.

The Mine Planning Assumptions and modifying factors were developed in cooperation with Nordgold. Following a stope optimisation process, the development was designed and scheduled after which the overall LoMp was created, including a financial model.

9.13.3 Study Results

SRK has used a dilution skin approach to account for diluted material in the stopes. This approach enables the dilution grade to be calculated directly from the Mineral Resource model and the unplanned dilution to be modelled as a wireframe. The dilution skin for the both the footwall ("FW") and the hanging wall ("HW") is 0.5 m. In addition to the dilution skin included in the stope shapes, additional unplanned dilution has been included in the schedule to account for backfill dilution based on the stope types and sequence. The mining recovery has been defined based on the stope types and sequence, as for the unplanned backfill dilution.

Based on the revenue, costs calculation and dilution, a breakeven cut-off grade of 1.7 g/t Au was defined to determine the economic stopes and a marginal cut-off grade of 1.5 g/t Au was defined to determine potential additional stopes.

The resulting stopes from the optimisation process were selected based on the target area formed by Karta and Lero South (Figure 9-12). Stopes were further constrained below a crown pillar of 25 m thickness below the final pit design. Additionally, economic checks were undertaken to ensure that the stopes warranted development and mining.

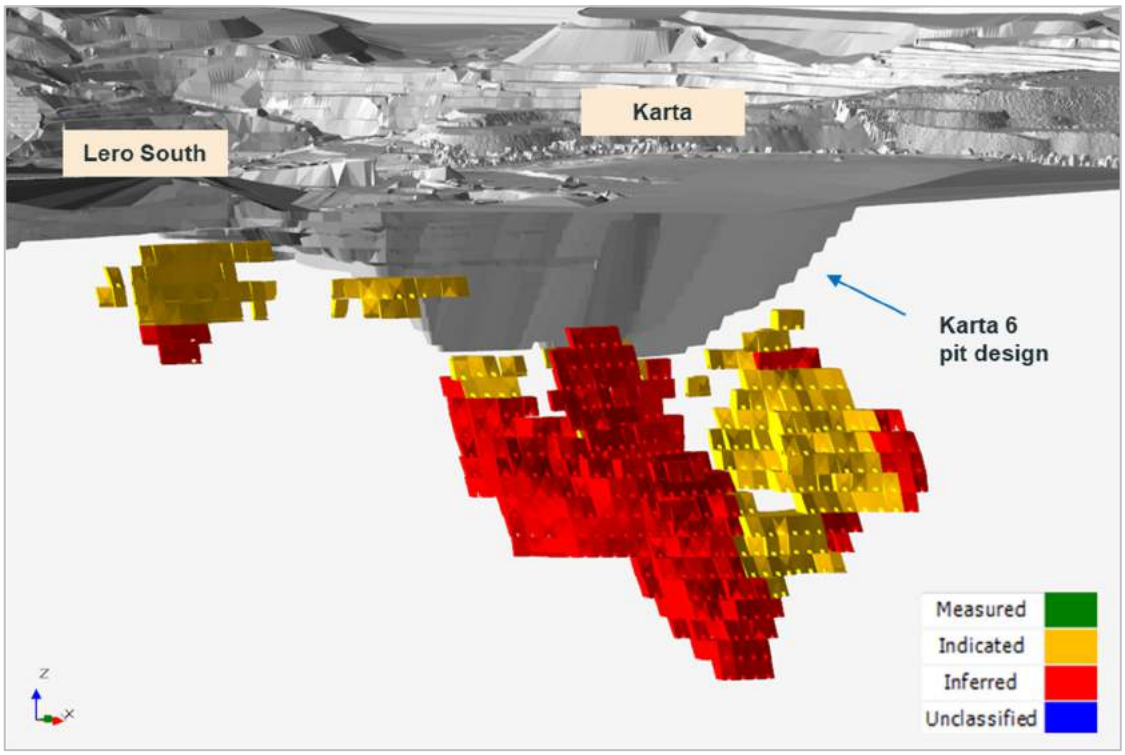


Figure 9-12: Lefa Selected Stopes by Classification

The stopes have been coded by stope type depending on their width. A reference 15 m width was defined to code the stopes as longitudinal when narrower or as transverse when wider. Certain flexibility was applied when using this cut-off width for defining stope type to improve operability of the design.

The development design (Figure 9-13) has the following characteristics:

- Design layout extends about 1 km from the SW portal location in the LS area to the NE further extension in the Karta area.

- Transverse stopes are mined through transverse ore drives spaced at 15 m and connected to a footwall drive, while longitudinal stopes are mined through longitudinal ore drives connected to another tunnel to access.
- The design consists of sub-levels with 20 m spacing. LS has six levels ranging from the 160 mRL to the 260 mRL and Karta has levels ranging from the level -180 mRL to 160 mRL (18 levels).
- Decline development was designed at a maximum gradient of 1:7 and a minimum turning radius of 25 m.
- The footwall design considers a 15 m stand-off distance to the stopes footwall.
- The ventilation system consists of a series of raises connecting the levels and four main ventilation raises connecting to the surface.
- Sill pillar stopes were defined between levels -40 mRL and 40 mRL to define zones for scheduling purposes.
- The scheduled development and RoM tonnage and metal is presented in Table 9-28.

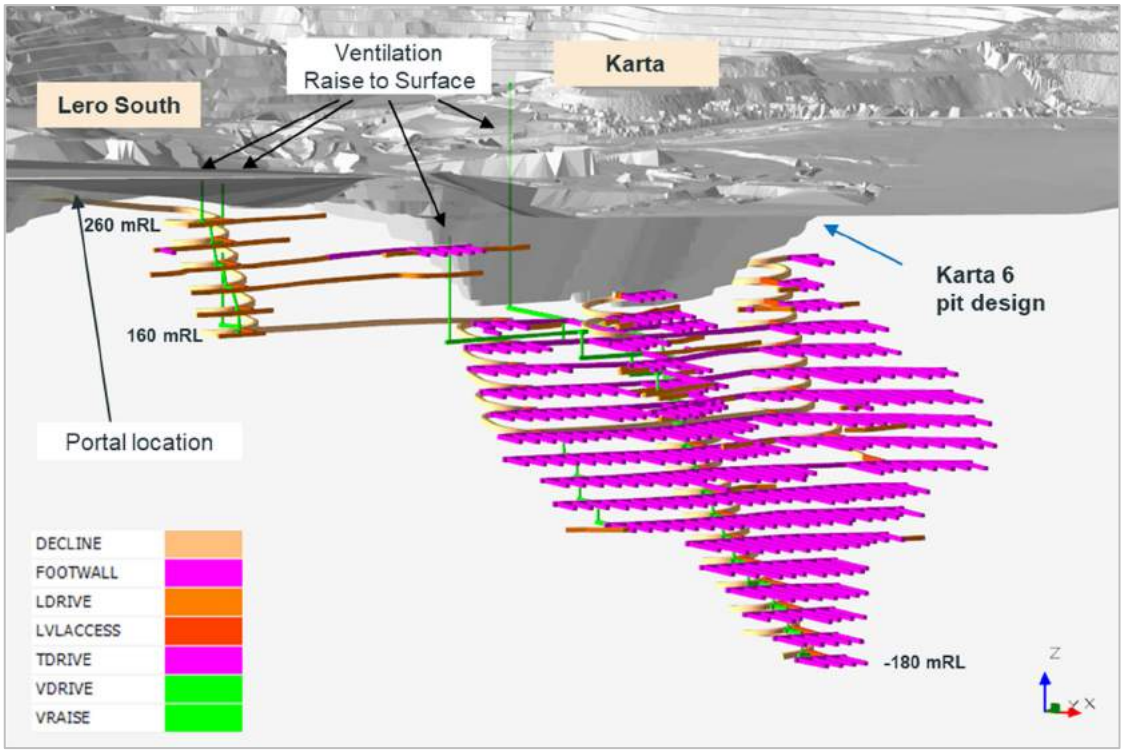


Figure 9-13: Lefa Development Design

The mine schedule begins on 1 July 2022 achieving a production rate of 1,800 ktpa and a LoMp of 9 years. The scheduled development and RoM tonnage and metal is presented in Table 9-28.

Table 9-28: Lero-Karta Underground Scheduled RoM Material and Development

Description	Units	Totals	2022	2023	2024	2025	2026	2027	2028	2029	2030
RoM Tonnes	kt	10,839	18	371	1,017	1,793	1,800	1,779	1,800	1,645	616
Stope Tonnes	kt	10,237	-	329	917	1,619	1,653	1,658	1,800	1,645	616
RoM Development	kt	602	18	42	100	174	147	122	-	-	-
Au Grade	g/t	2.5	4.3	2.7	2.4	2.6	2.4	2.6	2.4	2.5	1.9
Au Metal	koz	859	2	32	79	149	138	148	139	133	38
Development	m	50,062	1,937	7,177	14,343	12,833	4,917	4,794	1,800	1,645	616
Lateral	m	38,228	1,531	6,470	12,841	10,985	3,264	3,137	-	-	-
Vertical	m	11,834	406	706	1,502	1,848	1,653	1,658	1,800	1,645	616

9.13.4 Conclusions and Recommendations for Next Stage of Assessment

Based on the cost parameters as provided by Nordgold and the geological model, design and schedule as created by SRK as part of the Phase 1 interim update, the underground exploitation of the Lero Karta mineralisation is economically feasible.

SRK has been engaged to complete the PFS for the Lero Karta Underground Project by undertaking Phase 2 following the completion of Phase 1 work as presented in section 9.13.3. Phase 2 scope includes authoring an updated MRE based on additional drillholes and updating the mining study to a PFS level to develop a Base Case scenario.

10 BISSA-BOULY OPEN PIT GOLD MINE

10.1 Introduction

10.1.1 Location

The Bissa-Bouly exploitation and exploration permit areas are in the North Centre Region of Burkina Faso, except for the Samtenga exploitation permit area and the Lougouma exploration permit areas which straddle the boundaries of the North Centre Region and the Plateau Central Region. The capital of the North Centre Region is Kaya. The location of the mines and various permits is shown in Figure 3-13, Section 3.3, and in Figure 10-1.

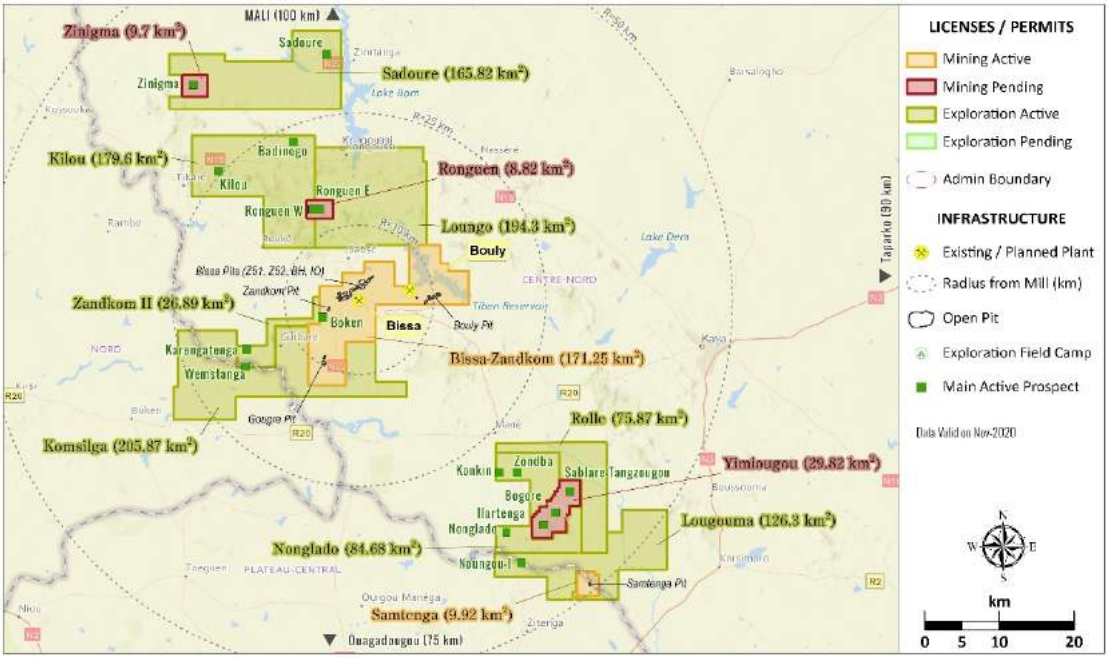


Figure 10-1: Bissa-Bouly Mining Complex and Associated Exploitation and Exploration Permit Areas (Nordgold)

Bissa mine is about 85 km from Ouagadougou (the capital city), 50 km from Kaya, and 28 km from the city of Kongoussi, which is on the banks of Lake Bam. The lake is an important regional water source. Bouly mine is 5 km east of Bissa mine and near to the Tiben reservoir, which supplies water to the processing operations at Bissa and Bouly mines. The Tiben Dam, built by Nordgold, is on the Nakambe River, downstream of Lake Bam (Figure 10-1).

The Bissa-Bouly group of mines comprises numerous open pit mines in two exploitation permit areas. Of the eight active pits, seven are in the Bissa-Zandkom permit area, including a cluster of pits at Bissa mine, the Gougre and Zandkom pits, and the Bouly mine (Table 10-1, Figure 10-1). Ore from most pits is processed at Bissa mine's carbon-in-leach ("CIL") process plant, except for ore from Bouly mine which is processed on heap leach facilities.

Bissa and Bouly mines were built by Nordgold and commissioned in January 2013 and September 2016, respectively.

Table 10-1: Bissa-Bouly Group of Mines

Active/ proposed	Location relative to Bissa mine	Permit area	Deposits	Mine/ satellite mine
Active mines	At the mine	Bissa-Zandkom	Bissa SW	Bissa mine
			IO/SE	
			Z51	
			Z52	
	South		Gougre	Gougre pit
	Nearby		Zandkom	Zandkom pit
	East		Bouly	Bouly mine
	South-east	Samtenga	Samtenga	Samtenga pit
Proposed mines	North	Ronguen	Ronguen	Ronguen pit
	South-east	Yimiougou	Yimiougou	Yimiougou pit
	North East	Zinigma	Zinigma	Zinigma pit

Bouly mine is technologically integrated with Bissa mine for its final processing stages, including desorption, electro-winning and smelting, which all take place at the Bissa's processing plant. Much of Bissa's infrastructure, including the camp, canteen, laboratory and raw water reservoir (Tiben dam) are also shared by both operations.

Three proposed satellite mines are located within exploration permits areas to the north and south of Bissa mine. Applications have been made for exploitation permits for areas encompassing these proposed mines as shown in Figure 10-1.

Two of eight exploration permit areas lie adjacent to the Bissa-Zandkom permit area, these are Zandkom II and Komsilga. The Samtenga, Loungo, Kilou and Sadoure permit areas are located to the north and the Rolle, Nonglado and Lougouma permit areas are located to the southeast.

The livelihoods of people living around the Bissa group of mines are mostly based on agriculture and mining, including artisanal mining. Lake Bam and the Tiben reservoir are important sources of water in the semi-arid climate.

More information on the setting of the Bissa group of mines is presented in Section 10.16.2.

10.1.2 Access

Bissa and Bouly mines are accessible via the national road RN 22, which connects Ouagadougou and Kongoussi. The mines can also be accessed via the national road N15, which connects Kongoussi and Kaya, which are the administrative centres of Bam and Samtenga Provinces. The national roads are surfaced.

An access road from the RN 22 was built during the construction of the Bissa mine. This road provides access to the Tiben dam and the Bouly mine site. It is approximately 10 km long.

There are airports at Ouagadougou (international) and Kaya (internal flights only). An inter-governmental project to upgrade rail links between Burkina Faso and Cote d'Ivoire is currently planned[19]. The railway should connect the city of Kaya (about 100 km from the Taparko plant) with the seaport in Abidjan.

10.1.3 Climate

The climate in the vicinity of the Bissa group of mines is Sub-Sahelian (transitional between Sahelian and Sahelo-Sasanian) with distinct hot and rainy and cool and dry seasons and with annual evaporation exceeding rainfall. The wet season extends from May to October and brings most of the annual rainfall, which averages 673 mm[20] and ranges between 300 mm and 750 mm annum. There is high interannual variability in rainfall and August is generally the wettest month.

The two key large-scale meteorological phenomena influence the climate. The West African Monsoon comes from the southwest and south, blows moist air from the Atlantic and can bring torrential rain in the wet season. The dry and dusty Harmattan comes from the north-northeast in the dry season.

Maximum temperatures generally range from 32°C to 40°C, with the coolest months being the driest months (December and January) and the wettest months (July to September). Minimum temperatures are 10°C to 15°C lower, ranging from 17°C to 28°C.

10.2 Mineral Rights and Primary Approvals

10.2.1 Mineral Rights Held

Exploitation and Exploration Permits

Nordgold has two industrial exploitation permits allowing mining on the Bissa-Zandkom and Samtenga tenements (Table 10-2). The Bissa-Zandkom permit has been revised twice to include the Gougre deposit and to add conditions for mining the Bouly deposit. There is a minerals agreement (convention) between Nordgold and the Government of Burkina Faso that applies to both Bissa-Zandkom and Samtenga operations as outlined below.

Detail on all the exploitation and exploration permits held by Nordgold subsidiaries is provided in Table 10-3.

Applications have been made for industrial exploitation permits for the proposed Yimiougou pit and the Ronguen pit. The tenements that correspond with these applications are within existing exploration permit areas (Figure 10-1). The exploitation permits will only be issued after the ESIAs are complete, the resettlement action plans (RAP) are advanced and environmental licences have been obtained. The ESIA and RAP preparation processes for the Yimiougou pit and the Ronguen pit are underway. Nordgold plans that the exploitation permits these pits will be obtained by Quarter-2 2021 and Quarter-1 2022, respectively.

The permitting timeline for the Zandkom II extension (also called “Zandkom SW extension”) is similar to that for the Ronguen pit.

[19] *A bilateral agreement for the modernisation of the Abidjan – Ouagadougou – Kaya route was signed by the presidents of Côte d'Ivoire and Burkina Faso in 2019.*

[20] Data is based on records from the Ouahigouya station for 1923 to 2013.

Table 10-2: Bissa-Zandkom and Samtenga Tenements Industrial Exploitation Permits and Agreements

Tenement	Industrial exploitation permits and agreements			Date of Issue	Validity	
	Type		Number		From	To
Bissa-Zandkom	Original Permit	Decree	2011/419/PRES/PM/MCE/MEF/MEDD	2011-06-23	2011-06-23	2031-06-23
	Original Convention	Convention	n/a	2012-05-29	2012-05-29	2031-06-23
	Area extension (Gougre)	Decree	2014/778/PRES/PM/MME	2014-09-16	2014-09-16	2031-06-23
	New conditions (Bouly)	Resolution	2016/124/MEMC/SG/DGMGC	2016-07-19	2016-07-19	2031-06-23
Samtenga	Original Permit	Decree	2019/1354/PRES/PM/MMC/MINEFID/MEEVCC	2019-12-31	2019-12-31	2022-12-31

Table 10-3: Bissa-Zandkom and Samtenga Tenements Mining Permits and Agreements

Permit			Validity		Renewal required	Company	
Name	Type	No	To	From		Operator	Permit Holder/ Applicant
Active mines							
Bissa-Zandkom	IEP	443	6/23/2011	6/23/2031	Not applicable	Bissa Gold SA	Bissa Gold SA
Samtenga	IEP	2382	12/31/2019	12/31/2022	Not applicable	Bissa Gold SA	Nordgold Samtenga SA
Proposed mines							
Ronguen	AP	1520	(Application made 5/8/2015)		Not applicable	High River Gold Exploration Burkina SARL	Nordgold Ronguen SA
Yimiougou	AP	1569	(Application made 5/19/2017)		Not applicable	High River Gold Exploration Burkina SARL	Nordgold Yimiougou SA
Zinigma	AP	2383	(Application made 5/11/2015)		Not applicable	High River Gold Exploration Burkina SARL	Nordgold Zinigma SA
Exploration areas							
Zandkom II	EP	359	12/9/2009	12/9/2021	14/01/2020 (Completed)	Bissa Gold SA	Jilbey Burkina SARL
Komsilga	EP	2316	8/31/2018	8/31/2027	31/8/2027	Bissa Gold SA	Kaya Exploration SARL
Loungo	EP	2314	9/3/2018	9/3/2027	27/3/2021	Bissa Gold SA	Prognoz Exploration Burkina SARL
Kilou	EP	2366	3/27/2018	3/27/2027	27/03/2021	Bissa Gold SA	Prognoz Exploration Burkina SARL
Sadoure	EP	2219	11/9/2017	11/9/2026	9/11/2020 (In progress)	Bissa Gold SA	High River Gold Exploration Burkina SARL
Rolle	EP	2240	11/6/2017	11/6/2026	6/11/2023	Bissa Gold SA	High River Gold Exploration Burkina SARL
Nonglado	EP	2141	11/6/2017	11/6/2026	6/11/2023	Bissa Gold SA	High River Gold Exploration Burkina SARL
Lougouma	EP	2363	3/27/2018	3/27/2027	27/032021	Bissa Gold SA	Jilbey Burkina SARL

*Code for type of permit: IEP – industrial exploration permit; AP – application for an IEP made; and EP – exploration permit

Minerals Agreements (Mining Convention)

A mining convention is in place for the Bissa-Zandkom and Samtenga operations. This is an agreement between government (represented by the Ministry of Mines and Energy) and the operating company, Bissa Gold SA. It was signed on 29 May 2012. Obligations in the convention pertaining to environmental, social and governance include:

- preferential use of national services and materials wherever possible (Article 6);
- preferential employment of national people, respecting human rights and employment law and replacing expatriates with nationals who have acquired the same experience (Article 7);
- from the date of first commercial production, contribution to the improvement of hospitals schools and other community infrastructure;
- protection of the environment (Article 11);
- maintenance of a bank account within Burkina Faso for a restoration fund for the mine site as defined by the mining regulations; the cost must cover the implementation of an environmental preservation and rehabilitation program and is exempt from corporation tax (Article 11); and
- payment of other taxes and fees (Article 18 and 19).

10.2.2 Environmental Approvals

Decisions on Nordgold's industrial exploitation permits were informed by the ESIA completed for Bissa mine (2010), for mining of the Zandkom pit (2013) and Gougre pit (2013), for Bouly mine (2015) and for the Samtenga pit (2018). The ESIA reports completed before 2015 were approved as part of the process of issuing mining permits for the pits. The ESIA for Samtenga pit was approved based on procedures defined in the Decree on Environmental Assessment Procedures (Decree 1187-2015) and a licence was issued for the Samtenga development.

The 2015 Decree requires that RAPs are submitted with ESIAs, where resettlement is required. RAPs were prepared and implemented for resettlement from the active mine sites as outlined in Section 10.16.4.

With respect to new developments, SRK notes that:

- The ESIA and RAP preparation processes for the proposed Yimiougou pit are reportedly advanced, with granting of the Yimiougou environmental licence expected soon.
- The ESIA and RAP preparation processes for the proposed Ronguen pit will commence shortly, and consultants are being appointed to undertake this work. Nordgold hopes to get the Ronguen environmental licence by the end of 2021 and complete resettlement in Quarter-2 2022.
- The RAP implementation timeline for the Zandkom Extension pit is expected to be similar to that for the Ronguen pit.
- The conditions of approval attached to the environmental licence for the Samtenga pit require:
    - compliance with the ESMP and commitments made to local populations and

authorities;

- ongoing stakeholder engagement and establishment of a grievance mechanism;
- compensation of those affected by the project and reporting on this;
- obtaining of authorisation for tree felling and undertaking of compensatory reforestation;
- compliance with the customs of the people concerned in the management of graves and sacred sites, establishment of a chance finds procedure for archaeological finds;
- equipping of workers with adequate personal protection equipment and training;
- submission of annual compliance reports to the ministry in charge of the environment;
- development of a rehabilitation and closure plan and obtaining of approval for this;
- development of an emergency plan;
- monitoring of water, noise, vibration and dust impacts.
- preferential use of national labour for unskilled jobs, on the basis of transparent criteria;
- supporting of local community development, including drilling of wells, development of infrastructure and improving agricultural productivity;
- ensuring the project does not impact on local water supplies, quantity and quality; and
- submission of reports on environmental audits submitted to BUNEE (every three years).

Approval was obtained for the construction of the Tiben Dam in 2010. The mines have not been required to obtain approvals for emissions and mine waste disposal.

The mines are inspected by regulatory authorities. Environmental inspections and health and safety inspections are generally undertaken annually, respectively by BUNEE and BUMIGEB. Reports from inspections in 2020 recommend improvements such as increasing resources allocated to environmental management, reporting on environmental monitoring and improving chemical storage and waste management. The mine reports that these improvements are being made.

10.2.3 Land Tenure

People have been resettled to facilitate for Nordgold's active mining areas. There were no formal land title deeds in place, but customary land tenure rights are recognised in law and these rights were observed in Nordgold's resettlement processes. More information on the resettlement is provided in Section 10.16.4.

10.3 Geology

10.3.1 Regional Geology

The geology of Burkina Faso (Figure 10-2) can be divided into three major entities, specifically Palaeoproterozoic basement, Neoproterozoic sedimentary cover, and Cainozoic continental cover. The Bissa-Bouly deposits occur within the Palaeoproterozoic basement, which forms part of the Man Shield of the West African Craton. Much of the Man Shield consists of volcano-sedimentary rocks of the Birimian Supergroup, which hosts a number of gold deposits of regional significance. The Birimian rocks correspond to a period of sedimentation, volcanism and tectonism between approximately 2.2 and 2.0 Ga, known as the Eburnean Orogeny.

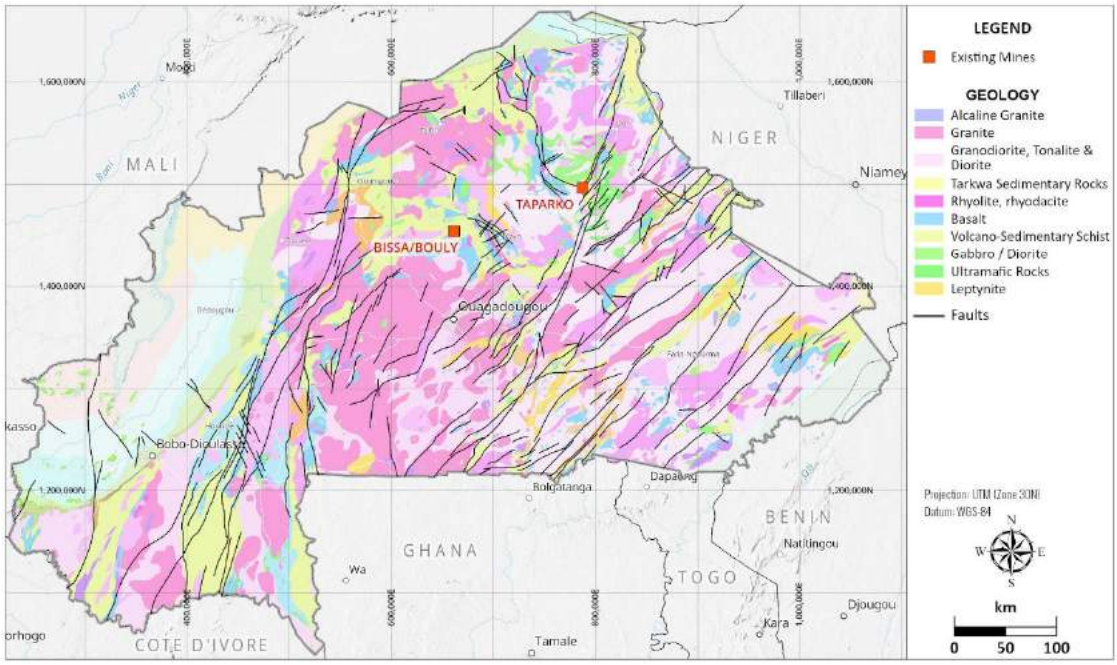


Figure 10-2: Geology of Burkina Faso, showing Regional Geological and Structural Context of Bissa-Bouly and Taparko

The overall structure of the Palaeoproterozoic basement is defined by two major north-northeast trending sinistral shear zones, including the Houndé-Ouahigouya Shear Zone in the west and the Tiébélé-Dori-Markoye Shear Zone in the east. These two fault zones sub-divide the Birimian basement of Burkina Faso into three domains:

- an eastern domain cut by a series of northeast trending structures;
- a central domain characterised by arcuate structural patterns such as those of the Bouroum and Yalogo Belts; and
- a western domain hosting north to northeast trending structural features.

Two phases of Eburnean granitoids intrude these belts. Namely an earlier tonalite suite, broadly contemporaneous with the Birimian volcano-sedimentary rocks, and later granitic intrusions comprising two distinct suites of plutons that intrude both the Birimian rocks and the tonalite suite.

10.3.2 Local Geology

The Bissa and Bouly gold deposits all occur within an approximate 90 km NW-SE zone (Figure 10-3), comprising Birimian volcano-sedimentary rocks of the Boromo greenstone belt. The belt consists of mafic volcanic rock, minor felsic volcanic rock and extensive sedimentary units, intruded by Eburnean granitoids, all of which have undergone incipient to low greenschist facies metamorphism (Huot and Sattran, 1987).

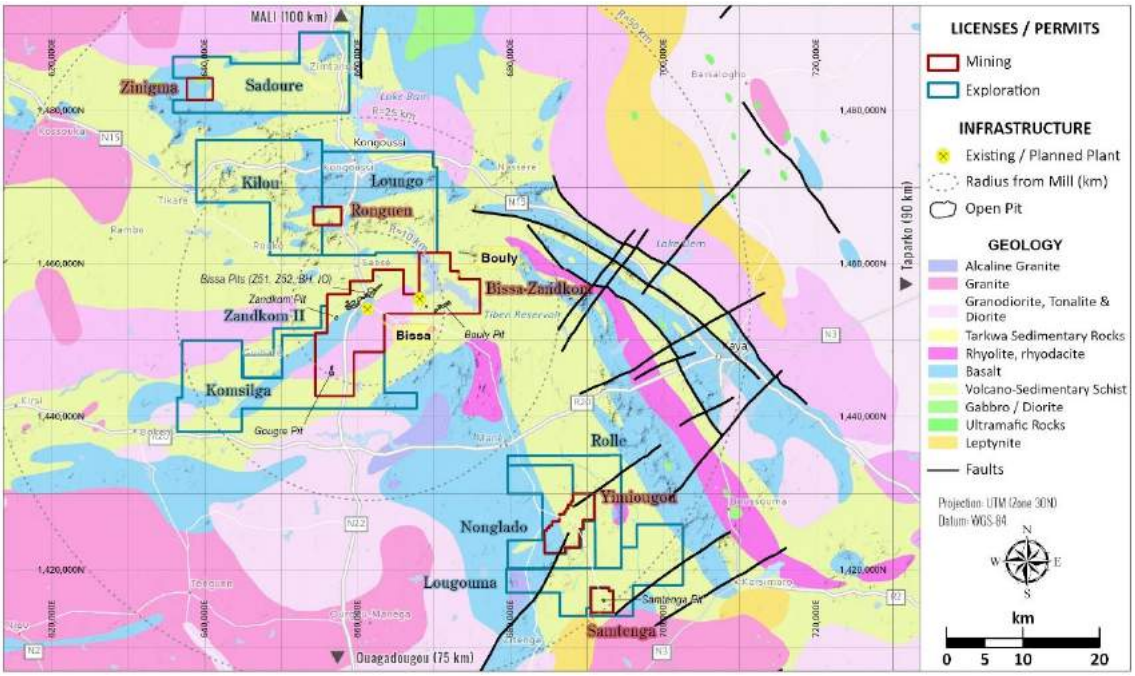


Figure 10-3: Semi-regional Geology showing Location of Bissa and Bouly Deposits and Licence Boundaries

The Bissa Hill, SW, IOSE, Z51, Z52 and Boken Zandkom deposits all fall within an approximate 9 km NE-SW oriented corridor ("the Bissa-Zandkom corridor") in the northeastern portion of the Boromo greenstone belt. This corridor comprises a series of interbedded argillaceous-arenaceous sediments, alongside sequences of mafic volcanic rock. The thick metasedimentary sequence represents the principal host to mineralisation. Structurally, the lithological assemblage at Bissa-Zandkom appears to be tightly folded, with a broad NE to ENE trend, and is offset by several large-scale faults that trend NW-SE. At least two phases of deformation can be identified at the mine-scale, including an earlier D_1 and later D_2, resulting in a re-folded fold sequence.

The Bouly deposit, approximately 9 km east of the Bissa-Zandkom corridor, is hosted by shear zones within metamorphosed metavolcanics, diorites and porphyritic diorites. The volcano-sedimentary sequence is well foliated, with a NE-SW striking fabric. The meta-volcanics are intruded, and mostly replaced, by later diorite, granodiorite and porphyritic diorite bodies, which are not well foliated except in areas where extensive shearing has occurred. As per the Boken-Zandkom corridor, two phases of deformation are recognised. The earliest deformation phase is associated with NW striking, moderately SW dipping thrust structures. The second deformation phase is associated with NE striking, steeply SE dipping strike slip structures.

The satellite deposits of Samtenga, Yimiougou, Gougre, Ronguen and Zinigma are scattered distant from the Bissa-Zandkom corridor, with around 90 km separating the Samtenga deposit southeast of Bissa-Zandkom and Zinigma northwest of Bissa-Zandkom. Consequently, the geology of these deposits is varied, but all comprise successions of volcano-sedimentary rocks intruded by plutonic rocks of Eburnean age.

10.3.3 Mineralisation

Mineralisation at the Bissa and Bouly deposits is primarily orogenic and structurally controlled, with a secondary lithological control. The most significant mineralised zones are associated with anastomosing networks of quartz and quartz-carbonate veins (or stacked, parallel “arrays” of veins) developed within major brittle-ductile shear zones. Two main types of mineralised veins are recognised within the deposits of the Bissa-Zandkom corridor; namely a) the main gold-bearing quartz veins in the central part of steep shear zones, which are often axial planar shears; and b) complex vein systems of gently inclined and steep extensional fractures, developed both within the shear zones barren wall rocks, and along folded bedding planes and lithological contacts. Similar mineralisation styles are observed across the Bissa-Bouly deposits.

Gold mineralisation is most commonly developed in either quartz-sulphide veining ± carbonates and tourmaline, or disseminated and fracture filling sulphides and magnetite. Across most deposits, the primary sulphide species is pyrite, with minor chalcopyrite and arsenopyrite and very rare native gold.

Boken Zandkom, IOSE, SW, Bissa Hill and Yimiougou all strike NE-SW, dipping moderately-steeply to the NW. Bouly, Z51 and Z52 are also NE-SW striking, but dip steeply to the SE. All of the deposits of the Bissa-Zandkom corridor have a moderate north-easterly mineralisation plunge. Trends associated with the satellite deposits of Zinigma, Samtenga, Ronguen and Gougre are varied.

As is typical in the region, the Bissa and Bouly deposits are variably oxidised. The oxidation sequence typically comprises a thin (0 to 20 m) lateritic layer at surface, which overlies a well-developed oxidised saprolitic zone. This normally progresses into a transitional zone, comprising a mixture of saprolite and fresh bedrock, with unaltered fresh rock typically around 50 m to 125 m below surface. Secondary enrichment of gold within the laterite layer is common.

10.3.4 SRK Comments / Conclusions

SRK considers the extents and orientation of mineralisation within the Bissa-Bouly deposits to be well defined and understood. As such, SRK considers this provides a solid foundation on which to base the resultant Mineral Resource estimates.

10.4 Exploration History – Bissa and Bouly

10.4.1 Exploration

The first of the Bissa-Bouly deposits to be discovered were the Bissa Hill deposit and the Bouly deposit, both of which were identified as a result of reconnaissance exploration by previous explorers in the mid-late 1990s. The deposits of the Bissa-Zandkom corridor, and the satellite deposits of Yimiougou, Samtenga, Ronguen, Zinigma and Gougre were first explored in the early to mid-2000's. Little information or data is available for the exploration undertaken by previous explorers. Since acquisition in 2008 by Nordgold, all properties have been subject to multiple exploration campaigns including extensive drilling and other exploration activities. Open pit mining commenced at Bissa Hill in 2013, with additional pits being started at the SW, IOSE, Z51, Z52, Boken Zandkom, Gougre and Samtenga projects in subsequent years. Open pit mining commenced at Bouly in 2016. Yimiougou, Ronguen and Zinigma are advanced stage exploration projects that have not yet been subject to any significant mining activity.

Exploration activities (aside from drilling, which is described in Section 10.4.2) undertaken by Nordgold vary between the deposits, but include surface mapping, rock chip / grab sampling, soil geochemical sampling, termite mound sampling, geophysics, and trenching. Various geophysical surveys have been undertaken, including both airborne and ground magnetics and radiometrics. A total of 241 exploration trenches for >19,000 m have been completed across the Bissa and Bouly deposits. Trenches were typically hand dug or mechanically excavated to nominal depth of 2 m, with samples collected along continuous channel profiles along the bottom of the trenches, most commonly at 1 m intervals.

10.4.2 Drilling

The Bissa and Bouly deposits have been extensively drilled, with a combination of reverse circulation ("RC"), diamond ("DD"), rotary air blast ("RAB") and air core ("AC") holes. Most deposits have been predominantly drilled by RC, typically with a small number of DD, RAB or AC holes. The resource models described in Sections 10.5 and 10.6 are primarily based upon the results of RC, RAB, and DD drilling, with RAB or AC drilling mostly used for exploration purposes and being drilled to shallow depths on wide spaced-sections. Excluding RAB and AC holes, exploration (RC and DD) drillhole spacing is on an approximate 20-25 x 20-25 m grid in the most densely drilled portions of the projects that are operating mines, decreasing to variable spacings, typically in the order of 40 x 40m (but up to 80m in places), at depth and in less well drilled areas. For the advanced exploration projects (Yimiougou, Ronguen and Zinigma), drill spacing varies significantly between deposit, but typically ranges between 10-50 x 20-50 m.

Grade control ("GC") drilling has been completed on the operating open pit deposits exclusively by RC or RAB, with grade control drill spacing most commonly being 7 to 10 x 10 m, by holes 20-30 m in length.

The primary orientation of exploration and grade control drillholes varies by deposit, but for the most part is optimised to be as close as possible to perpendicular to the dominant mineralised trend.

Table 10-4 provides a breakdown of the number of holes, total length of drilling and drill spacing for both the exploration drilling and grade control drilling at each deposit.

Table 10-4: Bissa-Bouly Drilling Statistics and Methodology, Per Deposit

Deposit	Exploration Drilling				Grade Control Drilling			
	No. of Holes	Total Metres (m)	Drillhole Spacing (m)	Methodology	No. of Holes	Total Metres (m)	Drillhole Spacing (m)	Methodology
Bouly	1,540	178,298	Variable spacing of 25-75 x 25-50 m	RC (71%) RAB(13%) AC (10%) DD (6%)	8159	266,264	7 x 10 m	RAB (1%) RC (99%)
Bissa Hill	627	35,610	Variable spacing of 15-60 x 20-50 m	RAB (50%), RC (38%), DD (12%)	7,075	78,033	7 x 10 m	RC
IOSE	958	78,584	Near surface (<50 m): 20 x 20 m; >50 m depth: Variable, approximated at 40 x 40 m. RAB drilling: irregular wide-spaced sections at 30 spacing on-section.	RC (75%), RAB (13%), DD (12%)	9,274	161,018	10 x 10 m	RC
SW	994	84,108	Upper portions drilled at 20 x 20 m, decreasing to 30 x 40 m or more at depth. RAB: irregular wide-spaced sections at 30 m on section	RC (80%), DD (15%), RAB (5%)	9,328	197,520	8 x 10 m	RC
Z51	1,772	133,997	Variable spacing of 20-100 x 20-50 m	RC (65%), RAB (34%), DD (1%)	13,808	357,045	7.5 x 10 m	RC
Z52	1,994	156,546	Normally 20 x 20 m or 40 x 40 m	RC (82%), RAB (16%), DD (2%)	23,841	584,004	7.5 x 10 m	RC
Boken Zandkom	514	50,610	Variable drill spacing of 20-80 x 15-45 m	RC (93%), DD (7%)	583	25,508	10 x 10 m	RC
Gougre	454	n/a*	Radiating sections approximately 50-60 m apart, with on-section spacing of approximately 25 m	RC (47%), RAB (39%), DD (14%)	4,329	n/a*	7 x 10 m	RC
Samtenga	279	27,039	Variable spacing of 25-50 x 20-30 m	RAB (59%), RC (34%), DD (7%)	1,079	41,009	5-7 x 10 m	RC
Yimiougou	653	58,545	Variable drill spacing of 10-30 x 40-50 m	RC (71%), DD (17%), AC (12%)	-	-	-	-
Ronguen	738	47,086	Variable spacing of 25-50 x 20 m	RC (92%), DD (7%)	-	-	-	-
Zinigma	222	27,689	40 x 40 m	RC (84%), DD (16%)	-	-	-	-

n/a Not possible to calculate this with the data provided*

10.4.3 Sampling and Assaying

SRK understand that sampling and assaying procedures are broadly similar for all the Bissa-Bouly deposits. A brief summary of procedures is outlined below.

RC samples are collected at either 1 m or 1.5 m intervals. The entire sample passes directly from the cyclone through a rotary cone splitter and are bagged and weighed. Mass balance is recorded by comparing the measured sample mass with the theoretical mass, based on the hole diameter and typical density of the material being drilled. The resulting samples (which typically weigh 20-35 kg, depending on weathering state) are split at the drill rig using a three tier riffle splitter to yield a 2-3 kg sub-sample. Sample chips are logged for lithology and oxidation state. The sample rejects are replaced in the original bag, sealed and stored on-site. Procedures for exploration and grade control RC drilling are largely the same, other than sample length, which is most commonly 1 m for exploration drilling, and most commonly 1.5 m for grade control drilling.

For diamond drilling, upon extraction from the core barrel, core is constructed into continuous runs, separated by core blocks denoting interval depth, and core recovery calculated. Core is logged for lithology, alteration, weathering, veining / mineralisation and structure (where core was oriented). At Bouly, Ronguen, Zinigma and Yimiougou dry density is measured at regular intervals on sun-dried core samples, which are typically 5 cm in length at Bouly, and 10 cm in length at Ronguen, Zinigma and Yimiougou, using a water immersion technique, with a paraffin wax coating. At the Bissa-Zandkom deposits, as well as Gougre and Samtenga, density data appears to be captured less frequently. Core samples were collected for laboratory submission as half core, cut along the length of the core, either with a diamond saw in competent rock, or with a knife in soft saprolite or laterite material. Samples are most commonly 1 m in length, but vary in order to honour lithological contacts.

A number of laboratories have been utilised for sample preparation and assaying across the Bissa-Bouly deposits. At Bouly, ALS Chemex Ouagadougou (Abilab) and SGS Ouagadougou are the primary laboratories used for sample preparation and assay, with ACTLABS in Ouagadougou being employed as an umpire laboratory for QAQC. For the Gougre deposit and the deposits of the Bissa-Zandkom corridor, SGS Ouagadougou and ACTLABS were used for sample preparation and assay for exploration drilling, with an on-site laboratory facility being used for the preparation and analysis of all grade control samples. The on-site laboratory (“SGS Bissa”) is independently managed by SGS. For the most part, samples from the satellite deposits of Samtenga, Yimiougou, Ronguen and Zinigma were analysed at either ALS Chemex Ouagadougou, SGS Ouagadougou or ACTLABS. A small proportion of the Zinigma assays were analysed at SGS Tarkwa in Ghana, and a small proportion of the Yimiougou assays were completed at Intertek lab. No information has been provided to SRK regarding the location of the Intertek laboratory or laboratory accreditation.

SGS Ouagadougou, SGS Tarkwa and SGS Bissa are part of the SGS group of laboratories, and ALS Chemex is part of the ALS laboratory group. Both ALS and SGS operate under a global quality management system that is accredited to ISO 9001:2008 and participate in international proficiency testing programs such as those managed by Geostats Pty Ltd. ACTLABS in Ouagadougou does not hold a recognised accreditation.

The sample preparation methodology at ALS and ACTLABS involved drying the samples; Crushing to -10 mesh; splitting a 250 g to 300 g sub-sample; and pulverising the sub-sample to 90% passing -150 mesh. At the SGS laboratories the samples are crushed to 2 mm, split to yield a sub-sample of 1-1.5 kg, and the sub-samples pulverised to 90% passing -150 mesh. All samples were assayed using a standard fire assay method using a 50 g charge with an atomic absorption spectrometry ("AAS") finish.

10.4.4 Quality Assurance and Quality Control

The Bissa-Bouly exploration and grade control assay databases are supported and checked by a Quality Assurance and Quality Control ("QAQC") system. QAQC sample checks undertaken include the insertion of blanks, Certified Reference Material ("CRM") and field duplicates, as well as laboratory insertion of pulp duplicates, coarse reject duplicates and the use of umpire laboratory checks. The type and number of QAQC check varies between deposit and phase. Sample insertion rates vary significantly. Notably, current QAQC sample insertion rates (for blanks, field duplicates and CRM) for the deposits of the Bissa-Zandkom corridor range from 1:10 to 1:50, whilst current sample insertion rates at Bouly are 1:23 for duplicates and CRM and 1:24 for blanks.

For the most part, the QAQC checks undertaken do not highlight any significant concerns in the quality of the assay data used to inform the resource estimations undertaken on the Bissa-Bouly deposits. It is noted that the CRM checks undertaken for the deposits of the Bissa-Zandkom corridor suggest potential minor under-reporting of Au grade (in the order of around 5%) for samples analysed at ACTLABS, associated to the 2019 and 2020 drill campaigns.

10.5 Mineral Resources – Bissa

10.5.1 Introduction

The Bissa Project comprises 11 deposits, each of which has been modelled and estimated independently (Table 10-5). A number of practitioners have been responsible for the most recent Mineral Resource Estimates for the Bissa deposits. Specifically, the deposits of the Bissa-Zandkom corridor have been modelled and estimated in-house by Nordgold, with various consultants, including SRK, Wardell Armstrong International ("WAI"), Seequent and Mining Plus responsible for the estimation of the satellite deposits of Samtenga, Yimiougou, Gougre, Ronguen and Zinigma.

10.5.2 Geological Domaining

Other than Ronguen, Yimiougou and Zinigma, geological domaining for all deposits was undertaken in Leapfrog Geo software, with estimation domains being based upon indicator interpolant shells. The majority of deposits comprise a single domain, usually defined at a modelling cut-off grade of around 0.5 g/t Au, although low grade and internal high grade domains are utilised in some instances. The indicator interpolant shells are typically guided by dynamic structural trends, which allow the orientation of the shells to vary locally to honour changes in mineralised trends, based upon structural interpretations from downhole data and pit mapping. For the most part, for the operating mines, both grade control drilling data and exploration drilling data was used to inform the indicator interpolant shells; however, in the case of Boken Zandkom and IOSE, only exploration drilling was utilised.

Geological domain modelling for Ronguen, Yimiougou and Zinigma was undertaken in Datamine Studio 3 or RM, based on manual 2D sectional string interpretations of downhole assay data, joined in 3D by tag strings to form volumetric wireframe triangulations. Modelling cut-off grades for the wireframes were between 0.1 g/t and 0.4 g/t Au.

Table 10-5 summarises the modelling approach and resulting geological domain dimensions for each deposit. An example of the geological domain wireframes for Boken Zandkom is displayed in Figure 10-4.

Table 10-5: Bissa Modelling Approach and Deposit Dimensions

Deposit	Geological Modelling Methodology	Deposit Dimensions
Bissa Hill	Leapfrog Geo indicator interpolant based on both grade control and exploration drilling. Modelled at a cut-off grade of 0.5 g/t Au. Sub-domained into Bissa Hill 1 and Bissa Hill 2.	Broad mineralised zones, although largely mined, so only minor remnants reported. Mineralised extents: 1,750 x 45 x 130 m (pre-mining) Approximate dip / azimuth: 75° towards 313° Open at depth
IOSE	Leapfrog Geo indicator interpolant based upon exploration drilling only. Low grade domain modelled at a cut-off grade of 0.2 g/t Au, and internal high grade domain at 2.0 g./t Au. Both the low grade and high grade domains split into two sub-domains of differing orientation.	Complex geometry, with multiple zones comprising numerous lenses of mineralisation Full model has extent of up to 1,400 x 400 x 430 m Two dominant trends: 80° - 310° in the north and 65° - 330° in the south
SW	Leapfrog Geo indicator interpolant based on both grade control and exploration drilling. Modelled at a cut-off grade of 0.5 g/t Au. No internal sub-domaining.	Complex geometry, with multiple lenses of mineralisation Dimensions can be described in terms of 3 zones: Western zone = up to 530 x 220 x 120 m. Central zone = up to 600 x 330 x 250 m. Eastern zone = up to 200 x 130 x 70 m Primary dip / azimuth = 80° - 310°
Z51	Leapfrog Geo indicator interpolant based on both grade control and exploration drilling. Modelling cut-off unknown. Sub-domained into five spatially distinct zones.	Complex geometry, with numerous lenses of mineralisation Mineralised extents: 1,300 x 250 x 160 m Approximate dip / azimuth: 80° - 150° Open at depth
Z52	Leapfrog Geo indicator interpolant shells. 2 “parent” domains. One based upon grade control drilling and one based upon exploration drilling (in area outside of extent of grade control holes). Both modelled at a 0.4 g/t cut-off. Each “parent” domain split into above- and below-laterite portions based on laterite surface wireframe modelled from weathering logging. Below the laterite, both the grade control and exploration drilling models split into 5 spatially distinct zones.	Complex geometry, with multiple zones comprising numerous lenses of mineralisation Largest zone has extent of up to 1,800 x 240 x 200 m Primary dip / azimuth = 75° - 155° Open at depth and to the south
Boken Zandkom	Leapfrog Geo indicator interpolant based on exploration drilling only. Low grade domain modelled at a cut-off grade of 0.2 g/t Au, and internal high grade domain modelled at a cut-off of 0.5 g/t Au. Low grade and high grade domains each sub-domained into four spatially distinct zones.	Low Grade: Zone 1-2 extent = up to 2,000 x 300 x 350 m. Zone 3 extent = up to 500 x 150 x 125 m. Zone 4 extent = negligible High Grade: Smaller, more fragmented volumes. Largest of these = up to 870 x 210 x 130 m All domains have complex geometries with significant internal waste Primary dip / azimuth = 70° - 315° Open at depth and along-strike
Gougre	Leapfrog Geo indicator interpolant based on both grade control and exploration drilling. Modelled at a cut-off grade of 0.5 g/t Au. Sub-domained based on lithology, mineralisation trend and grade.	Complex geometry, with multiple zones comprising numerous lenses of mineralisation, deformed into a broad folds and cross-cutting features Mineralised extents: 1,700 x 240 m x 150 m Approximate dip / azimuth: 90° - 075° in south, 85° - 027° in central area, and 80° - 280° in north Open at depth

Deposit	Geological Modelling Methodology	Deposit Dimensions
Samtenga	Leapfrog Geo indicator interpolant based on both grade control and exploration drilling. Low grade domain modelled at a cut-off of 0.5 g/t Au, and internal medium grade and high grade domains modelled at cut-offs of 2 g/t Au and 10 g/t Au, respectively. Grade domains each sub-domained into 6 spatially distinct zones.	Complex geometry, with multiple zones comprising numerous lenses of mineralisation, deformed into a broad fold Mineralised extents: 730 x 100 x 100 m Approximate dip / azimuth: 55° - 255° Open at depth and to north/south
Yimiougou	Wireframes constructed in Datamine, based on manual, explicit modelling techniques. Generally defined based on a cut-off grade of 0.4 g/t Au, but with flexibility to allow wireframe to pass through lower grade intersections where mineralised either side. Extrapolated up to half-distance between holes at edge of domain.	27 individual domains modelled. Domains form thin, laterally continuous, tabular volumes Extent of induvial domains = up to 80-1,400 x 30-150 x 1-20 m. Can be described in terms of five zones of multiple sub-parallel domains. These “zones” range in extent from up to 160 x 90 x 40 m to up to 2,000 x 150 x 100 m Primary dip / azimuth = 65° - 300° Open at depth
Ronguen	Wireframes constructed in Datamine, based on manual, explicit modelling techniques. Generally defined based on a cut-off grade of 0.1 g/t Au, but with flexibility allowed to maintain model continuity where necessary. Extrapolated up to half-distance between holes at edge of domain.	Multiple zones Mineralised extents: 1,700 x 190 x 40 m Approximate dip / azimuth: 35° - 156° Open at depth, eastern margin is a faulted structure
Zinigma	Wireframes constructed in Datamine, based on manual, explicit modelling techniques. Generally defined based on a cut-off grade of 0.3 g/t Au, but with flexibility to allow wireframe to pass through lower grade intersections where mineralised either side. Extrapolated up to half-distance between holes at edge of domain.	27 individual domains modelled Extent of individual domains = 40-700 x 40-400 x 1-30 m. Extent of the full deposit = 900 x 550 x 225 m Primary dip / azimuth = 20° - 220° Open at depth

**All dimensions given are maximum extents, include internal waste, and presented as along-strike / down-dip / across-strike format.*

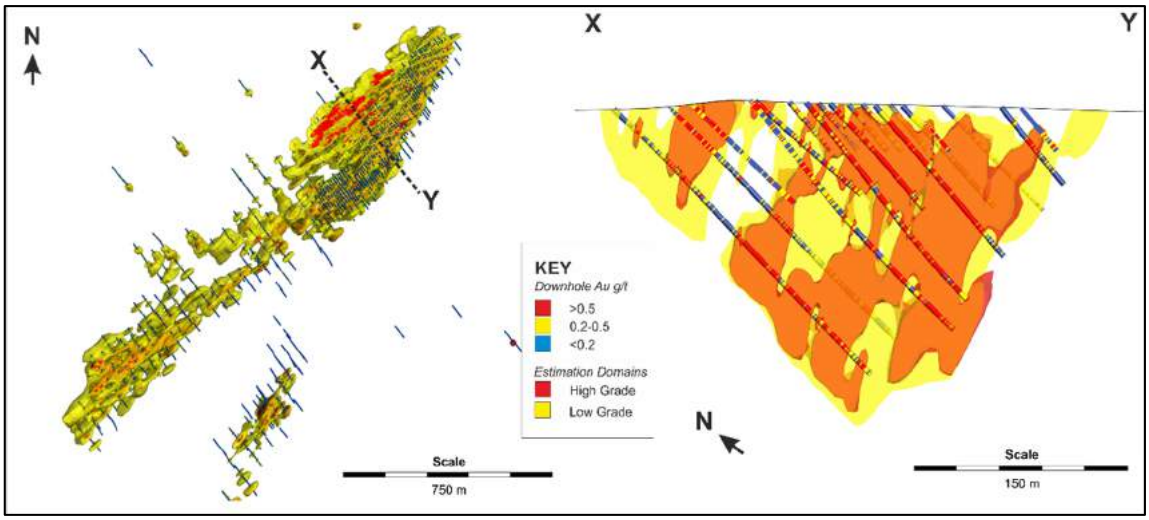


Figure 10-4: 3D Plan (left) and Cross-section (right) Views of Boken Zandkom Estimation Domains

10.5.3 Grade and Tonnage Estimation

For most deposits, block modelling and grade estimation was undertaken in Datamine Studio 3 or RM, and statistical and geostatistical analysis completed in Snowden Supervisor. This is true for all apart from: Gougre, where analysis and modelling was completed in Leapfrog Edge; Ronguen, where statistical and geostatistical analysis was completed in Datamine Studio 3; and, SW, where block modelling and estimation was completed in GEOVIA Surpac.

SRK understands that all estimates were based on 1m composites. Variable caps were applied to the composited assay data, based on a statistical review of outliers. Block models were coded and sub-blocked by the estimation domains described in Table 10-6. Parent block size varied, depending on drill spacing, as outlined in Table 10-6. All deposits were estimated by Ordinary Kriging ("OK"), with kriging parameters guided by variogram modelling, other than the laterite domain at Zinigma, which was estimated by inverse distance weighting ("IDW"). Search ellipse dimensions were guided by variogram ranges and drillhole spacing, and estimation parameters guided by kriging neighbourhood analysis ("KNA"). In most cases, 2nd and 3rd search passes, with expanded search ellipsoids and sometimes relaxed sample requirements, were utilised to fill any blocks not estimated in the first search pass. Dynamic anisotropy was used for most deposits, meaning that the search ellipse orientation varied spatially, depending on the local mineralisation trend. The estimation domains were used as hard boundaries in all estimates. Visual checks, swath plot analyses and statistical comparisons of input composite grades against estimated grades were used to validate the block model estimates.

For most deposits, fixed densities were assigned, based on average density per weathering state, although in the case of Ronguen and Zinigma, density was estimated directly from downhole density data.

Table 10-6 provides a breakdown of grade and tonnage estimation methodology and parameters, by deposit. An example of visual and swath plot validation for the SW estimation is provided in Figure 10-5.

Table 10-6: Bissa Grade and Tonnage Estimation Parameters

Deposit	Data	Comp length	High grade capping	Block model parameters	Grade estimation methodology	Density (g/cm^3)	Block model validation methodology
Bissa Hill	Both GC and EXP drilling	Not Stated	BH1: 20 g/t Au BH2: 25 g/t Au	Parent blocks: 3 x 6 x 3 m No sub-blocks No rotation	Variograms: Directional: nugget 23-50%, max range: 23-61 m Min. no. composites: 4-9 Max. no. composites: 14-22 Max. no. composites per drillhole: not stated Search ellipse dimensions: 60 m (major) x 20 m (semi-major) x 7 m (minor) Search passes: Not stated, Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.0 Sap = 2.1 Tran = 2.3 Fresh = 2.6	Visual checks Swath plots Statistical analysis
IOSE	EXP Drilling	1 m	Low Grade: North: 7.76 g/t South 30 g/t Au High Grade: North: No Cap South: 81.6 g/t Au	Parent Blocks: 10 x 10 x 4 m Sub-blocks: 2.5 x 2.5 x 1 m No rotation	Variograms: Directional: nugget 53-65%, max range: 71.5-77.5 m Min. no. composites: 5-8 Max. no. composites: 17 Max. no. composites per drillhole: No restriction applied Search ellipse dimensions: 71.5 m (major) x 32 m (semi-major) x 18-21.5 m (minor) Search passes: 3; (SV2 = SV1 x 2, SV3 = SV1 x 3 and relaxed sample requirements) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.0 Sap = 2.1 Tran = 2.3 Fresh = 2.6	Visual checks Swath plots Statistical analysis
SW	Upper part of domain = GC drilling. Lower part = EXP drilling	1 m	GC: 55 g/t Au EXP: 47 g/t Au	GC Area: Parent Blocks: 2.5 x 2.5 x 4 m No sub-blocks EXP Area: Parent Blocks: 10 x 10 x 8 m Sub-blocks: 2.5 x 2.5 x 4 m No rotation	Variograms: Directional: nugget 20-23%, max range: 69-154 m Min. no. composites: 4 Max. no. composites: 28-29 Max. no. composites per drillhole: 2 Search ellipse dimensions: 69-154 m (major) x 31-69 m (semi-major) x 21-27 m (minor) Search passes: 3; (SV2 = SV1 x 1.5, SV3 = SV1 x 2) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.0 Sap = 2.1 Tran = 2.3 Fresh = 2.6	Visual checks Swath plots Statistical analysis

Deposit	Data	Comp length	High grade capping	Block model parameters	Grade estimation methodology	Density (g/cm^3)	Block model validation methodology
Z51	Both GC and EXP drilling	Not Stated	Caps per domain: S2 (GC): 38 g/t, S4 (GC): 57 g/t, S4 (EXP): 31 g/t	Parent blocks: 5 x 5 x 4 m Sub-blocks: 2.5 x 2.5 x 4 m No rotation	Variograms: Directional: nugget 6-46%, max range: 14-221 m Min. no. composites: 2 Max. no. composites: 100 Max. no. composites per drillhole: 2 Search ellipse dimensions: 42-118 m (major) x 21-61m(semi-major) x 13-25 m (minor) Search passes: 3; (SV2 = SV1 x 1.5, SV3 = SV1 x 2) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.0 Sap = 2.1 Tran = 2.3 Fresh = 2.6	Visual checks Swath plots Statistical analysis
Z52	Both GC and EXP drilling	1 m	GC Domain: Above Laterite: 24 g/t Au; Below Laterite: 69 g/t Au / 201 g/t Au/ no cap (depending on zone) EXP Domain: Above Laterite: No cap; Below Laterite: 69 g/t Au/ 201 g/t Au/ no cap (depending on zone)	GC Domain: Parent Blocks: 10 x 10 x 4 m Sub-blocks: 2.5 x 2.5 x 1 m EXP Domain: Parent Blocks: 5 x 5 x 2 m Sub-blocks: 1.25 x 1.25 x 0.5 m No rotation	Variograms: Directional: nugget 10-47%, max range: 30.5-58 m Min. no. composites: 2-5 Max. no. composites: 12-20 Max. no. composites per drillhole: No restriction applied Search ellipse dimensions: 13-18.5 m (major) x 6-13 m (semi-major) x 3-6.5 m (minor) Search passes: 3; (SV2 = SV1 x 2, SV3 = SV1 x 3) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.0 Sap = 2.1 Tran = 2.3 Fresh = 2.6	Visual checks Swath plots Statistical analysis
Boken Zandkom	EXP Drilling	1 m	Low Grade Domain: 2 g/t Au / no cap (depending on zone) High Grade Domain: 2 – 5 g/t Au	Parent Blocks: 20 x 20 x 4 m Sub-blocks: 2.5 x 2.5 x 0. 5 m No rotation	Variograms: Directional: nugget 16-35%, max range: 60-80 m Min. no. composites: 16 Max. no. composites: 20 Max. no. composites per drillhole: No restriction applied Search ellipse dimensions: 71.5 m (major) x 32 m (semi-major) x 18-21.5 m (minor) Search passes: 3; (SV2 = SV1 x 2, SV3 = SV1 x 5 and relaxed sample requirements) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.2 Sap = 1.7 Tran = 2.35 Fresh = 2.7	Visual checks Swath plots Statistical analysis

Deposit	Data	Comp length	High grade capping	Block model parameters	Grade estimation methodology	Density (g/cm^3)	Block model validation methodology
Gougre	Both GC and EXP drilling	1 m	Capping by domain: GG_D1_HG: 25 g/t Au GG_D1_LG: 15 g/t Au GG_D2: 10 g/t Au GGN_D2: 12 g/t	GC domain: Parent blocks: 10 x 10 x 8 m No sub blocks EXP domain: Parent blocks: 20 x 20 x 8 m No sub blocks No rotation	Variograms: Directional: nugget 6-46%, max range: 26-109 m Min. no. composites: 6-8 Max. no. composites: 20-40 Max. no. composites per drillhole: No restriction applied Search ellipse dimensions: 20-82 m (major) x 13-71 m (semi-major) x 10-31 m (minor) No additional search passes Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.19 Sap = 2.34 Tran = 2.75 Fresh = 2.78	Visual checks Swath plots Statistical analysis
Samtenga	Both GC and EXP drilling	1 m	Caps vary between 12.5 g/t Au and 75 g/t Au in GC data and 1.5 and 60 g/t Au in EXP data	GC domain: Parent blocks: 2.5 x 5 x 4 m Subblocks: 0.65 x 0.65 x 0.5 m EXP domain: Parent blocks: 10 x 20 x 8 m Subblocks: 0.65 x 0.65 x 0.5 m No rotation	Variograms: Directional: nugget 10-34%, max range: 15-100 m Min. no. composites: 6 Max. no. composites: 20 Max. no. composites per drillhole: 6 Search ellipse dimensions: 22.5 m (major) x 7.5 m (semi-major) x 4 m (minor) Search passes: 3; (SV2 = SV1 x 1.5, SV3 = SV1 x 3 and relaxed sample requirements) Grade estimation: Ordinary Kriging	Fixed SG Lat = 2.41 Sap = 2.4 Tran = 2.74 Fresh = 2.8	Visual checks Swath plots Statistical analysis
Yimiougou	EXP drilling	1 m	Caps of between 3.86 and 19.19 g/t Au applied to 11 domains. No capping applied to 16 domains	Parent Blocks: 10 x 5 x 6 m Sub-blocks: 1 x 1.25 x 1.5 m Block model rotated 35° clockwise around Z axis	Variograms: Directional: nugget 49-54%, max range: 60-100m Min. no. composites: 16 Max. no. composites: 24 Min. no. drillholes: 4 Search ellipse dimensions: 60 m (major) x 30 m (semi-major) x 10 m (minor) Search passes: 3; (SV2 = SV1 x 1.5, SV3 = SV1 x 2 and relaxed sample requirements) Grade estimation: Ordinary Kriging	Fixed SG Weath = 2.0 Tran = 2.36 Fresh = 2.84	Visual checks Swath plots Statistical analysis

Deposit	Data	Comp length	High grade capping	Block model parameters	Grade estimation methodology	Density (g/cm^3)	Block model validation methodology
Ronguen	EXP drilling	1 m	High Grade domain: 60 g/t Au Low Grade domain: 35 g/t Au	Parent blocks: 10 x 5 x 5 m Sub-blocks: 3.3 x 1.6 x 1.6 m No rotation	Variograms: Directional: nugget 22%, max range: 99-103 m Min. no. composites: 8 Max. no. composites: 15 Max. no. composites per drillhole: 6 Min no. octants: 3 Max. no. composites per octant: 5 Search ellipse dimensions: 25-50 m (major) x 30-40 m (semi-major) x 15 m (minor) Search passes: 3; (SV2 = SV1 x 2, SV3 = SV1 x 4 and relaxed sample requirements) Grade estimation: Ordinary Kriging	Density estimated using based on downhole data using IDW. Isotropic search ellipse with 100 m range	Visual checks Swath plots Statistical analysis
Zinigma	EXP drilling	1 m	Above laterite: no cap Below laterite: 21.16 g/t Au	Parent Blocks: 5*10*5m Sub-blocks: 2*1*1m No rotation	Variograms: Directional: nugget 49%, max range: 45-69 m Min. no. composites: 8 Max. no. composites: 16 Min. no. drillholes: 2 Min no. Octants: 2 Search ellipse dimensions: 35 m (major) x 15 m (semi-major) x 40 m (minor) Search passes: 3; (SV2 = SV1 x 2, SV3 = SV1 x 3 and relaxed sample requirements) Grade estimation: Ordinary Kriging Above Laterite estimate uses a single pass with 100 x 100 x 100 m search ellipse, and is estimated by inverse distance weighting	Density estimated using based on downhole data using IDW. Search Ellipse = 200 x 200 x 25 m. Weathering model used as hard boundaries	Visual checks Swath plots Statistical analysis

* GC = Grade Control Drilling; EXPL = Exploration Drilling; SG = Specific Gravity; SV = Search Volume.

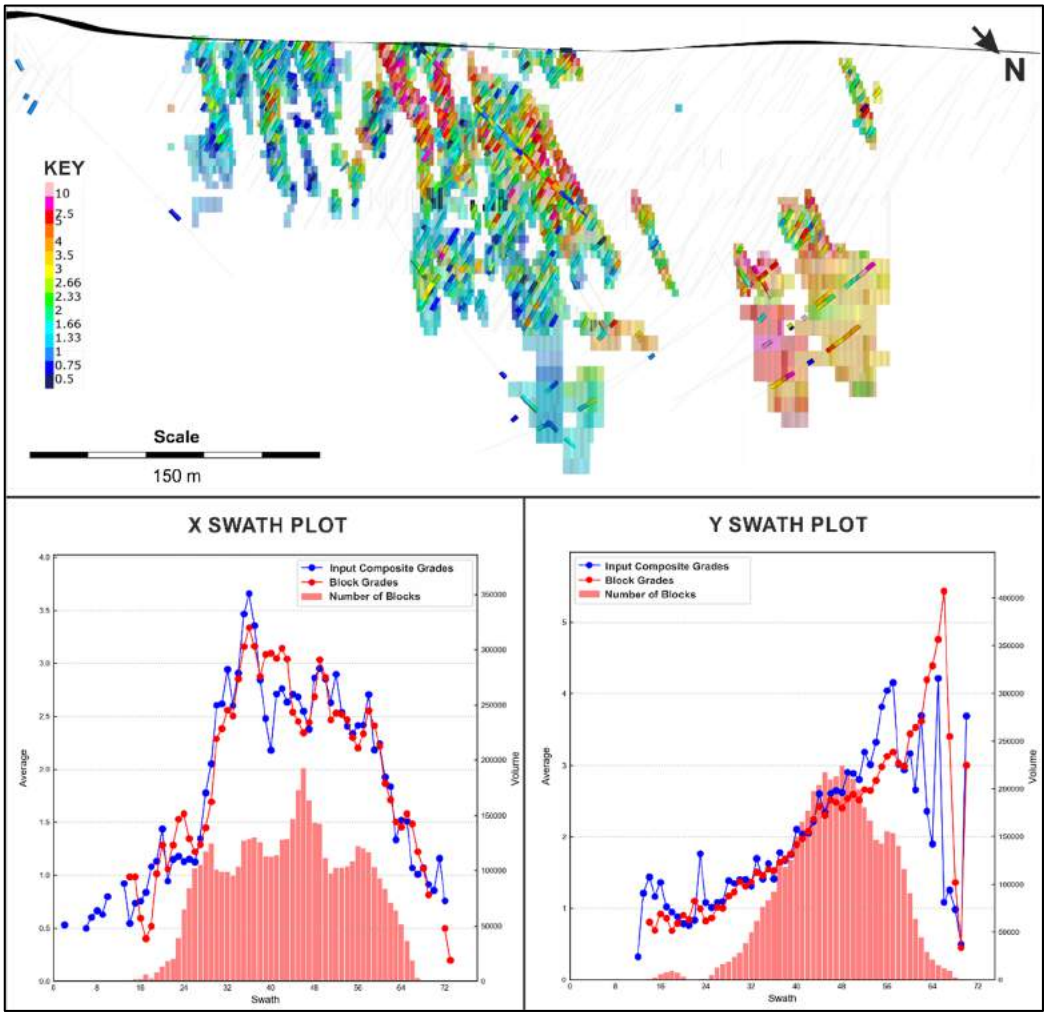


Figure 10-5: Validation of Bissa SW Resource, showing (top) Visual Validation against Input Composites on NE-SW Cross-Section, and (bottom) X and Y Swath Plots

10.5.4 Mineral Resource Classification

The approach taken for classification of the Bissa Mineral Resource block models varies between the individual deposits. That said, a broadly similar approach has been taken in the classification of the operating mines, as outlined below:

- Measured: For the deposits that have utilised grade control data for estimation, estimated blocks are largely classified as Measured across the full extent of the areas drilled out by grade control holes. No Measured resources have been defined for the deposits that have not utilised grade control data for estimation.
- Indicated: For the most part, all estimated blocks outside the extent of grade control drilling are classified as Indicated, where exploration drill spacing is in the order of around 20-30 x 20-30 m. That said, in some cases, different approaches have been implemented in defining the extent of Indicated Mineral Resources. For example, for the Z52 deposit, Indicated Mineral Resources were defined based on all estimated blocks inside a 20 m buffer of the Measured outline.

- Inferred: The approach in defining the extent of Inferred Mineral Resources differs between deposits, varying from only those blocks in areas drilled at a spacing of 30-40 m (for example, Z52), to all estimated blocks inside the estimation domain wireframes that are not classified as Measured or Indicated (e.g. SW).

The advanced exploration properties of Ronguen, Yimiougou and Zinigma have been classified as Indicated and Inferred, with no Measured material defined. The estimated Yimiougou and Zinigma block models are classified as Indicated where drill spacing is less than 40m x 40m (Zinigma) or 50 x 50 m (Yimiougou), with all other estimated blocks classified as Inferred. For Ronguen, classification was broadly based on search pass, with an Indicated outline digitised based on blocks estimated in search pass 1, and blocks estimated in search pass 2 or 3 classified as Inferred.

10.5.5 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Bissa (Table 10-7) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 10-7, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.36-0.72 g/t Au CoG based on a long term Au price of USD1,750/oz. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 100-143% dilution and 70-102% recovery, and 62-93% processing recovery depend on material type per pit, open pit mining cost of USD1.43-2.23/t, processing cost of USD11.85-27.24/t_{ore} dependent on pit location and material type, G&A at USD3.04/t_{ore}. Sustaining capital of USD0.20/t mined and USD0.30/t processed.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

Table 10-7: Bissa Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	Ore Zone/Type	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
				Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Bissa	Bissa Hill	All Zones	0.33 – 0.39	367	2.00	24	99	2.41	8	467	2.08	31	4	0.94	0	471	2.08	31
	IOSE	All Zones	0.35 – 0.56				4,533	1.00	145	4,533	1.00	145	1,190	0.99	38	5,723	1.00	183
	SW	All Zones	0.36 – 0.57	434	2.33	33	1,739	2.73	153	2,174	2.65	185	2	10.15	1	2,176	2.66	186
	Z51	All Zones	0.35 – 0.49	1,505	1.54	75	2,776	1.63	145	4,281	1.60	220	1,881	1.80	109	6,162	1.66	329
	Z52	All Zones	0.36 – 0.56	3,703	1.28	153	3,749	1.38	167	7,452	1.33	320	2,538	1.35	110	9,990	1.34	430
	Gougre	All Zones	0.51 – 0.56	639	1.69	35	2,690	1.92	166	3,328	1.88	201	778	1.96	49	4,107	1.89	250
	Ronguen	All Zones	0.45 – 0.68				5,022	1.58	256	5,022	1.58	256	138	0.85	4	5,160	1.56	259
	Zinigma	All Zones	0.47 – 0.62				3,001	1.18	114	3,001	1.18	114	187	1.51	9	3,189	1.20	123
	Yimiougou	All Zones	0.58 – 0.80				3,372	1.76	190	3,372	1.76	190	160	1.64	8	3,532	1.75	199
	Samtenga	All Zones	0.67 – 0.81	159	2.86	15	801	3.02	78	960	2.99	92	72	3.58	8	1,032	3.03	101
	Boken Zandkom	All Zones	0.41 – 0.46				12,806	1.11	459	12,806	1.11	459	5,664	1.07	194	18,470	1.10	653
	Stockpiles (All Types)			-	-	-	11,194	0.66	238	11,194	0.66	238	-	-	-	11,194	0.66	238
		Total Bissa		**6,808**	**1.52**	**333**	**51,783**	**1.27**	**2,119**	**58,591**	**1.30**	**2,451**	**12,614**	**1.31**	**530**	**71,205**	**1.30**	**2,982**

.

10.5.6 SRK Comments and Recommendations

Overall, SRK considers that the estimated block models for the Bissa deposits are of variable quality, but are sufficiently robust for the reporting of Mineral Resources according to the classifications applied. No fatal flaws have been identified that would preclude the reporting of Mineral Resources; however, a number of concerns of low to moderate materiality have been identified by SRK. These mostly relate to the deposits of the Bissa-Zandkom corridor; however, some concerns are also identified in regard to the estimation of the satellite deposits. The most significant of these concerns are outlined below, along with recommendations to improve upon these aspects in future model updates.

The observations listed below have been identified across multiple deposits:

- SRK considers that the use of Leapfrog indicator interpolant shells to define estimation domains is appropriate for capturing the overall geometry of the mineralised bodies, and is an effective methodology for appropriately representing the structural complexity of the Bissa deposits and honouring the large volume and density of downhole assay data available. That said, it is noted that in some cases the resulting shells may not adequately capture the geometry or continuity of internal thin, discrete, high grade zones of mineralisation that are suggested by grade control drilling at some of the deposits of the Bissa-Zandkom corridor. These thin, continuous structures appear to have a different grade profile to the wider deposit. In some cases, an attempt has been made to sub-domain the higher grade mineralisation through the use of high grade internal indicator interpolant shells, however these often do not accurately capture the geometry or continuity of the high grade zones. SRK therefore considers there could a mixing of mineralisation styles in the model, which is likely to impact on the accuracy of local block estimates. SRK would recommend that the modelling approach is reviewed, with a view to effective sub-domaining of internal discrete high grade structures.
- In areas of wider drill spacing, continuity of the indicator interpolant shells is sometimes poor. SRK recommends manual adjustments to the indictor interpolant shells in places to improve continuity where warranted.
- At a deposit-scale, the trends applied to the estimation domains and block model estimates appear to be broadly reflective of the mineralisation trends, however SRK suggest that these could be refined in places to improve the resolution / detail of the trends applied to better reflect local variations in primary controls on mineralisation.
- Indicator interpolant shells can be highly sensitive to the selection of the indicator iso-value. This can have significant impact on model volume, with little correlative change in grade. SRK has completed a high-level check on the selected iso-values for the Bissa models, and for the most part these appear to be well selected, other than possibly for Boken Zandkom, for which the selected iso-value may result in minor over-estimation of tonnage for this deposit. Given the significant impact of indicator iso-value on resulting tonnages reported, SRK would recommend that Nordgold conducts a thorough review of the iso-values used for each of the deposits that have been modelled using an indicator interpolant approach.

- Where low grade and internal high grade domains have been modelled, a hard boundary has been implemented between the two. This results in an artificially abrupt grade distribution in the block model. SRK would recommend that this approach is reviewed and, where appropriate, a soft boundary is implemented between high and low grade domains for future estimates.
- At a number of the deposits, logging of the oxidation state is highly inconsistent, which impacts on the potential depth extents of these domains. The oxidation surfaces modelled on this data are necessarily highly smoothed and are forced to be inconsistent with much of the logging data to avoid unrealistic geometries. Since the weathering models are directly utilised in assigning block model density values, SRK would recommend that, where possible, the downhole weathering logging is reviewed and standardised to enable the construction of more accurate and consistent weathering models.
- SRK notes a lack of correlation in some instances between the fixed density values assigned to the block model and the raw density data. Specifically, the fixed density values applied to the fresh rock are often marginally (5-10%) lower, and the fixed density values applied to the saprolite and transition often marginally (5-15%) higher, than the value suggested by the raw density data. Additionally, in the case of IOSE, there are very evident lateral changes in density shown by the downhole density data, that are not reflected in the fixed density values applied to the block model on the basis of weathering state alone.
- SRK considers that the classification of the Bissa deposits is somewhat inconsistent, particularly in regard to the delineation of the Indicated – Inferred boundary and the extent of Inferred resources. Differences in approach to the delineation of the classification outlines, both between deposits and also internally within individual deposits, are difficult to understand, and do not appear to be well laid out or justified. It is recommended that the classification outlines are reviewed, and an attempt made to better standardise the criteria (with due consideration of relative geological complexity) for the definition of Measured, Indicated and Inferred resources in future updates.
- QAQC checks undertaken suggest possible minor under-reporting of Au grade for samples analysed at ACTLABS, at least in 2019 and 2020. This primarily impacts on the deposits of the Bissa-Zandkom corridor. Whilst of low overall materiality, SRK considers that this possible low-grade bias warrants further investigation.

In addition to the general recommendations outlined above, a number of deposit-specific issues have been identified, as follows:

Boken Zandkom:

- Whilst noting that, broadly, the estimated block grades are a reasonable representation of the input composite grades, the block model estimate is considered to be very local in places, resulting in quite an erratic distribution of block grades. It is recommended that the estimation parameters are reviewed and adjusted to attempt to smooth the block model grades where necessary.

Z52:

- The Z52 estimate has been estimated in to sub-blocks, rather than into parent blocks. At a global-scale this is not considered a material flaw; however, this should be rectified for the next resource update.

SW:

- Visual checks suggest that, whilst resource reports state that sub-blocks were used, in practice no sub-blocking was applied in the portion of the model based upon exploration drilling data. As a result, the resolution of the block model is limited to the size of the parent blocks and does not honour the geometry of the estimation domains very well in the thin and fragmented portions of the model.

Zinigma:

- The quality of the geological domain modelling at Zinigma is considered to be impacted by number of issues, including: domains passing through holes with no mineralisation; inclusion of waste material in the footwall or hangingwall of domains; exclusion of high grade intervals from the estimation domains (where such intercepts are in the immediate footwall or hangingwall of the estimation domains); and significant lengths of internal waste included in the domains, which would benefit from removal through the definition of internal waste volumes. This is likely to impact on the accuracy of local block estimates, meaning that reporting at higher grade cut-off values within the current model may be problematic. These issues should be fixed for future resource updates.
- At Zinigma, density is directly estimated into the block model from downhole density samples. SRK considers that the distribution of downhole density data is not sufficient for direct estimation of density, and that confidence in individual block estimates of density are low. It is also noted that the estimated fresh rock densities do not appear to adequately reflect the input density data and, particularly at depth, that fresh rock density may be under-estimated by up to as much as 20%.
- As per the deposits of the Bissa-Zandkom corridor, the Zinigma estimate may benefit from sub-domaining of internal high grade zones.

10.6 Mineral Resources – Bouly

10.6.1 Geological Modelling

The mineralisation model for Bouly was produced by Nordgold personnel. All modelling was completed in Leapfrog, using a grade shell approach. Two separate domains were modelled, namely a low grade threshold of 0.25 g/t Au, and high grade threshold of 2 g/t Au. Two separate models were produced, based on the grade control data and exploration data respectively. The mineralisation wireframes were generated using 27 structural trends, using a spheroidal interpolant with a 25 m range in the low-grade grade control domain and 75 m range in the low-grade exploration domain. For the high-grade domains, a range of 150 m was used for both the grade control and exploration domains. The exploration domains were clipped against the grade control domains to ensure no double accounting of volumes.

In addition, wireframes for the modelled lithologies were also produced by Nordgold. The modelled lithologies were diorite porphyry, diorite, granodiorite, and undifferentiated sediments. Surfaces reflecting the base of the oxidation states (i.e. base of laterite, base of saprolite, and base of transition) were also generated, based on the logging in the database.

10.6.2 Grade Estimation

Au block grades were estimated using Ordinary Kriging, in Datamine software. The grade and tonnage estimates were completed by an external consultant, namely Mining Plus in March 2020. The data available comprised some 9,244 grade control holes, drilled using RC methods, and 1,164 exploration holes. The exploration holes comprised 92 diamond holes and 1,072 RC holes. All holes drilled using RAB and AC methods, and trench samples were excluded prior to modelling and estimation. The estimation parameters and approach used is summarised below:

- Composite length 1 m.
- Block size for grade control data 5 x 5 x 4 m, and for the exploration data 40 x 40 x 4m, with sub-blocking to 2.5 x 2.5 x 0.5 m for both models.
- Contact analysis between oxidation domains indicated no significant changes in grade distribution between weathering states. As such, the estimation domains were based on the low-grade / high-grade solids, with hard boundaries applied between the two.
- Capping of high grades was applied: the grade control data was capped at 35 g/t Au, and the exploration data 20 g/t Au. A cap of 0.25 g/t Au was applied to composites which fell within the waste domain
- Variograms were produced for the grade control and exploration low grade domains. Variography for the high-grade domains proved unsuccessful. The nugget effect for the low grade domain varies between 4% and 16%, and the maximum range, between 106 m and 428 m.
- Three search passes were used to estimate the block model, with a minimum of 10 composites and a maximum of 18. A maximum of four drillholes was used for each block estimate. For the third pass, the minimum number of composites was reduced to four. Unfilled blocks were assigned a grade of 0 g/t Au.
- Dynamic anisotropy was applied where the orientation of variogram models and search ellipsoids varies according to the influence of the interpreted major mineralisation-controlling structures.
- Prior to validation, the grade control and exploration block models were combined to produce a single block model.
- The block model was validated visually and statistically against the original input data and against the estimation composites. This validation included preparation of swath plots.

10.6.3 Density

Tonnage estimation was based on assigned density values, based on the weathering state applied. The density values assigned were:

- Laterite: 1.91 t/m^3;
- Saprolite: 1.76 t/m^3;
- Transition: 2.17 t/m^3;
- Fresh: 2.47 t/m^3.

10.6.4 Mineral Resource Classification

All blocks within the grade control model were classified as Measured Mineral Resources. This reflects the close spaced drilling and good understanding of the geological and grade continuity in these areas. Classification of Indicated Mineral Resources within the exploration model was based on defining a drillhole spacing which is considered to achieve 15% error at 90% confidence for an annual production volume. This drillhole spacing was calculated as being 20 x 20 m. Inferred Mineral Resources were classified outside of the Indicated volumes, up to a spacing of approximately 75 x 75 m.

10.6.5 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Bouly (Table 10-8) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 10-8, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.23 g/t Au CoG based on a long term Au price of USD1,750/oz. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 102% dilution and 98% recovery, and 35% for fresh rock and 71-79% for other material types, open pit mining cost of USD1.33-1.52/t, processing cost of USD5.41-6.71/t_{ore} dependent on material type, G&A at USD1.43/t_{ore}. Sustaining capital of USD0.20/t_{ore} mined and USD0.30/t processed.
5. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
6. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
7. Mineral Resources are presented on a 100% basis.

Table 10-8: Bouly Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Bouly	Bouly	0.23	21,269	0.49	338	158,766	0.51	2,584	180,035	0.50	2,922	117,907	0.51	1,930	297,942	0.51	4,853
	Stockpiles		-	-	-	12,173	0.32	126	12,173	0.32	126	-		-	12,173	0.32	126
	Total Bouly		**21,269**	**0.49**	**338**	**170,939**	**0.49**	**2,710**	**192,208**	**0.49**	**3,048**	**117,907**	**0.51**	**1,930**	**310,115**	**0.50**	**4,978**

10.6.6 SRK Comments

In reviewing the underlying data, geological models, grade and tonnage estimates, and the reported Mineral Resources for Bouly, SRK makes the following comments:

- SRK notes that Nordgold has flagged some QAQC issues, including problems with apparent bias and miss-labelling of certified reference material assays, and with reporting of assays near to the detection limit. SRK notes that these QAQC results appear to impact the grade control drilling more than the historical exploration drilling. SRK notes that the QAQC issues are not considered material; however, Nordgold has committed to investigate the root cause so they do not become a systematic concern.
- Low-grade mineralisation has been modelled to significant distances beyond the existing exploration drilling. Furthermore, the modelling approach taken has resulted in multiple discs, or greater than 70 m in diameter around single drillholes.
- SRK notes that the high-grade domain is based on a threshold of 2 g/t Au, but there are numerous intersections of greater than 2 g/t Au which are not captured. SRK would recommend that the modelling approach be reviewed to ensure the high grades are being captured and modelled appropriately.
- SRK considers that the tonnage and grade modelling methodologies applied are suitable, although SRK notes that in some localised areas, grade has been extrapolated to significant distances (>75 m) beyond existing drilling.
- The classification of Measured and Indicated Mineral Resources is considered appropriate, although SRK notes that Inferred Mineral Resources are defined for areas of significant depth and at significant distances beyond the existing drilling and may therefore be susceptible to significant reinterpretation as further exploration is conducted.

SRK considers that the comments made are not material to the reported Mineral Resources, but makes the following recommendations:

- SRK understands that the QAQC data is systematically reported, as grade control and exploration drilling is collected. The issues identified during the grade control drilling programme are systematically reported to the laboratory. SRK considers that if significant biases are identified which may impact on the quality of the data used for the estimates, that this should be reflected in the classification applied.
- The methodology used to constrain the low-grade mineralisation should be reviewed to ensure that the models reduce the degree of extrapolation beyond the existing drilling. The grade-based modelling methodology has resulted in some areas where mineralisation has been modelled inappropriately in poorly informed areas, resulting in disc-like structures around individual drillholes.
- For the high-grade domain, SRK notes that the approach is not capturing and constraining a significant number of high-grade intersections. SRK therefore considers that the modelling approach for the high-grade domain should also be reviewed to determine if there is a more appropriate method for reducing the influence of the high-grade composites. This could include the identification of controlling structures or lithologies which may influence the localisation of the high grades. These should then be incorporated into any subsequent geological modelling.

10.7 Mining and Ore Reserves – Bissa

10.7.1 Current Mining Operations, Operating Strategy and Mining Fleet

Current mining operations at Bissa are focused on a number of different open pits. Figure 10-6 displays the layout of the Bissa complex.

Bissa gold mine operates a typical modern open pit operation with drilling and blasting followed by load and haul allowing for selective mining of the ore. The material lithologies are divided into four main categories: Laterite, Saprolite, Transition, and Fresh.

Total mining production in 2020 was 33.5 Mt (4.6 Mt ore and 28.9 Mt waste). Total planned mining production (ore and waste), as per the Base Case schedule, is approximately 34.5 Mtpa in 2021 reducing to 28 Mtpa in 2023, after which it tapers down to zero in H1 2025, when mining ceases. During H2 2025, 2026 and 2027, ore is fed only from the RoM stockpile, after which the LoM schedule ends. Fleet capacity is sufficient, with only rebuilding and some replacement capital necessary during the LoM. There are currently 39 trucks with a payload of 100 t that are used for production from the open pits. Assumed cycle times average 24 minutes.

The mine has several significant opportunities to extend the LoM but this will depend on the exploration program and the gold price.

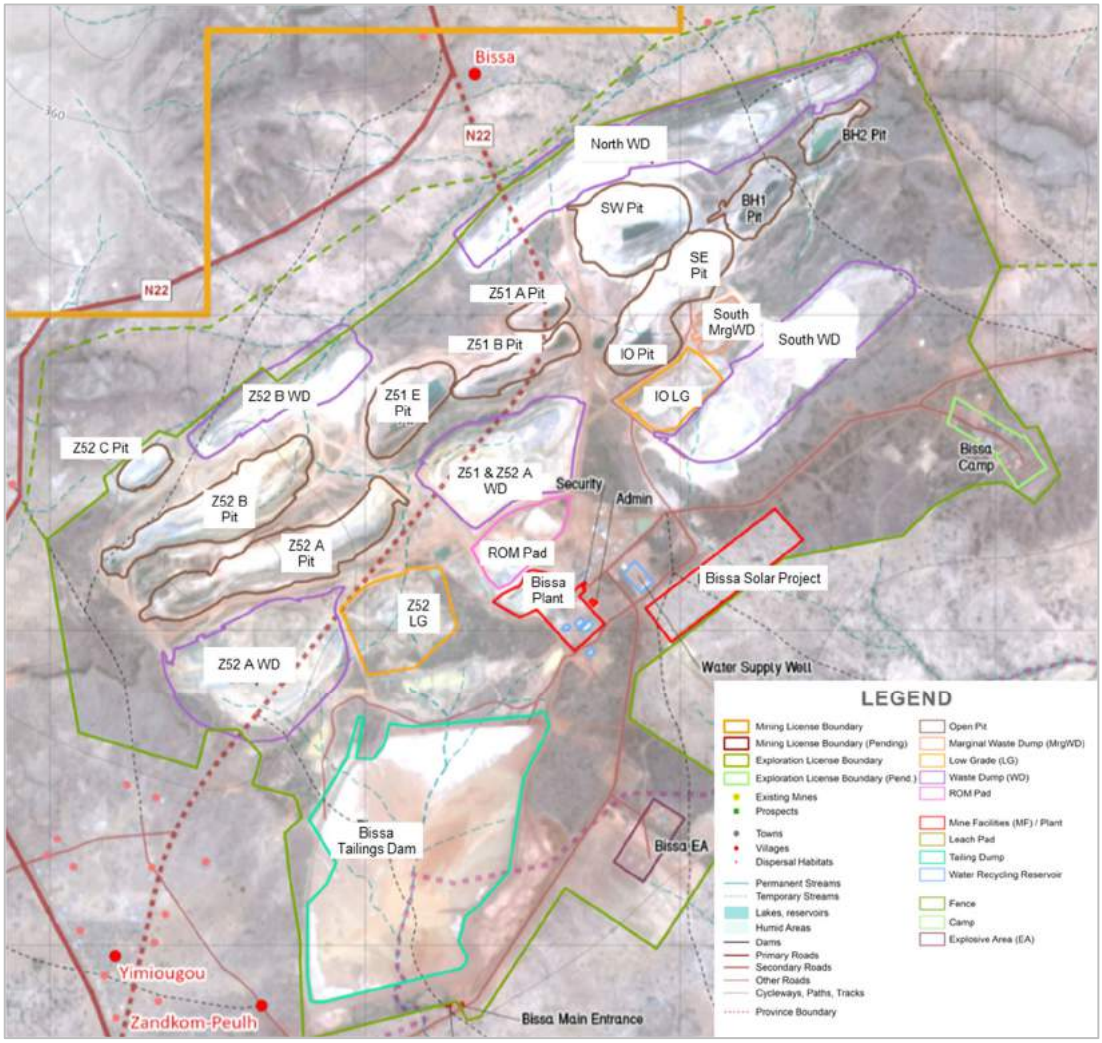


Figure 10-6: Bissa Mine Layout

10.7.2 Historical Mining Production

Ore production has been variable over the last five years, as presented in Table 10-9. Total material mined had been increasing from 2016 up to 2019, but reduced during 2020.

Table 10-9: Bissa Historical (2016 to 2020) Mining Production

Statistics	Units	2016	2017	2018	2019	2020
Open pit						
Mined	(kt)	38,645	37,526	41,680	43,120	33,437
Waste	(kt)	34,697	32,905	37,512	38,581	29,957
Ore	(kt)	3,948	4,622	4,168	4,540	3,480
	(g/t Au)	1.56	1.48	1.25	1.19	1.44
	(koz Au)	200	220	168	174	161
Stripping ratio	(t_{waste}:t_{ore})	8.8	7.1	9.0	8.5	8.6

10.7.3 Open Pit Geotechnical Considerations

The Bissa open pit mine is currently formed from a number of small to medium size open pits that generally mine oxide material.

Most mined slopes are within saprolites that are derived from granitic rocks have deep weathering profile with a gradual transition zone from rock to soil. Where the saprolite protoliths are basic rocks, they tend to weather rapidly into soils, providing sharp boundaries between rock materials and soil-like products. Where meta-volcanics and meta-diorites form the saprolite protolith, original rock types have been highly metamorphosed to essentially schistose and gneissose, strongly foliated rocks. One important characteristic, quite distinct from the weathered meta-sediments, is that these weathered meta-basic rocks tend to decompose (slake) rapidly upon exposure. This preferentially occurs parallel to schistosity, with result that first micro then macro cracks open along the foliation fabric of these bodies. This permits rainwater to penetrate which exacerbates the process, leading first to bench-scale and with time to inter-ramp scale instability.

Given the maturity of the operations, there is a lack of geological, structural and hydrogeological models upon which an integrated geotechnical model can be developed. Given the susceptibility of the green schist facies mafic meta-volcanic rocks and meta-diorite to degrade over time, an understanding of the spatial distribution of this material in the saprolite slopes is necessary. Figure 10-7 presents a view of the SW pit in 2020.

All open pits have been assigned specific mine design criteria to allow for mine planning with slope designs generally developed in-house by Nordgold. Slope angles within the Saprolite have been based on minimal geotechnical data and analyses with the assumption that all saprolite slopes with be depressurised. The design criteria used to develop the IO and Zandkom LoM pit designs are summarised in Table 10-10.

Figure 10-7: Bissa SW Pit View

Table 10-10: Bissa IO and Zandkom Slope Design Criteria Used to Develop 2020 LoM Pits

Pit	Slope	Regolith	BFA (°)	BH (m)	B Width (m)	IRA (°)	Max. Stack Height(m)
IO	North	Laterite	55	8	4	42	38
		Saprolite	50	8	4	38	38
		Transition	60	8	5	45	12
		Fresh	75	16	7.5	55	120
IO	South	Laterite	55	8	4	42	30
		Saprolite	50	8	4	39	30
		Transition	60	8	5	40	16
		Fresh	75	16	7.5	54	114
IO	East	Laterite	55	8	4	41	46
		Saprolite	50	8	4	38	46
		Transition	60	8	5	47	14
		Fresh	75	16	7.5	56	110
Zandkom	North, West, East	Laterite	45	8	4	34	56
		Saprolite	45	8	4	34	56
		Transition	60	8	4	43	24
		Fresh	75	16	7.5	56	56
Zandkom	East	Laterite	45	8	4	34	56
		Saprolite	45	8	4	34	56
		Transition	60	8	4	47	23
		Fresh	75	16	7.5	56	56

The following range of inter-ramp angles have been used to design the remaining pits within in the Bissa mining complex:

- Laterite 34° to 42°;
- Saprolite 34° to 42°;
- Transition 34° to 50°;
- Fresh 49° to 56°.

Whilst geotechnical design criteria have been developed for each of the mines, there is little geotechnical information available and little interpretation and analyses has been undertaken when developing design criteria.

A number of the operations have experienced failures within the Saprolite slopes, especially where the Saprolite protolith is formed from meta-volcanic and meta-diorites. Such failures have caused operational challenges. The failures are a result of design that is forced to make a number of assumptions with regards material strength, remnant structure and pore pressure and all current designs assume depressurised slopes; however, no depressurisation measures are currently being undertaken. It should be noted that not all saprolite slopes exhibit significant failure.

SRK has been engaged by the Company to develop and assist in the implementation of a standards set of industry best practice Ground Control Management Plans (“GCMP”), Surface Water Management Plans (“SWMP”) and Ground Water Management Plans (“GWMP”) for each of the operations. As such, SRK will be working to incorporate the current processes used at Bissa into the new plans, define gaps and assist Nordgold to put in place actions plans to resolves these gaps in knowledge.

It has been recognised that the development of structural, lithological, rock mass and hydrogeological models will enable a more robust geotechnical model to be developed. A more thorough understanding of the saprolite strength and the effects of transient pore pressure are required to ensure robust slope designs are implemented. The distribution of meta-volcanic and meta-diorites within the Saprolite slopes should be understood and modelled to ensure appropriate slope designs can be developed.

10.7.4 Mine Water Management

The climate at Bissa-Bouly is tropical with one wet season lasting from April to September and one dry season from October to March. The average annual precipitation in the area is 673 mm per year, most of which falls in the months June to September. The concession is located in the Nakanbé river valley, which encompasses the Bam and Bourzanga lakes. Surface water flow is ephemeral in the project area with streams usually drying up in the months October to March. The Tiben dam was built along one of the tributaries of the Nakanbé to meet the water needs for mining operations. The associated reservoir is located just east of the Bissa and Bouly mines.

Inflows to the open pit operations from runoff and groundwater are collected in sumps at the base of the open pits and discharged into the local surface water courses. At Zandkom and Gougre, sedimentation ponds have been designed to receive pit dewatering prior to discharge of reuse for dust suppression and watering vegetation. At Bissa and Bouly, pit dewatering is discharged directly to surface water courses without pre-settlement. Little surface water infrastructure for diversion of ex-pit water currently exists at any of the pits, although some infrastructure has been planned for Zandkom and Gougre.

The hydrogeological sequence comprises laterites and alluvium, overlying saprolite and fractured bedrock (with a transition zone in between). Little site-specific data on hydraulic properties is available but permeability is generally understood to be greater in the transition zone and alluvials than in the other formations. The overlying laterite and saprolite are assumed to have higher storage than the underlying transition zone and bedrock, where fracture flow dominates.

As part of the SWMP and GWMP, SRK will be working with Bissa-Bouly into incorporate all current water management processes into the new plans, define gaps and assist Nordgold to put in place actions plans to resolves any gaps in knowledge.

Multi-bench scale pit slope failures have occurred at Bissa in the past which have disrupted mining operations. Pit slopes are thought to be sensitive to pore water pressures, which are not currently monitored. Geotechnical reviews have highlighted the need for pore pressure monitoring (Vibrating Wire Piezometers), input of accurate pore pressures in updated stability analysis, and cost-benefit evaluation of depressurisation such as horizontal drain holes.

Water management aspects relating to water stewardship and impact management are covered in Section 10.16.

10.7.5 Open Pit Mine Design and Planning

For future planning and operations going forwards at Bissa, Nordgold uses its Base Case Design and associated schedule, which can be considered equivalent to the LoMp. The Base Case Design and schedule is comprised of the 2021 Business Plan (BP) (as prepared in Q3 2020) for the first year, and the Strategic Business Plan for 2022 onwards (as prepared in Q4 2020 and Q1 2021). Further description of Nordgold's planning process is presented in Section 2.4 "Nordgold Technical Study Standards and Planning Process".

The Base Case includes Inferred Resources, which are captured within a USD1,400 pit shell that defines the long-term mine planning economics. The inventory within the Base Case is thus not an Ore Reserve. In order to constrain Ore Reserves, Nordgold has undertaken a separate Ore Reserve Case exercise, which only includes Measured and Indicated Resources in the optimisation and associated design and schedule.

The Ore Reserve Case Design (including pushbacks and ramps) defines the open pit that contains the Proved and Probable Ore Reserves, and the Ore Reserve Case schedule demonstrates that the Ore Reserves are economically viable on a stand-alone basis, and is supported by an integrated financial model that includes a mineral processing schedule and recoveries, and all operating and capital costs. Nordgold does not mine to the Ore Reserve Case Design and schedule. The Base Case Design and schedule includes the full inventory of Ore Reserves, but the Ore Reserve Case is not simply a sub-set within the Base Case and the schedules may differ significantly, based on economic and practical planning considerations.

SRK's due diligence process in reporting Ore Reserves at Bissa is therefore as follows:

- review optimisation parameters and Mine Planning Assumptions ("MPA") for the Ore Reserve Case (LTP USD1,400);
- review Ore Reserve Case Design and Ore Reserves inventory in the USD1,400 pit shell;

- review Ore Reserve Case schedule and associated financial model to assess technical feasibility and economic viability for Ore Reserves sign-off; and
- review Base Case Design and schedule to present the Company's Life of Mine plan and overall project economics.

Cut-off Strategy

The cut-off grade calculation is done based on the economic assumptions, mining modifying factors, processing recoveries and processing costs with the main components listed in Table 10-11. From these, the marginal CoG are calculated for each material type. Further to this, grade bins for each material lithology type was defined as set out in Table 10-12. If the CoG is higher than the minimum of a grade bin, this becomes the new minimum for the grade bin, for some pits this can eliminate the marginal and low grade bin for a certain material type.

Table 10-11: Bissa Cut-off Grade Parameters

Parameter	Lat	Sap	Trans	Fresh
Gold Price (USD/oz)	1400	1400	1400	1400
Selling Cost (USD/oz)	85	85	85	85
Refining Cost USD/oz)	2.74	2.74	2.74	2.74
Royalty (%)	5.00	5.00	5.00	5.00
Metallurgical Recovery (%)	83 to 93	83 to 93	75 to 91	62 to 88
Total Mining Cost (USD/t mined)	1.63 to 2.15	1.65 to 2.15	1.73 to 2.27	1.88 to 2.43
Grade Control (USD/t milled)	0.38 to 0.42	0.38 to 0.42	0.38 to 0.42	0.38 to 0.42
Stockpile REH (USD/t milled)	3.35 to 13.58	3.35 to 13.58	3.35 to 13.58	3.35 to 13.58
General & Admin. (USD/t milled)	3.04	3.04	3.04	3.04
Other (USD/t milled)	0.38 to 1.36	0.38 to 1.36	0.38 to 1.36	0.38 to 1.36
Treatment Costs (USD/t milled)	7.37 to 11.98	7.37 to 11.98	7.91 to 13.19	9.17 to 13.37
Total Ore Based Costs (USD/t milled)	15.19 to 28.78	15.19 to 28.78	15.74 to 29.35	17.31 to 30.58
Mining Sustaining (USD/t mined)	0.20	0.20	0.20	0.20
Process Sustaining (USD/t milled)	0.30	0.30	0.30	0.30
Cut-off grade (g/t Au)	0.42 to 0.80	0.42 to 0.80	0.46 to 0.82	0.53 to 0.97

Table 10-12: Bissa Ore Grade Bins

Material	Oxide	Transition	Fresh
High Grade Ore	0.90	1.05	1.40
Medium Grade Ore	0.65 to 0.95	0.75 to 1.10	0.90 to 1.30
Low Grade Ore	0.42 to 0.80	0.46 to 0.82	0.53 to 0.97
Mineral Waste	0.4	0.40	0.43
Waste	< 0.40	< 0.40	< 0.43

Modifying Factors for Mine Design

The modifying factors for the Bissa design are shown in Table 10-13.

Table 10-13: Bissa Modifying Factors

Parameter	Unit	Value
Minimum Mining Width Ore	m	30
Ore loss	%	70 to 102
Dilution	%	100 to 143
Mining Recovery	%	70 to 102
Bench Height	m	8
Face Angle	°	45 to 75
Berm Width	m	4 to 7.5
Ramp Width – Double Lane	m	25
Ramp Width – Single Lane	m	15
Ramp Gradient	%	10

Mine Design

The Base Case pit designs for Bissa are shown in Figure 10-8, Figure 10-9 and Figure 10-10. The pits have been designed based on the geotechnical parameters presented in the previous section. The ramps have been designed at a gradient of 10% at 23 m width. The mining benches are between 8 m and 16 m high and are loaded out in 4 m fletches.

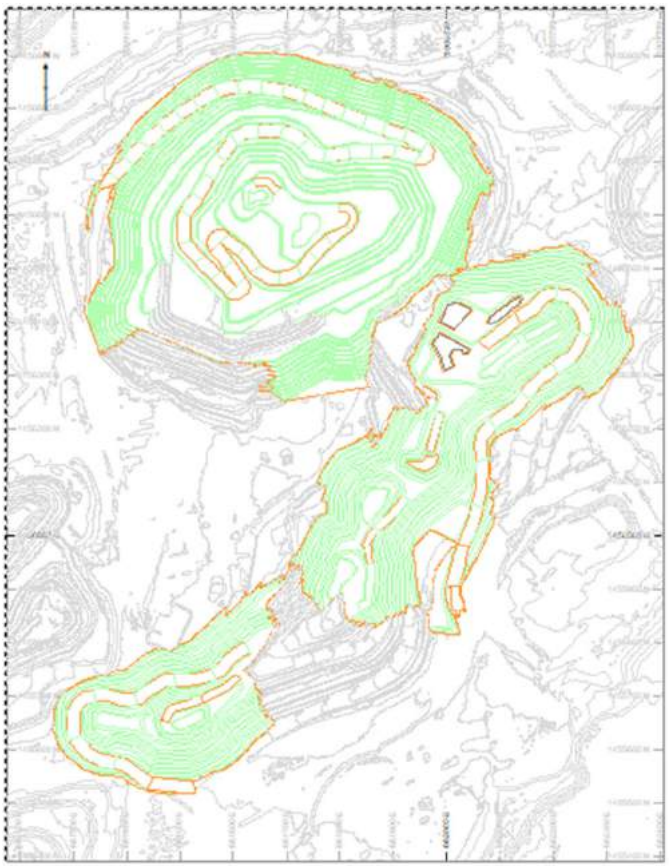


Figure 10-8: Bissa SW and IOSE Pit Design (Nordgold 2021)

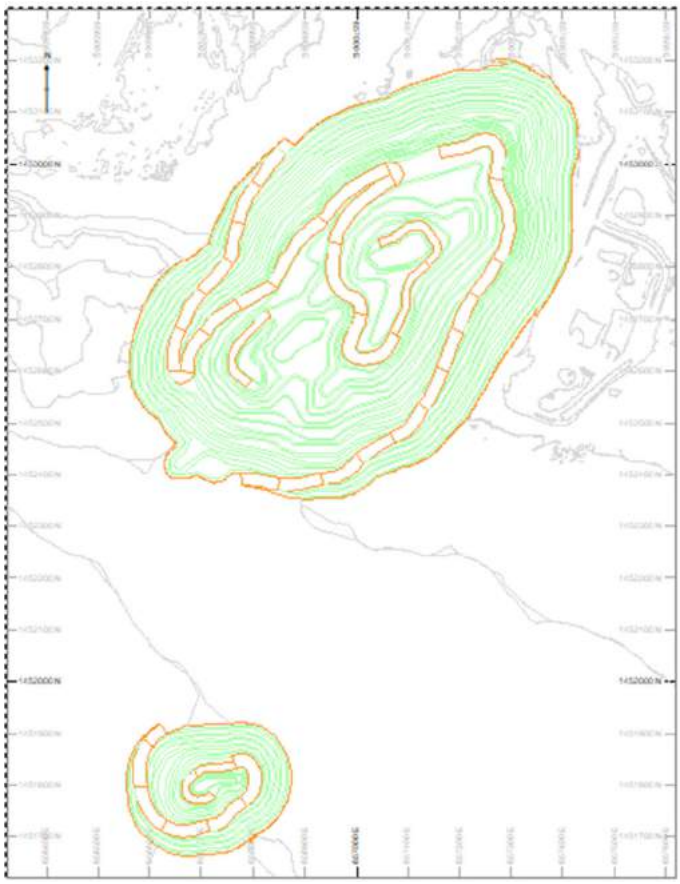


Figure 10-9: Zandkom Pushback 3 and 6 Pit Design (Nordgold 2021)

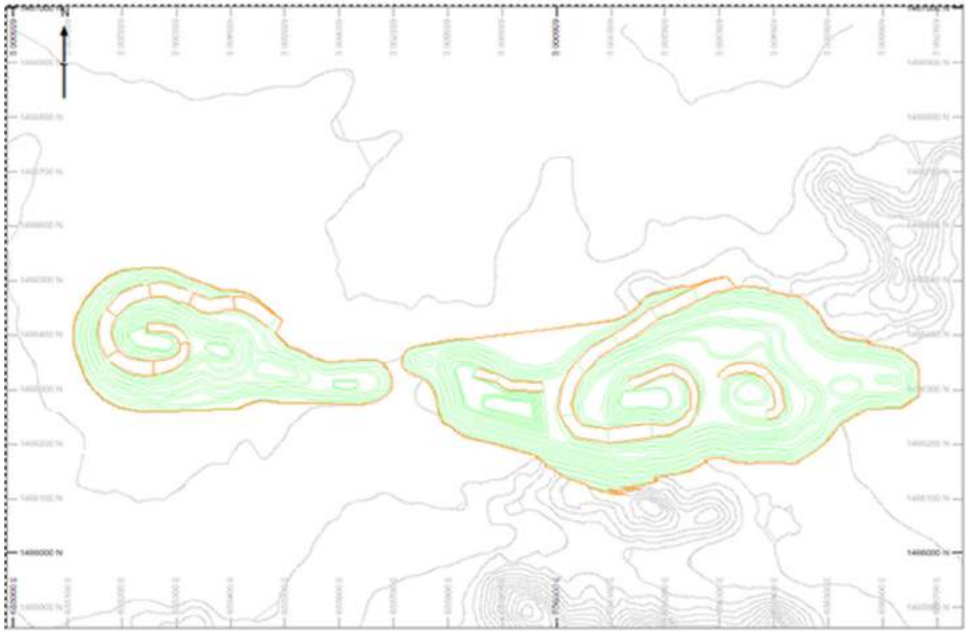


Figure 10-10: Ronguen Pushback 1 and 2 Pit Design (Nordgold 2021)

Base Case Life of Mine Plan

The 2020 Base Case LoMp has been used for the purposes of the CPR as the business case. The total tonnes mined in the forecast is down from 40 Mt in previous years to 35 Mt and forecasted to reduce down to 2025.

Table 10-14 shows the Base Case LoMp forecast for the Bissa open pit.

Table 10-14: Bissa Forecast (2021 to 2025) Mining Production Statistics for Base Case LoMp

Statistics	Units	Total LoM	2021	2022	2023	2024	2025
Mined	(kt)	117,633	34,553	33,327	28,090	16,611	5,052
Waste	(kt)	94,570	28,531	27,612	21,947	12,613	3,867
Ore	(kt)	23,063	6,021	5,714	6,143	3,998	1,185
	(g/t Au)	1.34	1.38	1.39	1.14	1.38	1.83
	(koz Au)	995	268	255	225	177	70
Stripping ratio	(t_{waste}:t_{ore})	4.1	4.7	4.8	3.6	3.2	3.3

SRK Comments

The Base Case LoMp includes 10.1 Mt at a grade of 0.7 g/t Au from stockpiles which represents 30% of the total ore mined during the life of the mine. The Ore Reserve represents 86% of the Base Case LoMp Ore tonnes.

10.7.6 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 10-11. The Audited Ore Reserve Estimate as of 31 December 2020 is shown in Table 10-15.

In reporting the Ore Reserves as stated in Table 10-15, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.42-0.97 g/t Au cut-off grade based on a long term Au price of USD1,400/oz within a final pit design. Applied open pit mining factors are: 100-143% dilution and 70-102% recovery, 62-93% processing recovery depending on material type per pit, open pit mining cost of USD1.43-2.23/t, processing cost of USD11.85-27.24/t_{ore} depending on pit location and material type, G&A at USD3.04/t_{ore}. Sustaining capital of USD0.20/t mined and USD0.30/t processed.
3. Ore Reserves have demonstrated economic viability.
4. The pit inventories were constrained within the Company's existing LoM pit designs.
5. The Ore Reserve comprises a mine life of approximately 7 years.
6. Ore Reserves are presented on a 100% basis.

Table 10-15: Bissa Gold Mine Ore Reserve Statement as at 31 December 2020

			Proved			Probable			Proved + Probable		
Mineral Asset	Deposit	CoG Au (g/t)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Bissa	Bissa Mine: (SW, IOSE, 51, 52)	Variable	1,459	1.3	62	3,155	1.7	177	4,614	1.6	239
	Bissa Mine Stockpiles		-	-	-	10,134	0.7	212	10,134	0.7	212
	Satellite Pits: (Gougre N, Zandkom, Ronguen, Samtenga, Yimiougou)	Variable	1,849	1.1	66	14,137	1.3	605	15,986	1.3	671
	Satellite Stockpiles		-	-	-	923	0.8	22	923	0.8	22
	Total Bissa		**3,308**	**1.2**	**128**	**28,349**	**1.1**	**1,015**	**31,657**	**1.1**	**1,144**

10.7.7 SRK Comments

In the opinion of SRK, the Ore Reserves estimate prepared for Bissa Open Pit Gold Mine provides a sound and unbiased basis for development of the Ore Reserve Case LoMp.

The Ore Reserves are contained within the Bissa Base Case pit designs and this drives the Base Case schedule. Inclusion of Inferred material in the Base Case pushbacks increases the overall size of the pits, but only marginally, and this does not affect the overall practical mining or geotechnical considerations.

As stated in Section 10.5.3 all open pits have been assigned mine design criteria to allow for mine planning. Slope angles within the Saprolite, Transition and Fresh have been based on available geotechnical data and analyses. While the proposed slope angles in the Transition and Fresh material appear to be appropriate, slope angles in Saprolite have been designed on the assumption that the Saprolite slopes will be depressurised. Historically, there have been failures causing operational challenges.

The risk of these failures happening in the future can be mitigated by development of structural, lithological, rock mass and hydrogeological models that will enable a more robust geotechnical model to be developed. These areas and others are identified in the new standard set of industry best practice Ground Control Management Plans (“GCMP”), Surface Water Management Plans (“SWMP”) and Ground Water Management Plans (“GWMP”) being developed for Nordgold by SRK. Whilst large scale geotechnical data collection is not necessary at every pit, a more thorough understanding of the Saprolite strength and the effects of transient pore pressure is required to ensure robust slope designs are implemented.

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

10.8 Mining and Ore Reserves – Bouly

10.8.1 Current Mining Operations, Operating Strategy and Mining Fleet

The Bouly operation extracts material from multiple open pits, as shown in Figure 10-11. The ore is hauled to the heap leach pads, while the waste is hauled to the waste dumps.

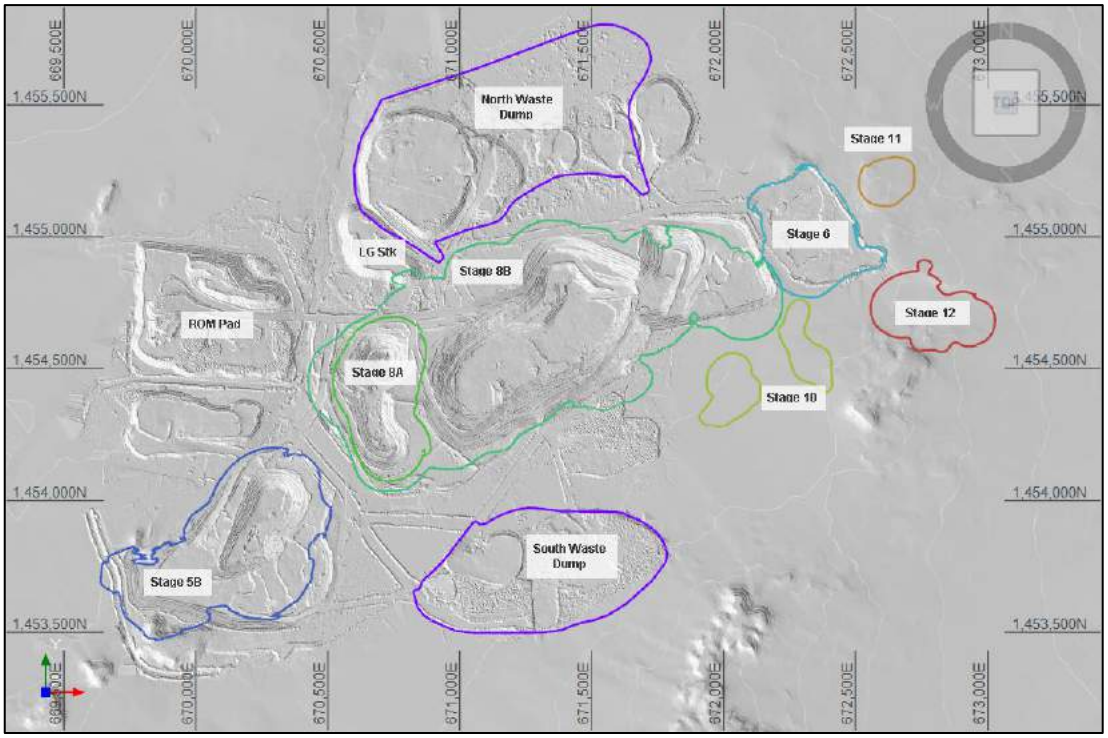


Figure 10-11: Bouly Mine Layout

Production is undertaken through conventional drilling, blasting, loading and hauling processes. There are currently 16 CAT 777 90 t haul trucks at Bouly which are shared with the Bissa operation. There are two PC2000s and two CAT6015s at Bouly, and CAT 993 front-end loaders ("FEL") are used on the stockpiles.

10.8.2 Historical Mining Production

Production increased in 2020, as presented in Table 10-16, which is attributed to a significant increase in waste and a decrease in ore mining. Au grades have remained relatively consistent since 2017.

Table 10-16: Bouly Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Open Pit						
Mined	(kt)	8,651	12,921	13,262	13,794	16,413
Waste	(kt)	5,132	5,502	5,282	5,832	9,434
Ore	(kt)	3,518	7,419	7,980	7,962	6,979
	(g/t Au)	0.70	0.61	0.59	0.59	0.52
	(koz Au)	79	145	151	150	116
Stripping ratio	(t_{waste}:t_{ore})	1.5	0.7	0.7	0.7	1.4

10.8.3 Open Pit Geotechnical Considerations

The Bouly open pit is currently formed from three small to medium size open pits that will eventually form a single pit as mining progresses. The Bouly pits are currently mining oxide although as the pits develop, transition and fresh material will also be mined.

Most mined slopes to date are within saprolites. As at Bissa, where the saprolite protoliths are basic rocks, they tend to weather rapidly into soils, providing sharp boundaries between rock materials and soil-like products. Where meta-volcanics and meta-diorites form the saprolite protolith, they tend to decompose (slake) rapidly upon exposure. This preferentially occurs parallel to schistosity, with result that first micro then macro cracks open along the foliation fabric of these bodies. This permits rainwater to penetrate which exacerbates the process, leading first to bench-scale and with time to inter-ramp scale instability.

Figure 10-12 presents a view of the Bouly pit in 2020.

Figure 10-12: Bouly Pit View

The Bouly pits been assigned mine design criteria to allow for mine planning with slope designs generally developed in-house by Nordgold. The design criteria used to develop the LoM pit designs are summarised in Table 10-17.

Table 10-17: Bouly Slope Design Criteria used to Develop 2020 LoM Pits

Pit	Slope	Regolith	BFA (°)	BH (m)	B Width (m)	IRA (°)	Max. Stack Height(m)
Bouly	North	Laterite	45	8	4	34	40
		Saprolite	45	8	4	34	40
		Transition	55	8	5	43	13
		Fresh	75	16	7.5	54	117
Bouly	West	Laterite	45	8	4	34	40
		Saprolite	45	8	4	34	40
		Transition	55	8	5	43	13
		Fresh	75	16	7.5	54	117
Bouly	East	Laterite	45	8	4	34	40
		Saprolite	45	8	4	34	40
		Transition	55	8	5	43	13
		Fresh	75	16	7.5	54	117
Bouly	South	Laterite	45	8	4	34	40
		Saprolite	45	8	4	34	40
		Transition	55	8	5	38	35
		Fresh	75	16	7.5	56	95

Whilst geotechnical design criteria have been developed, there is little geotechnical information available and little interpretation and analyses has been undertaken when developing design criteria. Geotechnical models are at conceptual level due to the limited development of lithological, rock mass, structural and hydrogeological models.

Failures within the saprolite slopes are evident, especially where the Saprolite protolith is formed from meta-volcanic and meta-diorites. Such failures have caused operational challenges in the past. The failures are a result of design that is forced to make a number of assumptions with regards material strength, remnant structure and pore pressure and all current designs assume depressurised slopes.

SRK has been engaged by the Company to develop and assist in the implementation of a standards set of industry best practice GCMP, SWMP and GWMP for each of the operations. As such, SRK will be working to incorporate the current processes used at Bouly into the new plans, define gaps and assist Nordgold to put in place actions plans to resolves these gaps in knowledge.

The distribution of meta-volcanic and meta-diorites within the saprolite slopes should be understood and modelled to ensure appropriate slope designs can be developed. Whilst for all slopes, the structural conditions should be well understood to ensure appropriate slope design, however, this is especially relevant for Bouly where fresh rock slopes will be developed. It is recommended that structural data within the fresh rock is collected to ensure appropriate analysis can be undertaken.

10.8.4 Open Pit Mine Design and Planning

Cut-off Strategy

The cut-off grade strategy at Bouly is based on lithology due to varying processing recoveries and operating costs. The parameters used for the cut-off grades are presented in Table 10-18.

Table 10-18: Bouly Cut-off Grade Parameters by Lithology

Parameter	Oxide	Transitional	Fresh
Gold Price (USD/oz)	1,400	1,400	1,400
Treatment Cost USD/oz)	2.74	2.74	2.74
Royalty (%)	5.0	5.0	5.0
Tonnage Factor (%)	100	100	100
Grade/Metal Factor (%)	98	98	98
Metallurgical Recovery (%)	79.0	71.0	MIN((43.5984+24.17901*Au -0.9088*22),87.5)
Additional Ore Mining Cost (USD/t milled)	0.16	0.16	0.17
Processing Costs (USD/t milled)	5.80	5.59	4.49
Sustaining Costs (USD/t milled)	1.05	1.05	1.05
General & Admin. (USD/t milled)	1.43	1.43	1.43
Total Ore Based Costs (USD/t milled)	8.44	8.22	7.14
In situ Cut-off grade (g/t Au)	0.26	0.28	0.48

Mine Design

The pit designs for Bouly is shown in Figure 10-13. The pits have been designed based on the geotechnical parameters presented in the previous section. The ramps have been designed at a gradient of 10% at 23.5 m width for dual lane and 15 m to 17 m for single lane access at the pit bottom. The mining benches are 8 m high and are mined in 4 m flitches. There are five stages in the Ore Reserve Case: 5b, 6, 8A, 8B, and 10; and seven stages in the Base Case, which adds stage 11 and 12.

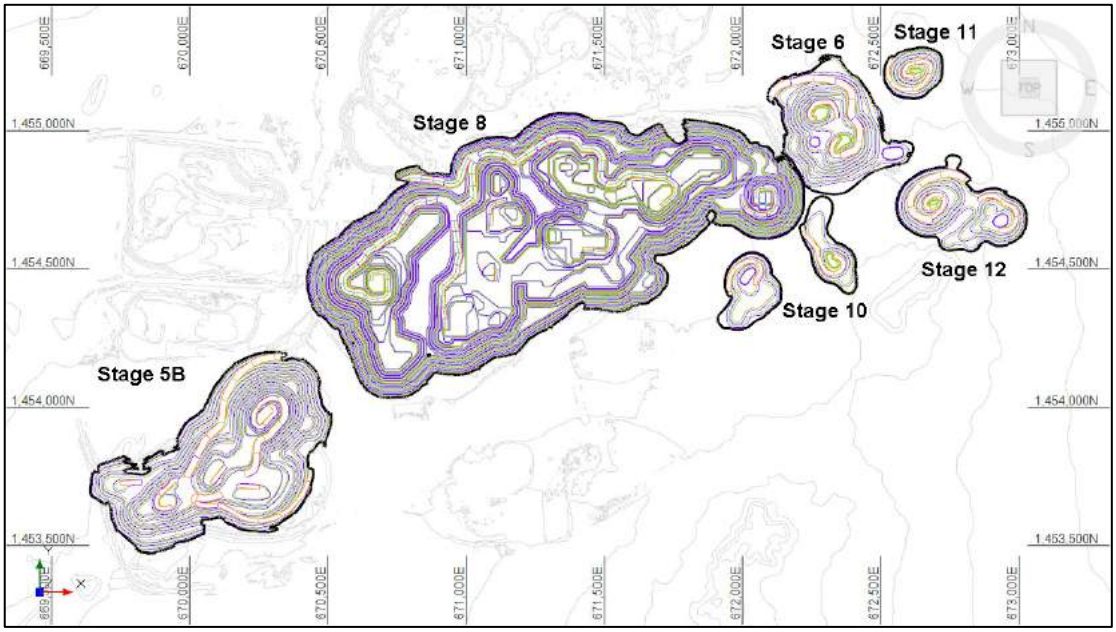


Figure 10-13: Bouly Mine Pit Design (Ore Reserve Case and Base Case)

Ore Reserve Case Life of Mine Plan

Table 10-19 shows the Ore Reserve Case LoMp forecast for the Bouly open pit operation. The in-pit operation runs until 2025, after which material is fed from the stockpiles for the remaining four years. 95% of the ore is rehandled at a long term or RoM stockpile.

Table 10-19: Bouly Forecast (2021 to 2029) Mining Production Schedule for Ore Reserve Case

Mine Schedule	Units	Total	2021	2022	2023	2024	2025
Total Ex-Pit	(kt)	**88,698**	18,121	21,242	20,830	21,513	6,992
Waste	(kt)	**33,641**	9,131	9,320	8,995	4,709	1,486
Ore Ex-Pit	(kt)	**55,057**	8,990	11,922	11,835	16,804	5,506
	(g/t Au)	**0.47**	0.44	0.46	0.44	0.48	0.55
	(koz Au)	**831**	128	177	168	261	97
Stripping ratio	(t_{waste}:t_{ore})	**0.61**	1.02	0.78	0.76	0.28	0.27

The maximum vertical advance rate is 56 m or seven 8 m benches.

There are currently 16 CAT 777 90 t haul trucks at Bouly and they will require up to 21 trucks throughout the Ore Reserve Case life of mine plan. As trucks are shared with the Bissa operation this is not seen to be an issue. Life of mine cycle times are expected to range from 17 to 28 minutes, with an average truck productivity of 246 tph. Life of mine availability for trucks is 85%, which is line with 2020 actual data. Use of availability has been assumed at 80% for the mine plan; however, 2020 actual data show an average of 60%.

A maximum of five excavators are required at Bouly. There is a combination of excavators, with PC2000s at 948 tph and CAT6015s at 915 tph. There is also up to four FEL used on the stockpiles at 995 tph. Excavator availability ranges from 83% to 90% which is in line with 2020 actual data. The FEL availability is assumed to be between 82% and 91%, which is above the 2020 actual data of 78%.

Base Case Life of Mine Plan

The Base Case LoMp has been developed inclusive of Inferred classified Mineral Resources and therefore the quantities in the Base Case cannot be considered an Ore Reserve. The Base Case includes the same pit designs as the Ore Reserve Case, with the inclusion of Inferred Resources, and the addition of two pits, which contain solely Inferred Resources (and are not included in the Ore Reserve Case).

Table 10-20 shows the Bouly Base Case LoMp forecast for the Bouly open pit operation. The Base Case LoMp has a similar production profile to the Ore Reserve Case with some additional material mined in 2025. The strip ratio in the Base Case is somewhat reduced compared to the Ore Reserve Case, with the inclusion of Inferred Resources as ore.

From 2021 to 2025, mined ore exceeding the planned processing capacity is stockpiled. After 2025, as with the Ore Reserve Case, in-pit mining ceases and ore is solely reclaimed from the stockpiles to be placed on the Heap Leach Pad for leaching and recovery, until the end of the mine life in 2030.

Table 10-20: Bouly Forecast (2021 to 2029) Mining Production Schedule for Base Case

Mine Schedule	Units	Total	2021	2022	2023	2024	2025
Open Pit							
Total Ex-Pit	(kt)	**92,938**	18,361	21,186	21,193	18,452	13,745
Waste	(kt)	**33,538**	8,906	9,476	8,674	4,301	2,181
Ore Ex-Pit	(kt)	**59,399**	9,455	11,710	12,520	14,151	11,563
	(g/t Au)	**0.47**	0.44	0.46	0.45	0.46	0.53
	(koz Au)	**889**	134	172	179	209	196
Stripping ratio	(t_{waste}:t_{ore})	**0.56**	0.94	0.81	0.69	0.30	0.19

SRK Comments

SRK notes that the haulage estimates should be reviewed to ensure consistency between both cases and historical data. SRK expects that some minor schedule changes may be required to reflect the current trucking fleet numbers or additional equipment may need to be sourced.

10.8.5 Ore Reserve Statement

The Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pit. The cut-off grades have been calculated from the parameters shown in Table 10-18. The Audited Ore Reserve Estimate as of 31 December 2020 is presented in Table 10-21.

In reporting the Ore Reserves as stated in Table 10-21, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at cut-off grades of 0.27 g/t Au for oxide, 0.29 g/t Au for transitional and 0.51 g/t Au for fresh based on a long term Au price of USD1,400/oz. Open pit Ore Reserves are reported within a pit design based on the following parameters: processing recoveries varying from 35% to 87.5%, open pit mining cost of USD1.11-1.88/t mined, processing cost of USD4.49-5.80/t_{ore} dependent on material type, G&A at USD1.43/t_{ore}, sustaining capital of USD1.05/t_{ore}, 5% royalty and USD2.74/oz treatment charges.
3. The Ore Reserves include a grade and metal factor of 98% applied to the regularized 5 x 5 x 4 m model, which results in an average of 3.7% dilution and 3.1% loss when compared to the Resource model.
4. Ore Reserves have demonstrated economic viability.
5. The pit inventories were constrained within the Company's existing LoM pit designs.
6. The Ore Reserve comprises a mine life of just over 8 years.
7. Ore Reserves are presented on a 100% basis.

Table 10-21: Bouly Gold Mine Ore Reserve Statement as at 31 December 2020

			Proved			Probable			Proved + Probable		
Mineral Asset	**Deposit**	**CoG Au (g/t)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**	**Ore (kt)**	**Au (g/t)**	**Au (koz)**
Bouly	Open Pit	Variable	15,552	0.5	241	39,505	0.5	589	55,057	0.5	831
	Stockpiles		-	-	-	12,173	0.3	126	12,173	0.3	126
	Total Bouly		**15,552**	**0.5**	**241**	**51,678**	**0.4**	**715**	**67,230**	**0.4**	**957**

10.8.6 SRK Comments

In the opinion of SRK, the Ore Reserves estimate prepared for Bouly Open Pit Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

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

10.9 Mineral Processing – Bissa

10.9.1 Flowsheet Description

The Bissa process plant treats non-refractory oxidised saprolite and transitional and fresh saprock hosted gold ore through a conventional carbon-in-leach ("CIL") circuit, producing doré on site.

The plant commenced production in 2013 at a design production rate of 3 Mtpa; however, the plant was expected to be capable of processing 4 Mtpa or even higher with ore blends containing high levels of Oxide and Transitional ore. The current throughput is nominally 4.8 Mtpa with a maximum of 33% Fresh ore in the feed blend.

The key unit processes are:

- Crushing: RoM ore is screened at 800 mm on a stationary grizzly, with oversized broken using a rockbreaker. The primary crusher is a Metso C140 jaw crusher operating with a nominal CSS of 170 mm. The crusher is preceded by a 150 mm aperture vibrating grizzly. Crushed ore reports to an open stockpile.
- Grinding: The first grinding stage consists of a 8.5 x 4.35 m SAG mill (6000 kW) that is closed with a 10 mm slotted aperture screen. A Pebble Crusher was installed in 2014 crushing a recycle rate of approximately 12%. Screen undersize reports to the 6.1 x 9.05 m (6000 kW) ball mill, which operates in closed circuit with a bank of 380 mm cyclones. After screening for trash removal, cyclone overflow reports to the CIL circuit.
- Cyanidation: The cyanidation circuit consists of six 2900 m^3 mechanically agitated tanks, giving a circuit residence time of 26 hours at the original design feedrate of 3 Mtpa and a slurry density of 42% solids. Cyanide is added to the first tank, and compressed air is sparged into each tank. The tanks are fitted with mechanically swept vertical wedge wire interstage screens, and carbon is transferred using recessed impeller pumps. The carbon residence time is of the order of 160 hours. A seventh tank was subsequently added to support the increased plant throughput.
- Tailings: Tailings are pumped directly to the TSF for dewatering and storage. Decant water is recycled to the plant.
- Metal recovery: Gold is recovered from the loaded carbon in a conventional Anglo American Research Laboratory (“AARL”) elution and electrowinning circuit. Elution is based on a 10 t carbon batch size and the circuit is sized for one elution cycle per day. Metal is electrowon using two electrowinning cells, and the cathode sludge is filtered then smelted using a diesel fired smelting furnace.

10.9.2 Supporting Metallurgical Testwork

The first testwork reported on Bissa ore samples was conducted at AMMTEC in Perth in 2009. Ten samples were tested, from locations including Bissa SW, Bissa S. Extension, IO, Zone 51, Zone 52 and Bissa Hill. Head grades ranged from 0.34 g/t Au to 15.3 g/t Au, with an average of 3.5 g/t Au. All but one of the samples had little or no (that is, <0.02%) sulphur; the other sample had a S head grade of 0.92%.

The focus of the testwork program was heap leach amenability, however baseline grind-cyanidation tests were conducted on each sample ground to 80% -75 μm. Au recoveries after 48 hours of leaching ranged from 60.0% (the sample with 0.92% S) to 94.0%, with an average of 85.1%. The samples showed a range of leach kinetics, with some tests complete after four hours but with others showing appreciable additional leaching between 24 and 48 hours.

Further testwork was conducted at AMMTEC in 2010. Ores from 9 areas were tested: Bissa Hill, Bissa SW, Bissa S. Ext, IO, Zone 51E, Zone 51W, Zone 52, Zone 53 and Boken. Each area was represented by one Oxide sample, and there were also Transition samples from Bissa SW, Bissa S. Ext, Zone 51E, Zone 52 and Boken, and Fresh samples from Bissa SW, Zone 52 and Boken. Head assays ranged from 1.06 g/t to 5.14 g/t Au.

Ore hardness parameters included UCS (range 9.2-67.2 MPa), JK Drop Weight and SMC Tests (values ranging from “very soft” for several of the Oxide samples to “very hard” for the Boken Fresh sample), Abrasion Index (0.03 for an Oxide composite, 0.10 for a Fresh composite) and Ball Mill Work Index (values ranging from a low of 6.9 kWh/t to a high of 20.2 kWh/t for the Boken Fresh sample). Cyanidation recoveries ranged from 61.2% (Bissa SW Fresh) to 94.8% (51E Transition). Optimisation tests investigated grind size, cyanide dose, pre-oxygenation, air sparging addition during the leach and gravity separation (with intensive cyanidation) ahead of cyanidation. Overall, gravity separation did not provide any significant benefit, and air sparging was as beneficial as oxygenation. The impact of finer grinding and a high initial cyanide dose was most noticeable on the two poorest performing samples, Bissa SW Transition and Bissa SW Fresh.

Additional testwork included carbon kinetics and loading, settling and rheology testwork and oxygen uptake testwork.

Twelve samples from the Gougre were provided to the Taparko metallurgical laboratory for testwork in 2011. The samples ranged in Au head grade from 0.24 g/t Au to 12.7 g/t Au. 24 hour bottle roll leach recoveries ranged from 85.0% (the 0.24 g/t Au sample) to 97.3% (the 12.7 g/t Au sample) with an average of 92.5%.

A further sample of Gougre ore was tested at Wardell Armstrong International (“WAI”) in 2011. The sample had a head assay of 2.06 g/t Au. A diagnostic leach test indicated that 94.5% of the au was cyanide soluble. This recovery was achieved in a kinetic leach test at a grind size of 80% -106 μm after 24 hours of leaching. Finer grinding did not increase the recovery, and the recovery was not sensitive to cyanide addition. Carbon adsorption testwork was also conducted, as was a Ball Mill Work Index test, which returned a value of 19.8 kWh/t.

Fifteen samples from the Zinigma were provided to the Taparko metallurgical laboratory for testwork in 2011. The samples represented three mineralisation types: Saprolite – Metasediments, Saprolite – Metavolcanics, and Saprolite – Granodiorite. The samples ranged in Au head grade from 1.21 g/t Au to 9.39 g/t Au. 24 hour bottle roll leach recoveries averaged 93.1% (range 78.1% to 98.8%); however, there was a variation with mineralisation type, with average recoveries of 97.6% for the Saprolite – Metasediments, 93.3% for the Saprolite – Metavolcanics, and 88.5% for the Saprolite – Granodiorite.

Testwork was conducted at the Bissa metallurgical laboratory on one Oxide and three Fresh samples of Boken ore in 2014. Recoveries ranged from 86% for the high grade (3.1 g/t Au) sample to 80% for the low grade (0.72 g/t Au) sample. There was some evidence of improved performance with the addition of either lead nitrate or additional oxygen. Further testwork conducted in 2019. Recoveries for two Saprolite samples averaged 86%, with benefit seen from both carbon and lead nitrate addition. Further testwork on two samples of Saprolite, one of Saprock and one of Fresh showed similar results, with recoveries ranging from 81% for the Fresh sample to 95% for the medium grade Saprolite sample. Testwork on a Diorite Saprolite sample showed no impact of lead nitrate addition, but a benefit of carbon addition (recovery 89%), and testwork on Diorite Oxide and Transition samples showed no impact of either carbon or lead nitrate addition (recoveries 88-90%).

Preliminary metallurgical testwork conducted 2017 showed the potential to treat the Samtenga ore using conventional cyanide leach technology with an average gold recovery of 81.8% achieved after 24 hours of leaching. The results of 8 Bond Ball Mill Work Index tests gave an average Bond Work Index value of 9.0 kWh/t.

Further testwork was conducted at the Bissa laboratory on samples of ore from the Samtenga deposit in 2019 and 2020. Initial testwork on a sample of conglomerate and one of metasediment showed that the leach performance on the conglomerate sample was unaffected by the addition of either carbon or lead nitrate (85-96% Au recovery) but that the metasediment samples benefited from the addition of carbon (85% up to 90%). Subsequent testwork on two medium and high grade Oxide samples showed no impact on recovery of carbon or lead nitrate addition (recoveries 83-84%), but further testwork two Saprolite samples (medium and high grade) showed the benefit of carbon addition (Au recoveries 80-84% without carbon, 88-89% with carbon).

10.9.3 Historical Production and Plant Performance

Annual plant operating data for the period 2016 to 2020 are shown in Table 10-22.

Table 10-22: Bissa Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	4,184	4,596	4,861	4,750	4,501
Au Head Grade	(g/t)	1.54	1.48	1.20	1.18	1.25
Au Recovery	(%)	88.4	89.0	80.8	87.3	79.9
Au Produced	(koz)	184	196	155	152	148
Operating Cost	(USD/t)	9.75	8.54	8.93	9.58	9.36

10.9.4 Forecast Production

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 10-23. The Ore Reserve Case processes a maximum of 4.75 Mtpa over a period of 7 years (to Q4-2027), mining to mid-2024 and processing of stockpiles thereafter. The Base Case has a similar profile with only slightly more ore mined (approximately 2.5 Mt), which extends the overall LoM to Q1 2028.

Table 10-23: Bissa Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	31,655	34,120
Gold Grade	(g/t Au)	1.12	1.12
	(koz Au)	1,144	1,229
Gold Recovery	(%)	80.6%	80.6%
Doré Produced	(kg)	28,686	30,799
	(koz Au)	922	990

10.9.5 Discussion

The Bissa processing circuit is of conventional format and is consistent with the testwork on which its design was based. While the testwork predating the plant's construction did not indicate that CIL processing would be required or advantageous, subsequent testwork on newer ores has indicated a preg-robbing component that the CIL format is best suited to deal with.

Recent production data shows that the circuit has processed ore at a rate significantly in excess of the design figure of 3.0 Mtpa, reaching values 50% in excess of that figure. This is due to the very wide range of ore hardness values that is typical of West African ores, with very soft laterite and saprolite oxide material trending down into what can be very hard Fresh rock. The design criteria for the plant shows that the comminution circuit was sized based on the Drop Weight Index for Bissa SW Fresh, which was the 75th percentile samples from the Drop Weight / SMC Tests, and the Ball Mill Work Index for Boken Fresh, which was the highest figure reported. Given that the majority of the ore processed to date is softer than these materials, much of very much so, it is unsurprising that the plant has been able to process well in excess of the design ore feedrate. While processing at these rates will have had an impact on the CIL residence time, reducing it to 19 to 21 hours (with the additional tank), the combination of lower than design head grades and slightly lower recoveries has meant that the capacity of the metal recovery circuit, at approximately 215 kozpa, has only been exceeded in a few of the operation's early years.

Figure 10-14 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as recoveries from the testwork results on Oxide, Transition and Fresh ore. The historical and forecast data are annual figures for 2014, 2015 and 2022 onwards, and monthly figures for 2016-2021 inclusive. The historical data shows some low recoveries (<80%); these were all from the first four months of 2018 and the last four months of 2020. The forecast recoveries are generally lower than the historical values; this is likely to be due to processing a greater proportion of Transition and Fresh ore going forward. While the recoveries reported for Transition ores in the testwork do not differ greatly from the Oxide ore samples, the recoveries reported for Fresh material are typically slightly lower than for Oxide and Transition ore, or in some cases significantly lower.

The MPA spreadsheet lists recoveries for each orebody and ore type (Oxide, Fresh etc). These are shown in Table 10-24.

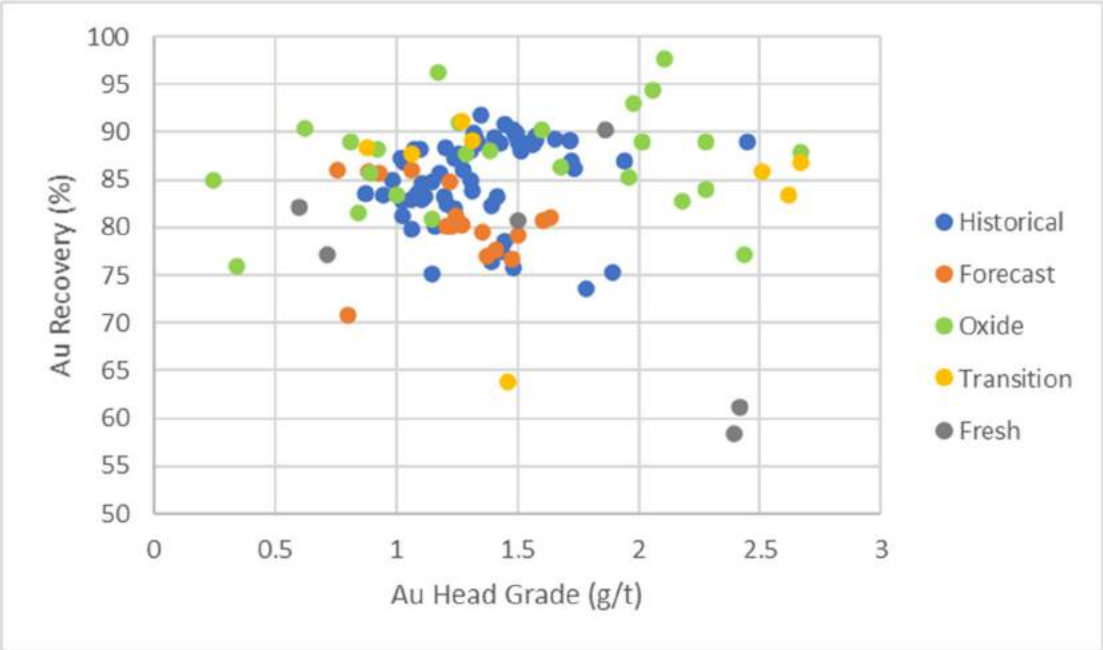


Figure 10-14: Bissa Gold Recovery versus Head Grade

Table 10-24: Bissa MPA Forecast Recoveries

Orebody	Au Recovery (%)		
	Laterite/Saprolite	Transition	Fresh
Bissa Hill	92.7	88.4	88.4
Bissa SW	86.6	75.4	61.9
IO/SE	86.6	75.4	61.9
51	88.8	80.8	71.8
52	89.3	85.9	62.8
Gougre	90.6	90.6	87.4
Gougre North	90.6	90.6	87.4
Zandkom	83.4	84.0	82.5
Ronguen	89.2	77.2	65.2
Samtenga	84.9	84.2	74.2
Yimiougou	90.0	80.1	70.2
Zinigma	93.4	77.3	77.3

SRK assumes that there is a significant body of in-house metallurgical data that supports these figures in addition to that which has been covered in this review. The only two samples identified as Bissa Hill from the 2009/10 testwork were both Oxide and gave recoveries of 89.0% at a head grade of 2.28 g/t Au and 75.9% at a head grade of 0.34 g/t Au. There were 8 samples identified as SW, IO or SE Oxide, and these had an average recovery of 86.4%, three of Transition with an average recovery of 79.5%, and two of Fresh with an average recovery of 59.8%. There were two 51 Oxide samples, with an average recovery of 89.2% and one Transition with a recovery of 93.5%. There were two 52 Oxide samples with an average recovery of 89.7% and one Transition with a recovery of 87.8%. All of the Gougre samples were Oxide, with an average recovery of 92.7%. The Zandkom (Boken) Oxide samples had an average recovery of 87.7%, the Transition samples 87.5% and the Fresh samples 83.2%. The Samtenga samples were all Oxide and had an average recovery of 87.2%, and were the Zinigma samples, with an average recovery of 93.1%. No testwork was reported on ore from the Ronguen or Yimiougou deposits.

In summary, the forecast recoveries are generally supported by the testwork that has been reviewed, however there is a lack of data for some of the Transition and Fresh ore types.

The operating costs are of the same order benchmark costs for a plant of a similar configuration and capacity. While the unit cost for site generated power will be relatively high, the softness of the majority of the ore fed means that the grinding power requirements are relatively low. Low labour costs will be a contributing factor, and cyanidation requirements as reported in the testwork were generally low. The design criteria list the operating range of cyanide addition as 0.2-0.6 kg/t.

The MPA spreadsheet lists an operating cost for “treatment” for each orebody and ore type (Oxide, Fresh etc), with figures ranging from USD7.37/t for IO/SE Oxide to USD13.37/t for Gougre and Gougre North Fresh. This cost is built up from first principles; however, it only covers reagents and consumables and maintenance spares; labour is listed separately but is a combined figure for the whole project. The main areas of difference between the costs are power and grinding media consumption.

10.10 Tailings Storage Facility – Bissa

10.10.1 Introduction

The Bissa tailings storage facilities consist of two adjoining paddock style impoundments referred to as TSF 1 and TSF 2. The former has reached terminal storage capacity and is due to be decommissioned at the end of Q2 2021. The latter is under construction, with the first compartment (referred to as Stage 1a) being scheduled for commissioning in Q2 2021 (Figure 10-15).

TSF 2 has been designed to provided storage up to 55 Mt of tailings, which significantly exceeds the forecast LoM tailings produced (32 Mt and 34 Mt under the Ore Reserve Case and Base Case, respectively). Assuming a production rate of 4.8 Mtpa, the average rate of rise of the facility will be approximately 2.0 m year.

Stage 1a of TSF 2 comprises of a smaller compartment, which will provided four months temporary storage capacity while the perimeter embankment of the first raise is constructed around the entire perimeter.

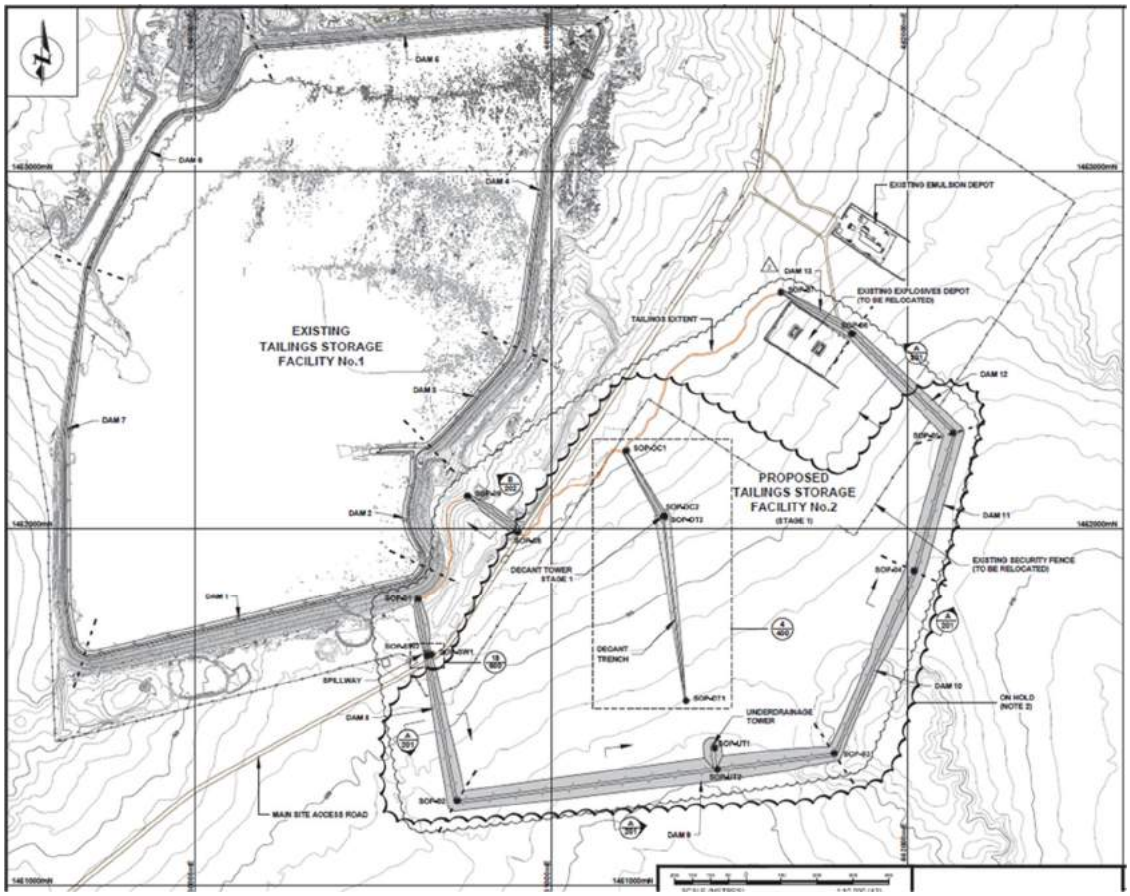


Figure 10-15: Bissa TSF 2 General Arrangement (Stage 1a and Final) (Nordgold 2021)

10.10.2 TSF 2 Design

The TSF will be constructed in 12 raises. The first two raises will be constructed using the downstream method, with all embankment raises consisting of compacted saprolite borrow materials. Once stage 2 is complete, all subsequent raises will be constructed using the modified centreline method (at a point when well-developed beach above water zones have been formed around all flanks of the facility). All external slopes will be 1V:3H. The maximum elevation of the TSF will be approximately 35 m above existing ground level when the facility is completed.

A partial basal liner system will be installed across the base of TSF 2, which will consist of a 1.5 mm HDPE placed directly upon compacted saprolite subgrade.

Excess water will be managed using a concrete penstock which will be contracted to the west of the facility. This will be used to manage excess supernatant during both operation of Stage 1a and subsequent expansion of TSF 2. A second penstock will be constructed in the tailings beach to the SE of the facility following completion of the downstream raises, to facilitate drainage and consolidation of the tailings here during operations. Excess water will be pumped out via a submersible pump.

Monitoring installations have been specified in the detailed design drawing set, consisting of settlement pins on the crest of the facilities, piezometers within the embankments and downstream groundwater monitoring wells.

10.10.3 Stability Analysis

No stability analysis has been presented with design drawings therefore is not possible for SRK to comment on whether the external slopes of the landform as designed have Factors of Safety (FOS) values which meet international best practice.

No ground investigation data has been provided; however, Nordgold has confirmed that a geotechnical investigation has been carried out across the new TSF footprint area. The proposed construction method (quarry inside TSF and form embankments using cut/fill method) is considered practical, as the site appears to be consistent underlying geology (saprolite). Nordgold has confirmed that laboratory testing of soil samples obtained from the geotechnical investigation has been undertaken to check the consistency of the materials excavated from the footprint area.

10.10.4 Hazards and Risks Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
    - Meteorological events: **Moderate.** Mainly a land-raise TSF, so storm accumulation unlikely a significant issue if freeboard is maintained; a spillway has been included in current design for TSF 2; design drawings indicate there is spillway for each stage of the design.
    - Seismic events: **Low.** Area of low seismicity.
    - Reservoir environment: **Moderate.** No major vegetation immediately upstream; TSF 1 is upstream of TSF 2.
    - Human Ingress: **Low.** Remote site; unlikely to have significant ingress from local population.
- Internal:
    - Water or tailings barrier: **Moderate**. Modified centreline raise dam; large pond extending close to the perimeter walls; some erosion seen from satellite imagery.
    - Hydraulic structures: **Moderate.** Decant capacity likely acceptable for operations; spillway in design of TSF 2; reliant upon freeboard for storm water management for TSF 1.
    - Electrical and mechanical, including automation, protection and controls, communications: **Low/Moderate.** Remote site so communication is likely to be challenging.

The following key risks have been identified following completion of this review:

- Overtopping: **Low/Moderate,** assuming design freeboard is maintained at all times for TSF 1. Water balance must be checked and confirmed that there is adequate capacity for storm storage. TSF 2 has a lower risk of overtopping as a spillway has been included in the design.

- Piping/internal erosion: **Moderate**. Pond is close to the perimeter walls in TSF 1 (as close as 50 m); The pond position must be carefully managed to ensure there is an offset of the pond from the embankment dams in TSF 1. This is also of critical importance in planned TSF 2 when the facility transitions to centreline raises after Stage 2. At this point, embankment fill material will be placed upon previously deposited tailings and hence the tailings must be adequately drained.
- Slope instability/loss of strength: **Moderate**. No stability analysis has been provided for review. Site located in area of low seismic hazard. Design requires good management of tailings to establish large beaches based on TSF 2 design. The design of the decant and over drainage system is intended to drain water from within the tailings beach. SRK agrees with this concept, as it will promote formation of the beach above water zones which are critical to this design. If the underdrainage becomes blocked and/or the beach is poorly managed, there is a risk of increased pore pressures within the embankment dam, as no internal drainage features have been designed; however, it is acknowledged that the proposed monitoring system (embankment piezometers) could provide advanced warning of dangerous pore pressures building up within the embankment, thus allowing remedial action to be taken.
- Contaminated seepage and/or dust: **Moderate**. Some areas of the base of the facility will not be lined with geomembrane, geological barrier only, dust generation likely, but remote location.
- Loss of capacity: **Low/Moderate**. Consolidation may be affected if the overdrain system fails resulting in lower density tailings.

10.10.5 Comments

Nordgold has included an allowance of USD4m for construction of the TSF 2 Stage 1 embankment raise. Based upon the quantities of fill estimated for the embankments (0.8 Mm^3) and the liner area, SRK considers the value to be generally appropriate. This will be incurred over the course over the course of 2021.

SRK has not been provided with a detailed bill of quantities or budget covering the remaining LoM period at Bissa. Nordgold estimates that an additional USD17m will be required over the remaining life of mine period to construct all 10 raises as designed.

Closure and rehabilitation costs have been provided for the Bissa TSF as part of the ARO. SRK considers the cost allocation in the current estimate to be low. The TSF area is approximately 3.5 Mm^2 and hence the volumes of imported fill required to: 1) create a shedding surface upon which the cover can be placed; and 2) the form an engineered cover system will be significant.

10.11 Mineral Processing – Bouly

10.11.1 Flowsheet Description

The Bouly process plant treats low grade non-refractory oxidised saprolite and transitional saprock hosted gold ore by heap leaching, with gold doré produced at the Bissa plant.

The plant commenced production in 2016 with a design production rate of 7.5 Mtpa of ore.

The key unit processes are:

- Crushing: Ore is crushed to a target 100% -45 mm 80% -21 mm using two parallel trains, each train consisting of a single Metso C140 jaw crusher, preceded by a vibrating grizzly with a nominal 102 mm aperture, followed by a single Metso HP800 cone crusher preceded by a double deck screen with apertures 80 mm and 25 mm.
- Heap Leaching: Cement is added from storage soils to the crushed ore at a typical rate of 10 kg/t, and the ore is then agglomerated using a 4.6 m diameter, 14.0 m long agglomeration drum, to which is added barren leach solution at a nominal rate of 115 L/t of ore. The ore is then transported to the leach pad using a series of overland conveyors, feeding onto mobile grasshopper conveyors and finally to a radial stacker. The lift height is 10 – 12 m and the pads are designed to ultimately consist of four lifts with potential to stack up to six lifts being investigated. An interlift liner and drainage are installed for each lift. Leach solution is applied using wobbler sprinklers. The nominal leach cycle is 150 days. Process solutions are stored using ponds, and the system operates a three pond system – barren, intermediate and pregnant solution.
- Absorption: The absorption circuit consists of a single train of six columns operating in series. Each column contains 10 t of carbon. Loaded carbon, as a 10 t batch, is transferred by truck using a carbon transport vessel, to the Bissa plant for metal recovery.
- Metal Recovery: Metal is recovered using the existing elution and a new dedicated electrowinning circuit at Bissa. Modifications to the Bissa plant to accommodate the Bouly carbon include the incorporation, as required, of a cold cyanide strip prior to elution for copper removal, and the construction of a separate regeneration circuit for the Bouly carbon.

10.11.2 Supporting Metallurgical Testwork

Two testwork programs using Bouly ore were conducted in 2014 by SGS Lakefield Oretest in Perth under the auspices of Kappes, Cassiday & Associates Australia (“KCAA”) out of their Perth office. KCAA’s summary report of this testwork refers to earlier (2011) column leach testwork conducted at the Taparko laboratory; however, no further details of this work are provided.

Testwork was conducted on a mixture of half diamond core and RC chip material representing Oxide, Transition and Fresh lithologies. The core was generated from 400 m of drilling, with the deepest sample being from 227 m downhole. The RC chip was generated from 550 m of drilling.

The drill core samples were made into several composites for both bottle roll leach tests (11 composites) and column leach tests (7 composites). The RC chip samples were subjected to bottle roll leach tests only without any additional size reduction. Several individual core samples were also used for ore hardness tests.

The bottle roll leach tests were conducted using an intermittent rolling action (one minute per hour) to minimise grinding of the sample, and the leach solution was replaced half way through the 10 day leach cycle in order to better replicate column leaching conditions. The bottle roll tests on the core material were conducted at a crush size of 9.5 mm.

The column leach tests were conducted at crush sizes of 25 mm, 9.5 mm and/or 6.3 mm, depending on the lithology type and sample availability. Cement was used in agglomeration, with the cement addition determined using a KCAA in-house procedure.

Gravity and flotation testwork was also conducted on the samples of transitional and fresh ore; however, the results of this testwork are not reported here as they do not relate to heap leach processing.

UCS tests, albeit on only a small number of samples, indicated that the ore is of moderate hardness. Crushing Work Index tests indicated that the oxide and transitional material is relatively soft, where high values were reported for fresh andesite and diorite samples. Abrasion Index test results showed that ore to be no more than slightly abrasive.

Head grades for all of the samples tested ranged from 0.46 g/t to 3.36 g/t Au, with an average value of 0.92 g/t. Ag and Hg grades were low, although some of the transition and fresh samples had elevated Cu grades (up to 1300 ppm).

Bottle roll leach test results showed good recoveries (73% to 90%, the lower values for the slightly weathered fresh samples) for all lithology types except for the unweather fresh material for which recoveries were 34% to 49% at that crush size. Recoveries from the bottle roll leach tests on the RC chip samples similarly ranged from 70% to 92%. A single test had been conducted on one of the column leach composites (MC-6) at -25 mm due to there being insufficient of this material for a column leach test at that crush size; the bottle roll test leach recovery for that sample was 80%.

The results of the column leach tests are summarised in Table 10-25. Column leach Au recoveries ranged from 56% to 93%, with recovery generally increasing with increasing oxidation and weathering. Leach kinetics also increased with increasing oxidation and weathering, and where two crush sizes were tested, the finer crush produced a higher recovery.

Table 10-25: Bouly Column Leach Test Results Summary

Sample Name	Ore Type	Head Grade (g/t Au)	Crush Size (mm)	Cement Dose (kg/t)	Days Leaching	Au Recovery (%)
MC-1	Saprolite, Highly Weathered, Oxide	0.85	25	12	39	92.8
MC-2	Saprock, Moderately/Slightly Weathered, Transition	0.78	25	6	55	90.7
		0.78	9.5	6	55	93.1
MC-3	Slightly Weathered, Moderately Oxidised, Fresh	0.74	25	4	77	67.3
		0.74	9.5	4	73	76.5
MC-4	Unweathered, Transition/Fresh	0.76	9.5	4	85	84.2
MC-5	Saprolite, Highly Weathered, Oxide/moderately Oxidised	0.81	25	6	55	81.1
MC-6	Saprock, Moderately Weathered, Transition/Fresh	0.88	9.5	6	51	62.7
MC-7	Unweathered, Fresh	0.87	6.3	3	77	56.1

Given the relatively narrow range of head grades tested, there was little discernible trend in gold recovery with head grade. There was a trend of decreasing gold recovery with increasing depth, from a high of the order of 90% at a vertical depth of 20 m down to in the order of 50-60% at a vertical depth of 170 m; this trend being a reflection not only of depth itself but also of weathering/oxidation. Based on the testwork, KCAA estimated overall recoveries as shown in Table 10-26.

Table 10-26: Bouly Predicted Gold Recoveries

Ore Type	Oxidation Level	Crush Size (mm)	Gold Recovery Range (%)	Average Recovery (%)
Highly Weathered Saprolite	Oxide	25	80 to 90	85
Moderately/Slightly Weathered Saprock	Oxide/Transition	25	82 to 90	86
Slightly Weathered, Moderately Oxidised Fresh	Moderately Oxidised, Transition/Fresh	9.5	72 to 74	73
Unweathered Diorite	Transition/Fresh	6.3	34 to 60	56
Overall				75

10.11.3 Historical Production and Plant Performance

Annual plant operating data for the period 2016 to 2020 are shown in Table 10-27.

Table 10-27: Bouly Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	3,292	7,385	7,741	7,441	6,916
Au Head Grade	(g/t)	0.68	0.61	0.58	0.58	0.54
Au Recovery	(%)	83.0	79.5	79.3	71.6	75.1
Au Produced	(koz)	31	124	107	102	79
Operating Cost	(USD/t)	4.01	4.92	4.74	4.78	5.7

10.11.4 Forecast Production

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 10-28. The Ore Reserve Case processes a maximum of 7.95 Mtpa over a period of 8.5 years (to mid-2029), mining to mid-2025 and processing of stockpiles thereafter. The Base Case has a similar profile with only slightly more ore mined (approximately 4 Mt).

Table 10-28: Bouly Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	67,230	71,572
Gold Grade	(g/t Au)	0.44	0.44
	(koz Au)	957	1,016
Gold Recovery	(%)	72.0%	72.0%
Doré Produced	(kg)	21,427	22,766
	(koz Au)	689	732

10.11.5 Discussion

The Bouly processing circuit represents a conventional heap leach format in terms of the feed preparation, heap leach configuration and initial metal recovery element (carbon absorption), with the proximity of the Bouly heap leach to the Bissa CIL plant providing the opportunity to piggy back off the Bissa plant's remaining metal recovery process units, expanded as required for regeneration capacity and with a cold cyanide strip option added to the elution cycle in case of high copper loadings on the carbon.

The crushing circuit in its current configuration has a design product size of 45 mm, which is coarser than the 25 mm top size used in the testwork; using diamond drill core it can be difficult to produce a reliable crush size much coarser than that sort of figure, although KCAA also notes that 25 mm represents a practical upper limit for the use of agglomeration. The Process Design

Criteria document for the project notes that space is available for a third stage of crushing and associated screening to achieve a crush size of 9.5 mm, the size used in the column leach tests for slightly and moderately weathered ore (although not for unweathered ore). The historical operating data shows that the plant has achieved its design capacity of 7.5 Mtpa of ore. The reported recovery figures for 2016 (83.0% each operational month) appear to be assumptions.

As noted in the KCAA report, the column leach test results show very little sensitivity of recovery to head grade, and there was a consistent variation with depth, which is likely to be analogous to the weathering profile. While based on limited data, the results also show a sensitivity to crush size, the difference increasing with decreasing weathering, from around 2.5% for the moderately/slightly weathered, Transition saprock sample MC-2 (see Table 10-25, comparing the 25 mm and 95 mm crush size column leach tests) to around 9% for the slightly weathered, moderately oxidised, Fresh sample MC-3 to in excess of 10% for the moderately weathered, Transition/Fresh saprock sample MC-6 (comparing the 9.5 mm column test and the 25 mm bottle roll test).

KCAA describes the testwork conducted to that date (April 2014) as being beyond scoping level but not sufficient for preliminary feasibility study level; however, there appears to have been no further testwork conducted subsequent to that time before the project was built. Given that Bouly is essentially a brownfields expansion of Bissa, and given Nordgold's experience at Bouly and with the regional ores, proceeding with the project on the back of a limited testwork program would have been relatively low risk, particularly given the good metallurgical response of the Bouly ore as tested.

Figure 10-16 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as estimated recoveries based on the testwork results for oxide ore. The historical data is monthly figures for 2016-2020, and the forecast data is monthly for 2021 and annual for 2022 onwards. Where the forecast data is split between low grade and medium/high grade, the separate data is shown. The testwork results shown are for the -25 mm crush size for the more weathered samples, and the -9.5 mm crush size for the less weathered samples. The recovery assumed in the MPA spreadsheet supporting the 2022 SBP is also shown.

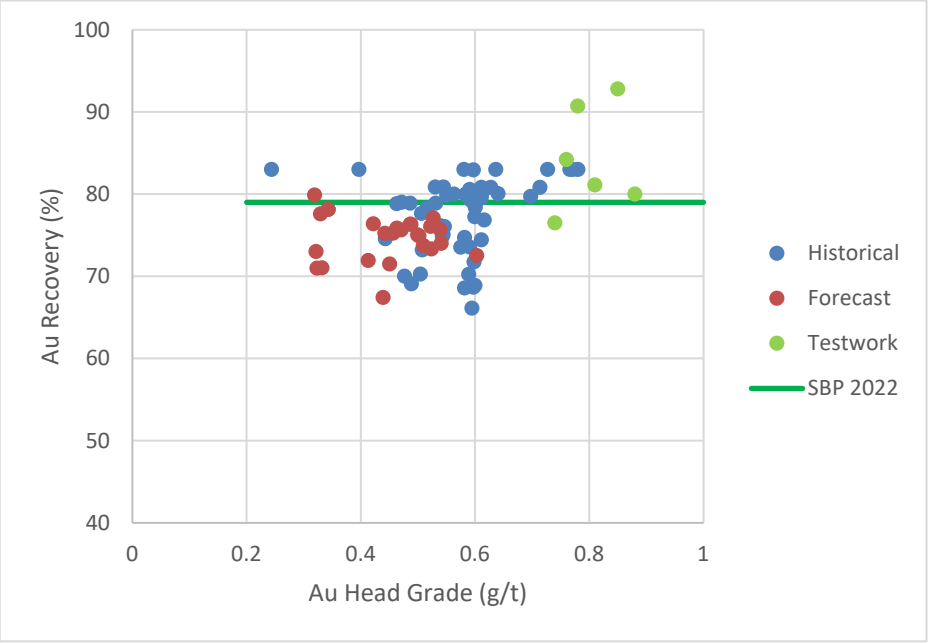


Figure 10-16: Bouly Gold Recovery versus Head Grade

Apart from the 83.0% recoveries reported for 2016, which appear to be assumptions, the monthly historical recoveries have only once been above 81%, but have been typically in the range 79-80%, except for two clusters (first half of 2019 and last quarter of 2020) where they have been of the order of 70% or less. These two clusters may well represent periods where some less weathered ore was processed, where the impact on recovery of the coarser crushed size used in the plant than used in the testwork would be more apparent.

The forecast recovery figures lie within the range of reported historical recoveries but are typically not as high; this may be partly a reflection of the generally lower head grades, but more likely represent the processing of less weathered ore going forward.

The testwork recoveries are towards the top end of the historical figures, or higher. While this may be a reflection of the typically higher head grades used in the testwork, it almost certainly also reflects the finer crush size used in the testwork (-25 mm maximum) than is used in the plant (-45 mm).

The MPA lists a single recovery of 79% with no specific reference to head grade. While this figure is consistent with the bulk of the historical data, it is higher than most of the forecast figures. A figure of the order of 75% would more closely represent the forecast recovery figures.

The operating cost estimates are relatively high for a plant of its configuration and scale. This is likely to be due to the relatively high unit cost of site generated power, and the relatively high cement addition, particularly for the highly weathered ore (15 kg/t design cement addition).

The MPA spreadsheet lists an operating cost for “treatment” of USD4.87/t for Oxide ore. This cost is built up from first principles; however, it only covers reagents and consumables and maintenance spares; labour is listed separately but is a combined figure for the whole project. Of the USD4.87/t “treatment” cost, cement is USD2.55/t, cyanide USD0.75/t and power USD0.74/t.

10.12 Heap Leach Facility – Bouly

10.12.1 Introduction

The Bouly Heap Leach Facility (“HLF”) was commissioned during 2016. The original design of the facility included allowance for stacking of 57 Mt of ore over a mine life 7.5 years. Nordgold report that stacking of Lift 2 within the Phase 2 (southern) flank of the HLF is currently ongoing. Figure 10-17 illustrates current construction status, as of December 2020. Between 2021-2025 inclusive, a total of four additional lifts (six lifts in total) are planned within the existing footprint area of the lined facility. This will provide storage capacity for an additional 38.5 Mt of ore. This will provide adequate storage capacity for stacking of ore until mid-2025 (Ore Reserve and Base Cases).

During 2017, Knight Piésold completed a concept level options study which examined seven alternatives for future expansion of the facility. Currently, Nordgold is using one of these alternatives to increase the height of the HLF to raise 6 (as described above). Two alternative sites were proposed for development of a second HLF to cover the remaining LoM period (Figure 10-18). Nordgold has yet to select a preferred site for the second HLF. Knight Piésold estimates that four lifts would be required in either of the footprint areas, to provide sufficient capacity for storage of the remaining balance of ore (maximum of 31 Mt between 2025-2029 inclusive).

Figure 10-17: Bouly HLF Aerial Image November 2020

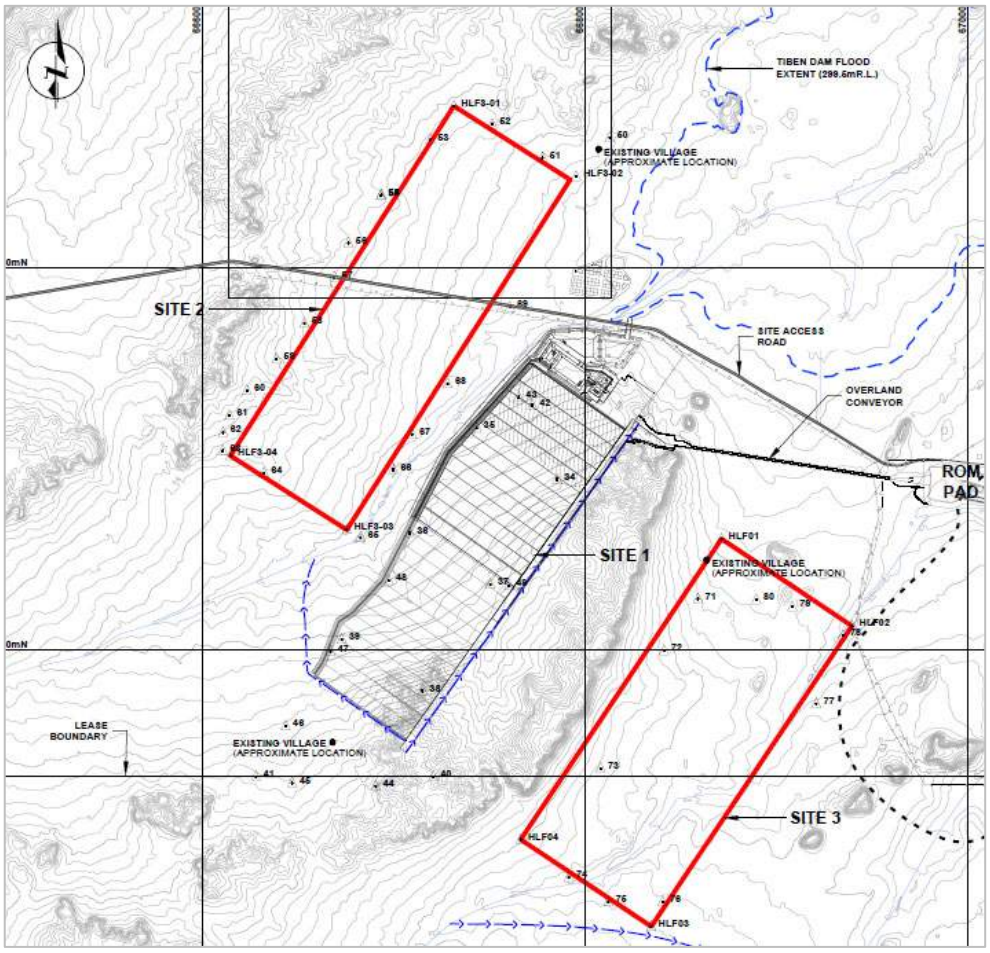


Figure 10-18: Bouly Proposed HLF Expansion Areas (Knight Piésold, 2017)

10.12.2 HLF Design

There are no formal designs for the existing or future HLF. Based upon review of the Knight Piésold Scoping Study (2017), SRK understands that the current Bouly heap leach stacking system is designed to receive ore from an overland tipper conveyor and a mobile tripper with cross conveyor, which is used to place ore on the pad itself. The mobile stacking system comprises of a series of portable horizontal and radial stacker systems.

Knight Piésold reports individual lifts stacked at 10 m vertical intervals with an in place density of 1.3 t/m^3.

SRK understands that the current facility has a basal liner consisting of the of the following:

- 300 mm sand cushion layer; overlying;
- 1.5 mm HDPE liner; overlying;
- 200 mm compacted soil liner (subgrade preparation).

A series of lined ponds have constructed to the north of the facilities (raw water pond, pregnant solution pond, storm water pond and reagent mixing pond) which service the plant. Non-contact water is managed by a system of perimeter diversion ditches which report to stormwater pond. The stormwater pond has an emergency spillway which discharges into the adjacent reservoir basin.

10.12.3 Stability Analysis

SRK is not aware of any stability analysis completed for the as-built HLF external slopes. Both Effective Strength Analysis (“ESA”) and possibly Undrained Strength Analysis (“USA”) should be undertaken as a matter of priority, adopting a credible estimation of post-peak strength in the foundations materials. This is necessary to ensure that both as-built and future raise designs are in accordance with accepted international practice. Nordgold reports that stability analysis will be undertaken as part of planned Phase 3 HLF Option Study, due to commence 2021.

The proposed raise geometry for the HLF needs to be assessed, to ensure that the required Factors of Safety (“FOS”) values against slope failure are achieved.

10.12.4 Hazards and risks assessment (qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
    - Meteorological events: **Medium.** Diversion channels appear to have designed around the as-built HLF; however, sizing should be compared against design storm.
    - Seismic events: **Low.** Area of low seismicity.
    - Human Ingress: **High.** Site surrounded by local populace, very likely to be significant ingress from local population.
- Internal:
    - Basal Liner Failure: **Low.** The designed liner system beneath the as-built HLF is appropriate for this setting. The Environmental Department is undertakes regular wate

quality sampling from standpipe piezometers located around the facility (results have not been reviewed by SRK).

- Slope Stability: **High.** Slope failures could significantly impact production and could be costly to remediate.
- Electrical and mechanical, including automation, protection and controls, communications: **Low/Moderate.** Relatively remote site so communications likely challenging.

The following key risks have been identified following completion of this review:

- Slope instability/loss of strength: **Moderate**. No stability analysis has been provided to support the current HLF as-built. .The stability of existing HLF and proposed additional raises should be verified as a matter of priority before construction continues. Potential failure mechanisms include deep seated failures through weak foundation materials or along the HDPE liner system interface. Liquefaction risk may be credible in the foundations; however, this could be ruled out following review of foundation conditions beneath the existing site and future development areas. Slope stability failures could lead to interruptions in production or run-out of ore onto unlined areas.
- Contaminated seepage: **Low/Moderate.** Design of the basal liner system appears to robust. SRK recommends that a detailed review of historical groundwater monitoring records is undertaken, which is required to verify that the groundwater quality is not being negatively impacted by operations. SRK notes the presence of a reservoir immediately north of the HLF, which could be impacted in the event of seepage from the HLF and/or the adjacent lined ponds.
- Stormwater Management: **Medium.** Perimeter diversion channels appear to have been constructed around the as-built HLF; however, it is not clear if these have been sized to deal with anticipated stormwater flows during the wet season. There is a residual risk of hydraulic erosion around the basal slope section of the HLF, which could impact on slope stability. The stormwater pond includes an emergency spillway, which discharges to the local reservoir; however, the dimensioning of this structure should be checked, to ensure it can safely pass the design storm event.

10.12.5 Comments

Knight Piésold (2017) estimated an all in capital and operating cost of USD0.83/t of ore to raise the HLF to final elevation (Raise 6) within the current footprint area. Nordgold has included an average allowance of USD0.71/t operating cost until 2025 for continued raising of the existing facility until of 2025.

Nordgold has included an allowance of USD18m for construction of the new HLF, plus and operating cost allowance of USD0.83/t for the period 2026-2029 inclusive to cover raising of the new HLF. This value seems to be in line with the capital estimated by Knight Piésold.

Closure costs have been estimated for the existing HLF area only, which are included in the ARO. SRK considers the values estimated to be low. The existing HLF area is approximately 1.5 Mm^2 and hence the volumes of imported fill required to form an engineered cover system and buttress external slopes of the landform will be significant.

10.13 Infrastructure and Logistics

The Bissa and Bouly mines and satellite pits are operating asset and as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp
- potable water supply, waste, and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility (HFO and Diesel) and supplier operated by fuel supplier under contract;
- explosives storage facility.

No major capital investment is planned for infrastructure assets.

The Bissa and Bouly mines are powered by a standalone HFO power plant, which is a critical piece of infrastructure and is operated and maintained by the Project team.

10.14 Human Resources

Nordgold has provided the following breakdown of staff at the Bissa-Bouly Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in 2028 for Bissa and 2030 for Bouly. Mining finishes at both mines in 2025, with stockpiles feeding the plant and HLF for the remainder of the mines' lives, hence the commensurate reduction in staff in the final year.

Table 10-29: Bissa-Bouly Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Bissa and Bouly	1,371	1,289	1,378	669	33	36	34	18

10.15 Occupational Health and Safety

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. The Bissa-Bouly mines have a health and safety management system that is being aligned with ISO 45001:2018. The mines are targeting certification of conformance to this standard in 2023.

Table 10-30 summarizes the key health and safety indicators for the Bissa-Bouly mines.

Table 10-30: Bissa Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	1276/832	1335/744
Lost time injury frequency rate ("LTIFR")*	0.16 /0.19	0.00/0.00
Total recordable injury frequency rate ("TRIFR")**	3.54/3.82	2.08/1.17
Lost Time Accident Days (LTAD)	44/152	2/0
Fatalities	0/1	0/0
Lost Time Incidents ("LTI")	2/1	0/0
Medical Treatment Incidents ("MTI")	1/4	4/1
First Aid Incidents ("FAI")	27/16	20/10
Near Misses	9/1	1/1
Unsafe Conditions, Fixed	3/9	56/6

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

10.16 Environmental and Social Matters

10.16.1 Environmental Studies Completed

Several ESIA have been completed for the active mines. The Bouly ESIA is the most useful in terms of providing perspective on the potential impacts on land users, habitats and water resources. All ESIA reports and present management and monitoring plans that are somewhat generic.

The ESIA reports for Bissa mine (2010), Zandkom pit (2013) and Gougre pit (2013) were prepared by the exploration permit holder at the time (Jilbey Burkina SARL and/or High River Gold Mines SA) with input from environmental consultants (Genivar and Wardell). The ESIA for Bouly (2015) and Samtenga (2018) were prepared by independent environmental consultants (Bege SARL and Geem International, respectively) registered in Burkina Faso.

Resettlement planning has been undertaken concurrently with the ESIA processes and is documented in detailed RAP.

The ESIA and RAP preparation processes for the Yimiougou pit and the Ronguen pit are underway.

10.16.2 Environmental and Social Setting

The Bissa group of mines are in semi-arid Sub-Sahelian climate and the livelihoods of most people in the region are based on agriculture and mining, including artisanal mining. The region is affected by droughts and floods that affect food security. The fragility of the livelihoods of local communities is increased by extremist terrorism, which includes attacks on civilians. Currently, a state of emergency prevails in the Sahel and Eastern Regions, which are north and east of the North Centre Region where most of the Bissa group of mines are located (Section 10.1.1).

Migration in and out of the local communities has been common for decades. Young people migrate with work opportunities, often related to harvesting and mining. Climate and security pressures have increased the extent of migration in the region of the mines.

The local landscape is undulating with a few hills. The terrain to the north of the Bissa-Zandkom concession is relatively hilly with crests of hills reaching altitudes of 500 mamsl. Bissa mine is at 350 mamsl on a ridge. Bouly mine is at 300 mamsl on undulating land that is punctuated with rock outcrops and slopes gently to the Tiben reservoir (Figure 10-19).

Figure 10-19: Bouly Mine Terrain (*Source: Nordgold*)

Most watercourses in the vicinity of the mines are ephemeral (flowing only when it rains) or semi-perennial (flowing only between May and October). Some streams comprise a series of locally interconnected ponds. Numerous water storage ponds, called “boulis”, are excavated by local communities to store rainwater. Regionally, the Bissa group of mines are on the basin of the Nakambé River, which is a tributary of the Volta River.

Bouly mine in next to the Tiben Dam, on the Nakambé River and downstream of Lake Bam. These large water bodies have multiple water uses, including providing water for drinking, livestock watering and irrigation of market gardens on their banks. They are also fished. Away from the Lake Bam and Tiben Dam, boreholes, large-diameter wells and boulis constitute the main water supply points for local communities.

The natural vegetation is savanna. Natural habitats have been degraded by agriculture, woodcutting and artisanal mining. Despite this, over 100 bird species have been recorded near the Bouly site. Protected species in the region include vultures, crocodile and aardvark (*Orycteropus*).

Services and infrastructure are not well developed in the North Centre Region. All-seasons access roads are lacking and hinder attendance of health centres. Malaria and are respiratory illnesses are prevalent in the area. There are numerous primary schools and adult literacy centres in region, but secondary schools and vocational training centres are limited.

The agriculture includes livestock farming, crop cultivation and market gardening. The local communities also have fruit trees. Other livelihood activities include collection of non-timber forest products (gathering of wild fruits, medicinal plants, beekeeping, food plants) and fishing.

The houses in the vicinity of the mine sites are a mix of various traditional and modern styles, using adobe materials, carved stone, concrete and steel.

Numerous sites of archaeological and cultural importance have been identified in the vicinity of the mine sites. Sites of cultural importance altars, sacred natural sites, tombs and cemeteries.

10.16.3 Approach to Environmental and Social Management

Management Systems at the Mines

Nordgold is in the process of establishing health and safety and environmental management systems at the Bissa-Bouly group of mines. The management systems will be audited in 2021 and Nordgold is targeting ISO 14001:2015 and ISO 45001:2018 certification in 2022.

Key points about the existing environmental management system are given below.

- Human rights training is undertaken.
- The impact management plans are too generic.
- Tracking of compliance obligations needs improvement.
- Monitoring of impacts needs improvement so there is more focus on tracking impacts on surrounding and downstream land users and water users and habitats.

Stakeholder Engagement

Nordgold undertakes stakeholder consultation with interested parties during ESIA, RAP and environmental approval processes and there is continuous engagement with communities in proximity to the active mines.

Community consultation committees have been established. These are information-sharing forums focussed on constructive relationships, community development initiatives and grievances.

With the fragile livelihoods prevailing in the surrounding communities, the expectations of communities for Nordgold to help them are high. The stressed communities are quick to protest, which does occasionally impact on production at the mine. Bissa-Bouly are responding to this with even more proactive consultation and intensified community investments as outlined below.

Enhancement of Positive Social Impacts

Nordgold has many initiatives aimed at increasing the human and social capital of the communities that it works in. Among these are:

- preferential employment of nationals; reportedly 1,193 staff members were Burkinabé at the end of 2019;
- significant investment in training of staff;
- contribution to community development (health, education, small industry, agriculture, water supply and repair of damaged roads);
- empowering women via the training in money-generating activities such as weaving, soap making and livestock breeding;
- micro-credits aimed to encourage local entrepreneurship;

- addressing food insecurity; purchase and storage of large volumes of cereals and provision of this to communities when needed at “social prices.

Nordgold has committed to increase community investment by up to 50% compared to expenditure in 2020.

Hazardous Materials

Nordgold has developed corporate guidance on handling the hazardous materials and has specific procedures for cyanide usage based on the International Cyanide Management Code. SRK has not seen water monitoring data providing information on cyanide levels on the TSF, heap leach ponds and downstream water resources.

Initiatives to Reduce the Carbon Intensity of Operations

Nordgold has several initiatives in place to reduce the carbon intensity of operations as outlined in Section 3.5.2. Specific initiatives at Bissa mine include:

- Technical feasibility and design assessments for a proposed solar power plant at Bissa, which if economic, will reduce fuel consumption by approximately 6.4 million litres and greenhouse gas emissions by approximately 18,000 t per year (CO_2-eq);
- Allocation of plants to local communities for planting and reforestation.

10.16.4 Resettlement

Nordgold has a Resettlement Framework that defines its approach to resettlement. This commits to avoiding resettlement where possible and to observing relevant legislation and international standards. The framework recognises that resettlement planning and implementation can take 18 to 24 months.

The numbers of houses resettled from the active mine sites are shown in Table 10-31. The resettlement processes and agreements were defined in RAPs. The resettlement included relocation of community infrastructure including schools, mosques, churches and wells. It also included replacement of agricultural land, compensation for crops lost and livelihood restoration activities.

Nordgold audits resettlement programs. A completion audit has been undertaken for Bissa resettlement and similar audits will be undertaken for the other resettlement programs.

Resettlement required for new projects is outlined on Table 10-32. A RAP has been prepared for Yimiougou, resettlement agreements are being completed and preparation for construction of new houses is underway. The RAP preparation process for Ronguen will commence shortly (in H1 of 2021).

The audit of the Bissa resettlement was undertaken by Intersocial Consulting in 2016. This recorded that Nordgold did provide high-quality housing, boreholes, support to schools, roads and a community centre.

Table 10-31: Bissa-Bouly Completed Physical Resettlement

Mine/pit	Year	Physical resettlement	Number of houses	Audit
Bissa	2012	Yes	370	2016
Bouly	2016	Yes	1075	Completion audits will be undertaken for all of the other resettlement programs to check livelihood restoration has been achieved.
Samtenga	2018	No	-	
Gougre	2019	Yes	281	
TSF2	2020	Yes	176	
Zandkom	2020	Yes	880	

Table 10-32: Bissa-Bouly Physical Resettlement Likely to be Required for New Mines

Mine/pit	Year	Physical resettlement	Number of houses	Estimated cost
Yimiougou	2021	Yes	691	USD18m in total = about USD26k per house
Zandkom SW extension	Not set up yet	Yes	633	Probably similar figures above
Ronguen	2022	Yes	-	No

Figure 10-20: An Affected House at Bissa Mine Site and a Replacement House

The Intersocial audit in 2016 also recorded that there was some stress over water resources as the host community was using the new boreholes; there may be a need for more support with water supply. The cash compensation was considerable but unwise spending coupled with insufficient farmland could result in people becoming impoverished. Audit recommendations included:

- establish a more comprehensive community development plan and monitor outcomes;
- ensure that the most vulnerable households are targeted and supported;
- establish a more comprehensive communication strategy; and
- finalise the process of providing security of tenure for housing plots.

Nordgold reports that it paid careful attention to the audit findings and recommendations and used these to improve its resettlement processes and outcomes. Particular effort was made to improve the living conditions of communities. Each of the affected villages has an annual community development plan. Since 2016, USD5m has been invested in the local communities. The various initiatives are outlined in the preceding section.

Audits of completion of the other resettlement programs will be undertaken by 2024.

10.16.5 Issues

Artisanal Mining and Security

There are numerous artisanal and small-scale mining sites on the exploration concessions and there is frequent encroachment on the exploitation permit areas. The Nordgold security and community relations teams record and monitor these and assess security and safety risks. It also works closely with national and local authorities to manage identified risks.

Many of the artisanal miners live in the communities local to the mine sites and are engaged through ongoing stakeholder engagement activities. They are also encouraged to participate in education and training activities to convert their skills to access different types of employment.

The operational site security teams are supported by private security contractors and national security forces (police and military) under memorandums of understanding signed with the national authorities. Training on human rights policy and procedure is undertaken to ensure that security personnel's conduct towards third parties is appropriate.

Water Impacts

Limited geochemical studies have been undertaken to ascertain the ARDML potential of the rock exposed by mining in the pits and of waste rock, the heap leach and tailings facilities (HSF 1 and TSF 1 and TSF 2). A recent review of Nordgold's closure plan and estimates by Micon (2020) explains that additional test work is required to confirm closure scenarios for the pits and mine waste facilities.

The ESIA reports for Bouly mine and the Samtenga pit do record that some geochemistry test work was undertaken on rock from the mineralised zones of the mines. The static tests indicated that some samples had net acid production potential. More geochemistry information is needed for water management and closure plans.

10.16.6 Closure

Nordgold is drafting a new group closure framework that will be aligned with relevant international industry standards. Closure plans and cost estimates will be updated in accordance with this framework.

Closure concepts are outlined in the ESIA reports for the active mines and there are some conceptual closure plans for Bissa (2014, 2016), Bouly (2017) and Samtenga (2017).

A review of the Bissa and Bouly closure plans was undertaken by Micon in 2020. This review was focused on checking the 2020 asset retirement obligation (ARO) estimates but also commented on the adequacy of the closure plans. General improvements that need to be made to the closure plans are:

- Clearer reference to closure obligations in permits, licences and agreements and commitments made in public reports;
- Improvement of the ARDML knowledge base;
- Definition of closure risks and preparation of specific plans to address these, including attention to decommissioning cyanide facilities and long-term water risks;
- Preparation for the social transition at closure to ensure a positive legacy;

- More attention to closure execution, maintenance, monitoring, relinquishment.

The ARO estimates for currently liabilities are USD17.9m for Bissa mine (and associated satellite pits) and USD6.4m for Bouly mine.

Nordgold has used the ARO to prepare LoM closure cost estimates that include extension to the heap leach facilities at Bouly and the new satellite mines, Yimiougou, Ronguen and the Zandkom Extension. The LoM estimates are USD26m for Bissa and USD11.9m for Bouly. SRK has been informed that USD4.9m has been previously accrued for Bissa, and USD1.4m for Bouly.

10.16.7 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Bissa-Bouly mines:

- Continue strengthening of the environmental management system on site and obtain certification for this as planned.
- Establish a compliance obligations database for obligations in permits and agreements and track conformance with these systematically.
- Upgrade monitoring programs to better understand impacts on land and water users and habitats around and downstream of the mine sites.
- Conduct ARDML studies as planned.
- As planned, prepare more detailed life of mine closure plans and cost estimates.
- Maintain the proactive and continuous community stakeholder engagement.

10.17 Economic Assessment

10.17.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Bissa and Bouly gold mines. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 90.0% of the Bissa and Bouly gold mines, all number presented below are on a 100% (unattributable) basis.

10.17.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Bissa and Bouly cashflow analyses:

- Royalty rate of 5.0% of revenue, for gold price above USD1,300/oz, plus an additional 1% to allow for revenue from silver, which is not further included.
- An allowance for GEP Minera Royalties and Reserve Premium as applicable to Bissa's Bissa and Zandkom pits.
- A community relations cost allowance for Bissa of approximately USD8m over the life, and USD9m for Bouly.

- Corporate income tax rate of 17.5%.
- Closure cost allowance for Bissa of USD23.1m (with a previously accrued USD4.9m, taking the total closure cost to USD26.0m) and retrenchment cost of USD1.6m (Ore Reserve Case) / USD4.7m (Base Case) have been allowed for in the economic assessment.
- Closure cost allowance for Bouly of USD10.5m (with a previously accrued USD1.4m, taking the total closure cost to USD11.9m) and retrenchment cost of USD2.8m (Ore Reserve Case) / USD1.8m (Base Case) have been allowed for in the economic assessment.

10.17.3 Production

Historical processing statistics over 2016-2020 are presented in Table 10-33 and Table 10-34 for Bissa and Bouly, respectively. The remaining life of mine for Bissa for the Ore Reserve Case is 7 years (four years of mining plus a further three years of stockpile processing), and 8 years for the Base Case (five years of mining plus a further three years of stockpile processing). The remaining life of mine for Bouly for the Ore Reserve Case is 9 years (five years of mining plus a further four years of stockpile processing), and 10 years for the Base Case (five years of mining plus a further five years of stockpile processing).

Table 10-33: Bissa Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	38,645	37,526	41,680	43,120	33,437
Waste	(kt)	34,697	32,905	37,512	38,581	29,957
Capital Waste	(kt)	13,827	7,122	20,173	14,168	3,799
Operating Waste	(kt)	20,870	25,783	17,339	24,412	26,158
Ore	(kt)	3,948	4,622	4,168	4,540	3,480
Gold Grade	(g/t Au)	1.56	1.48	1.25	1.19	1.44
Gold Contained	(koz Au)	200	220	168	174	161
Surface Haulage	(kt)	-	-	-	164	845
Processing Feed	(kt)	4,184	4,596	4,861	4,750	4,501
Gold Grade	(g/t Au)	1.54	1.48	1.20	1.18	1.25
	(koz Au)	207	219	188	180	181
Gold Recovery	(%)	88.4%	89.0%	80.8%	87.3%	79.9%
Doré Produced	(kg)	5,723	6,109	4,818	4,728	4,610
	(koz Au)	184	196	155	152	148
Sales						
Doré	(koz Au)	186	195	155	151	148
Commodity Prices						
Gold	(USD/oz)	1,238	1,264	1,273	1,383	1,774
Sales Revenue						
Gold	(USDm)	230.2	246.2	197.7	208.6	262.7

Table 10-34: Bouly Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	8,651	12,921	13,262	13,794	16,413
Waste	(kt)	5,132	5,502	5,282	5,832	9,434
Capital Waste	(kt)	3,466	2,326	940	-	1,448
Operating Waste	(kt)	1,595	1,874	2,463	2,409	7,619
Ore	(kt)	3,518	7 419	7,980	7 962	6,979
Gold Grade	(g/t Au)	0.70	0.61	0.59	0.59	0.52
Gold Contained	(koz Au)	79	145	151	150	116
Surface Haulage	(kt)	-	-	-	-	-
Processing Feed	(kt)	3,292	7,385	7,741	7,441	6,916
Gold Grade	(g/t Au)	0.68	0.61	0.58	0.58	0.54
	(koz Au)	61	145	151	138	115
Gold Recovery	(%)	83.0%	79.5%	79.3%	71.6%	75.1%
Doré Produced	(kg)	978	3,848	3,316	3,166	2,445
	(koz Au)	31	124	107	102	79
Sales						
Doré	(koz Au)	28	124	105	103	78
Commodity Prices						
Gold	(USD/oz)	1,213	1,260	1,271	1,392	1,770
Sales Revenue						
Gold	(USDm)	34.0	156.0	133.2	144.1	138.4

10.17.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 10-35 and Table 10-36 for Bissa and Bouly, respectively. These numbers exclude capitalised waste stripping (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Bissa and Bouly, this cost amounts to approximately USD3.20/oz.

The Company has noted that for the west African Mineral Assets in general, approximately 25% of the operating costs incurred are denominated in local currency, 55% in USD and 20% in EUR.

Table 10-35: Bissa Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	41.1	55.8	39.9	56.5	74.2
Surface Haulage	(USDm)	-	-	-	-	0
Processing	(USDm)	40.8	39.2	43.4	45.5	42.1
Other Production	(USDm)	1.3	(0.6))	12.0	(7.7)	1.2
Overheads	(USDm)	29.5	22.5	17.2	22.6	24.1
General Site	(USDm)	25.1	19.0	14.1	19.0	21.4
SG&A	(USDm)	4.4	3.1	3.1	3.6	2.8
Royalties/Other Taxes	(USDm)	14.4	14.2	14.1	15.9	19.2
Other Operating	(USDm)	(0.1)	(1.3)	1.5	1.9	2.4
Total Cash Cost	**(USDm)**	**127.2**	**129.2**	**127.9**	**134.8**	**163.2**

Table 10-36: Bouly Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	2.9	8.7	13.4	20.9	22.0
Surface Haulage	(USDm)	-	-	-	-	-
Processing	(USDm)	5.3	36.4	36.7	35.5	39.6
Other Production	(USDm)	(2.9)	(3.0)	(5.3)	(0.1)	(8.8)
Overheads	(USDm)	2.9	12.6	10.9	10.7	11.6
General Site	(USDm)	2.7	10.7	9.0	8.4	10.0
SG&A	(USDm)	0.2	1.9	1.9	2.3	1.7
Royalties/Other Taxes	(USDm)	1.1	9.4	10.0	8.1	10.6
Other Operating	(USDm)	0.1	-	0.7	0	1.3
Total Cash Cost	**(USDm)**	**9.6**	**64.0**	**66.3**	**78.8**	**76.4**

10.17.5 Capital Expenditure

Table 10-37 and Table 10-38 present summaries of the historical (2016 through 2020) capital expenditures for Bissa and Bouly, respectively.

The Company has noted that for the west African Mineral Assets, in general, approximately 10% of capital expenditure incurred are denominated in local currency, 65% in USD and 25% in EUR.

Table 10-37: Bissa Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	0.8	2.5	7.4	19.0	45.8
Exploration	(USDm)	-	-	-	1.1	2.1
Dev/New Technology	(USDm)	0.8	2.5	7.4	10.4	20.5
New Mine Construction	(USDm)	-	-	-	7.5	23.4
Sustaining	(USDm)	34.6	33.2	54.0	49.5	37.2
Exploration	(USDm)	3.6	2.3	3.2	3.3	2.1
Maintenance	(USDm)	4.3	11.7	8.4	11.4	14.2
Capital Stripping/Dev	(USDm)	22.2	12.9	35.5	29.5	7.4
PCR	(USDm)	4.5	6.3	6.9	5.4	13.4
Total Capital Expenditure	**(USDm)**	**35.4**	**35.7**	**61.4**	**68.5**	**83.0**

Table 10-38: Bouly: Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	86.6	-	13.4	7.0	5.1
Exploration	(USDm)	-	-	-	-	0
Dev/New Technology	(USDm)	18.8	-	0.2	0.0	0.2
New Mine Construction	(USDm)	67.8	-	13.2	7.0	4.9
Sustaining	(USDm)	6.1	11.9	10.8	8.6	7.6
Exploration	(USDm)	-	0.0	0.6	1.2	0.6
Maintenance	(USDm)	0.1	9.9	7.0	3.1	1.7
Capital Stripping/Dev	(USDm)	6.0	1.8	1.3	0.4	3.0
PCR	(USDm)	-	0.1	2.0	3.9	2.5
Total Capital Expenditure	**(USDm)**	**92.7**	**11.9**	**24.2**	**15.6**	**12.7**

10.17.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and

- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Bissa, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 10-39) and unit cost assessments (Table 10-40);
- for the Ore Reserve Case, annual detailed cashflows (Table 10-41) and annual unit cost assessment (Table 10-42); and
- for the Base Case, annual detailed cashflows (Table 10-43) and annual unit cost assessment (Table 10-44).

Both cases present technically feasible and economically viable plans.

The post-tax pre-finance cashflow tables for Bouly, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 10-45) and unit cost assessments (Table 10-46);
- for the Ore Reserve Case, annual detailed cashflows (Table 10-47) and annual unit cost assessment (Table 10-48); and
- for the Base Case, annual detailed cashflows (Table 10-49) and annual unit cost assessment (Table 10-50).

Both cases present technically feasible and economically viable plans.

Table 10-39: Bissa LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	107,517	117,633
Waste	(kt)	86,919	94,570
Capital Waste	(kt)	8,031	8,772
Operating Waste	(kt)	78,888	85,799
Ore	(kt)	20,599	23,063
Gold Grade	(g/t Au)	1.37	1.34
Gold Contained	(koz Au)	910	995
Surface Haulage	(kt)	16,908	18,066
Processing Feed	(kt)	31,655	34,120
Gold Grade	(g/t Au)	1.12	1.12
Gold Contained	(koz Au)	1,144	1,229
Gold Recovery	(%)	80.6%	80.6%
Doré Produced	(kg)	28,686	30,799
	(koz Au)	922	990
Sales			
Doré	(koz Au)	922	990
Commodity Prices			
Gold	(USD/oz)	1,664	1,654
Sales Revenue			
Gold	(USDm)	1,535	1,637
Operating Expenditure			
Mining	(USDm)	206	223
Surface Haulage	(USDm)	48	49
Processing	(USDm)	340	366
Other Production	(USDm)	-	-
Overheads	(USDm)	83	85
Royalties/Other Taxes	(USDm)	105	112
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**782**	**836**
Cashflow			
EBITDA	(USDm)	753	801
CIT	(USDm)	71	75
Working Capital	(USDm)	7	7
Interest/Other	(USDm)	25	27
Operating Cashflow	**(USDm)**	**650**	**692**
Capital Expenditure			
Project	**(USDm)**	**49**	**50**
Exploration	(USDm)	4	5
Development/New Technology	(USDm)	21	21
New Mine Construction	(USDm)	23	23
Sustaining	**(USDm)**	**83**	**87**
Exploration	(USDm)	11	12
Maintenance	(USDm)	12	13
Capital Stripping/Development	(USDm)	40	42
PCR	(USDm)	20	20
Closure/Retrenchment	**(USDm)**	**25**	**26**
Total Capital Expenditure	**(USDm)**	**156**	**163**
Free Cashflow	**(USDm)**	**494**	**529**

Table 10-40: Bissa LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	848	844
AISC	(USD/oz)	965	958
AISC (excluding closure)	(USD/oz)	938	932
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	2.07	2.05
	(USD/t_{ore})	10.00	9.69
Mining Capitalised	(USD/$t_{capitalised}$)	5.03	4.81
Surface Haulage	(USD/$t_{ransported}$)	2.84	2.71
Processing	(USD/t_{feed})	10.74	10.74
Overheads	(USD/t_{feed})	2.63	2.50

Table 10-41: Bissa Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Production									
Total Material Mined	(kt)	107,517	34,595	33,784	24,100	15,038	-	-	-
Waste	(kt)	86,919	28,685	27,816	18,331	12,086	-	-	-
Capital Waste	(kt)	8,031	-	6,011	1,731	288	-	-	-
Operating Waste	(kt)	78,888	28,685	21,805	16,600	11,798	-	-	-
Ore	(kt)	20,599	5,910	5,968	5,769	2,951	-	-	-
Gold Grade	(g/t Au)	1.37	1.38	1.35	1.25	1.64	-	-	-
Gold Contained	(koz Au)	910	263	259	232	155	-	-	-
Surface Haulage	(kt)	16,908	3,178	2,418	2,979	2,063	1,050	2,157	3,063
Processing Feed	(kt)	31,655	4,743	4,787	4,764	4,772	4,786	4,691	3,112
Gold Grade	(g/t Au)	1.12	1.48	1.56	1.21	1.08	0.86	0.83	0.71
Gold Contained	(koz Au)	1,144	226	240	186	165	132	125	71
Gold Recovery	(%)	80.6%	79.2%	75.2%	82.0%	84.2%	82.8%	82.7%	84.0%
Doré Produced	(kg)	28,686	5,560	5,610	4,732	4,326	3,389	3,211	1,859
	(koz Au)	922	179	180	152	139	109	103	60
Sales									
Doré	(koz Au)	922	179	180	152	139	109	103	60
Commodity Prices									
Gold	(USD/oz)	1,664	1,905	1,791	1,710	1,579	1,500	1,400	1,400
Sales Revenue									
Gold	(USDm)	1,535	340.5	323.0	260.1	219.6	163.5	144.5	83.7
Operating Expenditure									
Mining	(USDm)	206	52.5	66.7	53.5	33.2	-	-	-
Surface Haulage	(USDm)	48	7.3	5.8	7.1	10.6	3.4	9.5	4.4
Processing	(USDm)	340	52.2	52.3	51.4	48.2	47.6	50.3	38.1
Other Production	(USDm)	-	-	-	-	-	-	-	-
Overheads	(USDm)	83	21.4	19.2	19.2	9.6	9.6	2.9	1.2
Royalties/Other Taxes	(USDm)	105	22.5	21.4	17.6	15.0	11.5	10.6	6.5
Other Operating	(USDm)	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**782**	**155.9**	**165.4**	**148.8**	**116.6**	**72.2**	**73.2**	**50.2**
Cashflow									
EBITDA	(USDm)	753	184.7	157.6	111.4	103.0	91.3	71.3	33.5
CIT	(USDm)	71	12.7	29.8	14.4	4.4	6.0	3.5	-
Working Capital	(USDm)	7	6.7	-	-	-	-	-	-
Interest/Other	(USDm)	25	2.0	3.3	5.2	5.0	3.5	3.3	2.5
Operating Cashflow	**(USDm)**	**650**	**163.3**	**124.5**	**91.8**	**93.6**	**81.7**	**64.5**	**31.0**
Capital Expenditure									
Project	**(USDm)**	**49**	**25.7**	**9.0**	**3.8**	**2.5**	**2.5**	**2.5**	**2.5**
Exploration	(USDm)	4	2.2	1.1	1.1	-	-	-	-
Dev/New Technology	(USDm)	21	4.9	3.1	2.7	2.5	2.5	2.5	2.5
New Mine Construction	(USDm)	23	18.6	4.9	-	-	-	-	-
Sustaining	**(USDm)**	**83**	**41.4**	**23.2**	**10.5**	**4.3**	**1.7**	**1.6**	**0.7**
Exploration	(USDm)	11	4.3	3.3	3.3	-	-	-	-
Maintenance	(USDm)	12	6.2	2.8	0.9	0.9	0.5	0.4	0.1
Capital Stripping/Dev	(USDm)	40	23.4	13.0	3.5	0.5	-	-	-
PCR	(USDm)	20	**7.5**	**4.0**	**2.7**	**2.9**	**1.2**	**1.2**	**0.6**
Closure/Retrenchment	**(USDm)**	**25**	**4.8**	**4.0**	**3.3**	**2.6**	**2.6**	**2.9**	**4.6**
Total Capital Expenditure	**(USDm)**	**156**	**71.9**	**36.2**	**17.6**	**9.3**	**6.8**	**7.0**	**7.8**
Free Cashflow	**(USDm)**	**494**	**91.4**	**88.3**	**74.2**	**84.3**	**75.0**	**57.6**	**23.2**

Table 10-42: Bissa Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	848	872	917	978	838	662	709	840
AISC	(USD/oz)	965	1,130	1,068	1,069	887	702	753	928
AISC (excluding closure)	(USD/oz)	938	1,103	1,046	1,047	869	678	725	852
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	2.07	1.52	2.40	2.39	2.25	-	-	-
	(USD/t_{ore})	10.00	8.89	11.17	9.28	11.26	-	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	5.03	-	2.16	2.01	1.76	-	-	-
Surface Haulage	(USD/$t_{transported}$)	2.84	2.28	2.41	2.37	5.12	3.27	4.39	1.42
Processing	(USD/t_{feed})	10.74	11.00	10.92	10.79	10.11	9.95	10.71	12.25
Overheads	(USD/t_{feed})	2.63	4.50	4.02	4.04	2.01	2.01	0.61	0.39

Table 10-43: Bissa Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Production										
Total Material Mined	(kt)	117,633	34,553	33,327	28,090	16,611	5,052	-	-	-
Waste	(kt)	94,570	28,531	27,612	21,947	12,613	3,867	-	-	-
Capital Waste	(kt)	8,772	99	5,535	2,937	201	-	-	-	-
Operating Waste	(kt)	85,799	28,432	22,077	19,010	12,412	3,867	-	-	-
Ore	(kt)	23,063	6,021	5,714	6,143	3,998	1,185	-	-	-
Gold Grade	(g/t Au)	1.34	1.38	1.39	1.14	1.38	1.83	-	-	-
Gold Contained	(koz Au)	995	268	255	225	177	70	-	-	-
Surface Haulage	(kt)	18,066	3,237	2,489	2,685	2,936	1,082	1,260	3,527	849
Processing Feed	(kt)	34,120	4,742	4,855	4,794	5,015	4,879	4,676	4,276	883
Gold Grade	(g/t Au)	1.12	1.50	1.54	1.26	1.19	0.85	0.83	0.70	0.73
Gold Contained	(koz Au)	1,229	228	240	194	192	134	124	96	21
Gold Recovery	(%)	80.6%	79.2%	75.3%	81.8%	83.7%	82.9%	82.3%	82.6%	82.2%
Doré Produced	(kg)	30,799	5,619	5,633	4,931	4,992	3,452	3,177	2,464	530
	(koz Au)	990	181	181	159	161	111	102	79	17
Sales										
Doré	(koz Au)	990	181	181	159	161	111	102	79	17
Commodity Prices										
Gold	(USD/oz)	1,654	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400
Sales Revenue										
Gold	(USDm)	1,637	344.2	324.3	271.1	253.4	166.5	143.0	110.9	23.9
Operating Expenditure										
Mining	(USDm)	223	52.5	66.4	56.9	38.9	8.8	-	-	-
Surface Haulage	(USDm)	49	7.6	6.6	8.4	9.0	3.4	6.2	7.2	0.5
Processing	(USDm)	366	52.3	52.9	50.9	52.5	48.5	47.4	51.1	10.9
Other Production	(USDm)	-	-	-	-	-	-	-	-	-
Overheads	(USDm)	85	21.4	19.2	19.2	9.6	9.6	2.9	2.9	0.4
Royalties/Other Taxes	(USDm)	112	22.7	21.5	18.2	17.1	11.6	10.4	8.4	2.1
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**836**	**156.5**	**166.6**	**153.6**	**127.1**	**81.9**	**66.8**	**69.6**	**13.9**
Cashflow										
EBITDA	(USDm)	801	187.6	157.8	117.5	126.4	84.6	76.2	41.3	10.0
CIT	(USDm)	75	12.7	30.6	14.2	5.9	11.4	-	0.6	-
Working Capital	(USDm)	7	6.7	-	-	-	-	-	-	-
Interest/Other	(USDm)	27	2.0	3.3	5.1	4.6	4.1	3.2	2.9	2.1
Operating Cashflow	**(USDm)**	**692**	**166.3**	**123.9**	**98.2**	**115.9**	**69.1**	**73.0**	**37.8**	**7.9**
Capital Expenditure										
Project	**(USDm)**	**50**	**25.7**	**9.0**	**3.8**	**3.8**	**2.5**	**2.5**	**2.5**	**0.5**
Exploration	(USDm)	5	2.2	1.1	1.1	1.1	-	-	-	-
Dev/New Technology	(USDm)	21	4.9	3.1	2.7	2.7	2.5	2.5	2.5	0.5
New Mine Construction	(USDm)	23	18.6	4.9	-	-	-	-	-	-
Sustaining	**(USDm)**	**87**	**41.4**	**22.0**	**13.5**	**5.4**	**1.7**	**1.6**	**0.7**	**0.6**
Exploration	(USDm)	12	4.3	3.3	3.3	1.2	-	-	-	-
Maintenance	(USDm)	13	6.2	2.8	0.9	0.9	0.6	0.4	0.1	0.6
Capital Stripping/Dev	(USDm)	42	23.4	11.9	6.5	0.4	-	-	-	-
PCR	(USDm)	20	7.5	4.0	2.7	2.9	1.2	1.2	0.6	-
Closure/Retrenchment	**(USDm)**	**26**	**4.4**	**3.7**	**3.9**	**4.1**	**2.3**	**2.2**	**3.4**	**1.7**
Total Capital Expenditure	**(USDm)**	**163**	**71.5**	**34.7**	**21.2**	**13.2**	**6.5**	**6.3**	**6.6**	**2.8**
Free Cashflow	**(USDm)**	**529**	**94.8**	**89.2**	**77.0**	**102.7**	**62.5**	**66.6**	**31.2**	**5.1**

Table 10-44: Bissa Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028
Standard Statistics										
Total Cash Cost	(USD/oz)	844	866	920	969	792	738	654	878	816
AISC	(USD/oz)	958	1,120	1,062	1,079	851	774	692	930	951
AISC (excluding closure)	(USD/oz)	932	1,095	1,041	1,054	825	754	670	887	848
Unit Costs										
Mining (excl capitalised)	(USD/t_{mined})	2.05	1.52	2.39	2.26	2.37	1.74	-	-	-
	(USD/t_{ore})	9.69	8.72	11.61	9.26	9.72	7.41	-	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	4.81	236.05	2.14	2.22	2.06	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	2.71	2.35	2.63	3.13	3.06	3.17	4.95	2.05	0.59
Processing	(USD/t_{feed})	10.74	11.02	10.90	10.61	10.47	9.95	10.13	11.94	12.39
Overheads	(USD/t_{feed})	2.50	4.51	3.96	4.01	1.92	1.97	0.62	0.67	0.40

Table 10-45: Bouly LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	88,698	92,938
Waste	(kt)	33,641	33,538
Capital Waste	(kt)	8,043	7,246
Operating Waste	(kt)	25,598	26,292
Ore	(kt)	55,057	59,399
Gold Grade	(g/t Au)	0.47	0.47
Gold Contained	(koz Au)	831	889
Surface Haulage	(kt)	-	-
Processing Feed	(kt)	67,230	71,572
Gold Grade	(g/t Au)	0.44	0.44
Gold Contained	(koz Au)	957	1,016
Gold Recovery	(%)	72.0%	72.0%
Doré Produced	(kg)	21,427	22,766
	(koz Au)	689	732
Sales			
Doré	(koz Au)	689	732
Commodity Prices			
Gold	(USD/oz)	1,593	1,586
Sales Revenue			
Gold	(USDm)	1,097	1,161
Operating Expenditure			
Mining	(USDm)	114	121
Surface Haulage	(USDm)	-	-
Processing	(USDm)	381	406
Other Production	(USDm)	-	-
Overheads	(USDm)	45	46
Royalties/Other Taxes	(USDm)	81	84
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**620**	**656**
Cashflow			
EBITDA	(USDm)	477	505
CIT	(USDm)	49	44
Working Capital	(USDm)	(1)	(1)
Interest/Other	(USDm)	9	9
Operating Cashflow	**(USDm)**	**420**	**453**
Capital Expenditure			
Project	**(USDm)**	**73**	**74**
Exploration	(USDm)	-	-
Development/New Technology	(USDm)	72	73
New Mine Construction	(USDm)	1	1
Sustaining	**(USDm)**	**34**	**33**
Exploration	(USDm)	3	3
Maintenance	(USDm)	6	6
Capital Stripping/Development	(USDm)	17	16
PCR	(USDm)	9	9
Closure/Retrenchment	**(USDm)**	**13**	**12**
Total Capital Expenditure	**(USDm)**	**121**	**119**
Free Cashflow	**(USDm)**	**299**	**334**

Table 10-46: Bouly LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	900	897
AISC	(USD/oz)	969	959
AISC (excluding closure)	(USD/oz)	950	942
Unit Costs			
Mining (excl capitalised)	(USD/t_{mined})	1.41	1.42
	(USD/t_{ore})	2.07	2.04
Mining Capitalised	(USD/$t_{capitalised}$)	2.13	2.17
Surface Haulage	(USD/$t_{ransported}$)	-	-
Processing	(USD/t_{feed})	5.67	5.67
Overheads	(USD/t_{feed})	0.66	0.64

Table 10-47: Bouly: Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028	2029
Production											
Total Material Mined	(kt)	88,698	18,121	21,242	20,830	21,513	6,992	-	-	-	-
Waste	(kt)	33,641	9,131	9,320	8,995	4,709	1,486	-	-	-	-
Capital Waste	(kt)	8,043	701	4,719	2,623	-	-	-	-	-	-
Operating Waste	(kt)	25,598	8,430	4,601	6,372	4,709	1,486	-	-	-	-
Ore	(kt)	55,057	8,990	11,922	11,835	16,804	5,506	-	-	-	-
Gold Grade	(g/t Au)	0.47	0.44	0.46	0.44	0.48	0.55	-	-	-	-
Gold Contained	(koz Au)	831	128	177	168	261	97	-	-	-	-
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	67,230	7,603	7,629	7,928	7,950	7,928	7,928	7,928	7,950	4,385
Gold Grade	(g/t Au)	0.44	0.47	0.51	0.47	0.55	0.50	0.33	0.33	0.43	0.39
Gold Contained	(koz Au)	957	115	125	120	140	127	83	83	110	55
Gold Recovery	(%)	72.0%	74.6%	71.6%	73.2%	72.3%	71.2%	73.5%	73.5%	73.4%	58.0%
Doré Produced	(kg)	21,427	2,668	2,792	2,722	3,141	2,807	1,901	1,901	2,502	993
	(koz Au)	689	86	90	88	101	90	61	61	80	32
Sales											
Doré	(koz Au)	689	86	90	88	101	90	61	61	80	32
Commodity Prices											
Gold	(USD/oz)	1,593	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400	1,400
Sales Revenue											
Gold	(USDm)	1,097	163.4	160.8	149.7	159.5	135.4	85.5	85.5	112.6	44.7
Operating Expenditure											
Mining	(USDm)	114	18.4	23.9	26.3	33.6	11.8	-	-	-	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-	-
Processing	(USDm)	381	43.9	43.4	45.5	45.0	44.4	45.1	45.1	45.1	23.6
Other Production	(USDm)	-	-	-	-	-	-	-	-	-	-
Overheads	(USDm)	45	10.7	9.7	9.7	4.8	4.8	1.4	1.4	1.4	0.6
Royalties/Other Taxes	(USDm)	81	10.8	10.7	10.1	10.9	9.5	6.3	6.7	9.8	5.8
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**620**	**83.8**	**87.6**	**91.5**	**94.3**	**70.5**	**52.9**	**53.3**	**56.4**	**29.9**
Cashflow											
EBITDA	(USDm)	477	79.6	73.2	58.2	65.1	64.8	32.7	32.3	56.2	14.8
CIT	(USDm)	49	6.0	9.9	6.8	4.3	7.0	5.6	-	1.0	8.2
Working Capital	(USDm)	(1)	(0.8)	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	9	2.0	1.0	1.0	1.0	1.0	1.0	0.8	0.5	0.5
Operating Cashflow	**(USDm)**	**420**	**72.4**	**62.2**	**50.3**	**59.9**	**56.9**	**26.1**	**31.5**	**54.7**	**6.1**
Capital Expenditure											
Project	**(USDm)**	**73**	**6.2**	**8.6**	**7.5**	**8.5**	**13.0**	**13.0**	**5.5**	**5.5**	**5.5**
Exploration	(USDm)	-	-	-	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	72	6.2	7.5	7.5	8.5	13.0	13.0	5.5	5.5	5.5
New Mine Construction	(USDm)	1	-	1.1	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**34**	**13.5**	**11.1**	**6.2**	**1.1**	**0.9**	**0.2**	**0.4**	**0.7**	**0.2**
Exploration	(USDm)	3	1.5	0.3	0.3	0.3	0.3	-	-	-	-
Maintenance	(USDm)	6	2.0	1.8	0.9	0.0	0.4	0.0	0.2	0.5	0.0
Capital Stripping/Dev	(USDm)	17	6.5	6.8	3.8	-	-	-	-	-	-
PCR	(USDm)	9	3.5	2.1	1.2	0.7	0.2	0.2	0.2	0.2	0.2
Closure/Retrenchment	**(USDm)**	**13**	**1.2**	**1.2**	**1.2**	**1.2**	**2.0**	**1.6**	**1.2**	**1.2**	**2.0**
Total Capital Expenditure	**(USDm)**	**121**	**20.9**	**20.9**	**15.0**	**10.8**	**15.9**	**14.8**	**7.2**	**7.4**	**7.7**
Free Cashflow	**(USDm)**	**299**	**51.5**	**41.3**	**35.4**	**49.1**	**40.9**	**11.2**	**24.3**	**47.3**	**(1.7)**

Table 10-48: Bouly: Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028	2029
Standard Statistics											
Total Cash Cost	(USD/oz)	900	978	976	1,045	934	782	865	872	701	937
AISC	(USD/oz)	969	1,148	1,113	1,131	957	814	895	899	724	1,007
AISC (excluding closure)	(USD/oz)	950	1,135	1,100	1,117	944	792	869	879	709	943
Unit Costs											
Mining (excl capitalised)	(USD/t_{mined})	1.41	1.06	1.45	1.44	1.56	1.69	-	-	-	-
	(USD/t_{ore})	2.07	2.05	2.01	2.22	2.00	2.14	-	-	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	2.13	9.24	1.45	1.44	-	-	-	-	-	-
Surface Haulage	(USD/$t_{transported}$)	-	-	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	5.67	5.77	5.69	5.73	5.66	5.60	5.69	5.69	5.67	5.38
Overheads	(USD/t_{feed})	0.66	1.41	1.27	1.22	0.61	0.61	0.18	0.18	0.18	0.13

Table 10-49: Bouly: Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Production												
Total Material Mined	(kt)	92,938	18,361	21,186	21,193	18,452	13,745	-	-	-	-	-
Waste	(kt)	33,538	8,906	9,476	8,674	4,301	2,181	-	-	-	-	-
Capital Waste	(kt)	7,246	830	4,979	1,436	-	-	-	-	-	-	-
Operating Waste	(kt)	26,292	8,075	4,497	7,237	4,301	2,181	-	-	-	-	-
Ore	(kt)	59,399	9,455	11,710	12,520	14,151	11,563	-	-	-	-	-
Gold Grade	(g/t Au)	0.47	0.44	0.46	0.45	0.46	0.53	-	-	-	-	-
Gold Contained	(koz Au)	889	134	172	179	209	196	-	-	-	-	-
Surface Haulage	(kt)	-	-	-	-	-	-	-	-	-	-	-
Processing Feed	(kt)	71,572	7,603	7,629	7,934	7,955	7,934	7,934	7,934	7,955	7,818	877
Gold Grade	(g/t Au)	0.44	0.48	0.52	0.50	0.52	0.56	0.42	0.33	0.32	0.32	0.57
Gold Contained	(koz Au)	1,016	117	127	127	132	142	106	83	83	82	16
Gold Recovery	(%)	72.0%	74.4%	72.2%	73.1%	73.2%	71.4%	70.6%	73.5%	73.9%	71.3%	37.4%
Doré Produced	(kg)	22,766	2,715	2,860	2,895	3,002	3,165	2,327	1,904	1,901	1,810	187
	(koz Au)	732	87	92	93	97	102	75	61	61	58	6
Sales												
Doré	(koz Au)	732	87	92	93	97	102	75	61	61	58	6
Commodity Prices												
Gold	(USD/oz)	1,586	1,905	1,791	1,710	1,579	1,500	1,400	1,400	1,400	1,400	1,400
Sales Revenue												
Gold	(USDm)	1,161	166.3	164.7	159.1	152.4	152.6	104.7	85.7	85.6	81.5	8.4
Operating Expenditure												
Mining	(USDm)	121	18.8	23.3	28.5	27.9	22.8	-	-	-	-	-
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-	-	-	-
Processing	(USDm)	406	43.9	43.4	45.4	45.3	44.4	44.4	45.2	45.4	44.6	3.9
Other Production	(USDm)	-	-	-	-	-	-	-	-	-	-	-
Overheads	(USDm)	46	10.7	9.7	9.7	4.8	4.8	1.4	1.4	1.4	1.4	0.1
Royalties/Other Taxes	(USDm)	84	11.0	10.9	10.7	10.3	10.6	7.6	6.5	7.5	6.4	2.0
Other Operating	(USDm)	-	-	-	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	**656**	**84.4**	**87.3**	**94.3**	**88.3**	**82.6**	**53.5**	**53.1**	**54.4**	**52.5**	**6.1**
Cashflow												
EBITDA	(USDm)	505	81.9	77.4	64.9	64.1	70.0	51.3	32.6	31.2	29.0	2.3
CIT	(USDm)	44	6.0	9.0	7.2	5.0	6.6	5.5	3.4	0.5	0.5	-
Working Capital	(USDm)	(1)	(0.8)	-	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	9	2.0	1.0	1.0	1.0	1.0	1.0	0.8	0.5	0.5	-
Operating Cashflow	**(USDm)**	**453**	**74.7**	**67.3**	**56.6**	**58.1**	**62.4**	**44.8**	**28.4**	**30.2**	**28.0**	**2.3**
Capital Expenditure												
Project	**(USDm)**	**74**	**6.2**	**8.6**	**7.5**	**8.5**	**13.0**	**13.0**	**5.5**	**5.5**	**5.5**	**0.6**
Exploration	(USDm)	-	-	-	-	-	-	-	-	-	-	-
Dev/New Technology	(USDm)	73	6.2	7.5	7.5	8.5	13.0	13.0	5.5	5.5	5.5	0.6
New Mine Construction	(USDm)	1	-	1.1	-	-	-	-	-	-	-	-
Sustaining	**(USDm)**	**33**	**13.5**	**11.4**	**4.5**	**1.1**	**0.9**	**0.2**	**0.4**	**0.7**	**0.2**	**-**
Exploration	(USDm)	3	1.5	0.3	0.3	0.3	0.3	-	-	-	-	-
Maintenance	(USDm)	6	2.0	1.8	0.9	0.0	0.4	0.0	0.2	0.5	0.0	-
Capital Stripping/Dev	(USDm)	16	6.5	7.2	2.1	-	-	-	-	-	-	-
PCR	(USDm)	9	3.5	2.1	1.2	0.7	0.2	0.2	0.2	0.2	0.2	-
Closure/Retrenchment	**(USDm)**	**12**	**1.1**	**1.1**	**1.2**	**1.2**	**1.4**	**1.9**	**1.2**	**1.2**	**1.1**	**0.9**
Total Capital Expenditure	**(USDm)**	**119**	**20.8**	**21.2**	**13.2**	**10.7**	**15.3**	**15.1**	**7.1**	**7.3**	**6.9**	**1.5**
Free Cashflow	**(USDm)**	**334**	**54.0**	**46.1**	**43.4**	**47.4**	**47.1**	**29.6**	**21.3**	**22.9**	**21.1**	**0.8**

Table 10-50: Bouly: Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	897	967	950	1,013	915	812	715	868
AISC	(USD/oz)	959	1,134	1,086	1,074	938	835	743	894
AISC (excluding closure)	(USD/oz)	942	1,121	1,074	1,062	926	821	718	875
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	1.42	1.07	1.44	1.44	1.51	1.66	-	-
	(USD/t_{ore})	2.04	1.99	1.99	2.28	1.97	1.97	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	2.17	7.80	1.44	1.44	-	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	5.67	5.77	5.69	5.73	5.69	5.60	5.60	5.69
Overheads	(USD/t_{feed})	0.64	1.41	1.27	1.22	0.61	0.61	0.18	0.18

Statistic	Units	2028	2029	2030
Standard Statistics				
Total Cash Cost	(USD/oz)	890	901	1,013
AISC	(USD/oz)	920	925	1,168
AISC (excluding closure)	(USD/oz)	901	905	1,013
Unit Costs				
Mining (excl capitalised)	(USD/t_{mined})	-	-	-
	(USD/t_{ore})	-	-	-
Mining Capitalised	(USD/$t_{capitalised}$)	-	-	-
Surface Haulage	(USD/$t_{ransported}$)	-	-	-
Processing	(USD/t_{feed})	5.71	5.70	4.49
Overheads	(USD/t_{feed})	0.18	0.19	0.12

11 TAPARKO OPEN PIT GOLD MINE

11.1 Introduction

11.1.1 Location

The Taparko complex is in northern Burkina Faso. The location of the mines and permits is shown in Figure 3-13, Section 3.3, and in Figure 11-1. Taparko comprises several assets: the operational Taparko and Bouroum mines; the planned Yeou mine; and two exploration sites (Yeoupaale and Baola II). The Taparko mine includes a process plant, six open pits (35, 2N2K, GT, Goengo, Tangarsi, and Tangarsi East[21]) and a planned underground mine. The Bouroum mine comprises three open pits (Welcome Stranger, F12, and Bissinga).

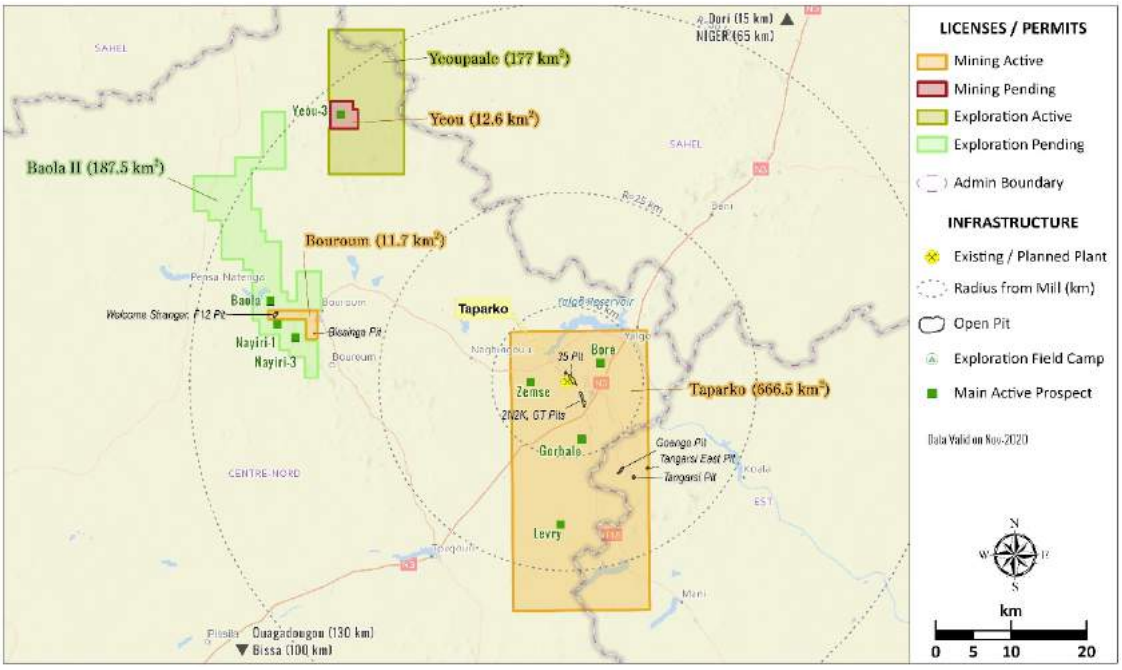


Figure 11-1: Taparko and Bouroum Exploitation Licence Areas and Associated Exploration Licence Areas (Nordgold)

The Taparko sites are in three regions (Centre-Nord, Sahel and Est), four provinces (Namantenga, Gnagna, Sanmatengo and Séno) and five communes (Yalgo, Bouroum, Nagbingou, Coala and Manni).

The livelihoods of people living around the Taparko group of mines are mostly based on agriculture and mining, including artisanal mining. Yalgo reservoir is important source of water in the semi-arid climate.

[21] *In some documents Tangarsi-East appears under the name Tangarsi II*

11.1.2 Access

Taparko mine site is located approximately 200 km northeast of Ouagadougou, the country's capital, and is connected to the city by the fully-surfaced N3 national road. Most of the mine infrastructure is connected to this road (plant, pits 35, 2K2K and GT). Some pits (Goengo, Tangarsi and Tangarsi East) are located 12-15 km southeast and are connected by a gravel road.

The Bouroum mine site is located approximately 50 km northwest of the Taparko site and connected with Taparko by a gravel road. The Yeou exploration area is located a further 25 km NNE of Bouroum and can be accessed via unpaved field roads.

The nearest international airport is in Ouagadougou, though there are also local airports with unpaved runways in the nearest cities, Kaya and Bogandé, which are 100 km and 60 km from the Taparko site respectively.

An inter-governmental project to upgrade rail links between Burkina Faso and Cote d'Ivoire is currently planned[22]. The railway should connect the city of Kaya with the seaport in Abidjan.

11.1.3 Climate

The climate is Sahelian, it is hot and semi-arid. Summers are hot, sometimes extremely hot, and winters are warm to cool, with some to minimal precipitation. Annual temperature ranges from 5 to 47°C. The average annual precipitation is 400-600 mm. The precipitation is extremely irregular and varies considerably from season to season. Most of the rain usually falls during three months, June through September. In the dry season, the harmattan, a hot dry wind from the Sahara, blows.

11.2 Mineral Rights and Primary Approvals

11.2.1 Mineral Rights Held

Taparko and Bouroum mines are operated by Société des Mines de Taparko (Somita S.A., “Somita”), 90% of which is owned by Nordgold’s subsidiary High River Gold; the remaining 10% is held by the Burkina Faso Government as required by law.

The mining and exploration licences of Taparko project are listed in Table 11-1. The mining and exploration areas are shown in Figure 11-1.

Table 11-1: Taparko Mining and Exploration Licences

Tenement Name	Owner	Licence		Validity	
		Type	Number	From	To
Bouroum	SOMITA-SA	IEP	05/342/PRES	2005-06-22	2025-06-22
Taparko	SOMITA-SA	IEP	04/329/PRES	2004-08-04	2024-08-04
Yeou	Nordgold Yeou SA	IEP	17/105/PRES	2017-03-13	2020-03-13
Yeoupaale	High River Gold Mines (WA)	EP	17/198/MMC	2017-11-06	2026-11-06
Baola II	High River Gold Exploration	EP	11/278/MCE	2011-09-15	2020-09-15

* IEP - Industrial Exploitation Permit; EP - Exploration Permit

[22] *A bilateral agreement for the modernisation of the Abidjan – Ouagadougou – Kaya route was signed by the presidents of Côte d'Ivoire and Burkina Faso in 2019.*

11.2.2 Mineral Agreements

Details of the received Mining Permits, Conventions and Resolutions are described in Table 11-2.

Table 11-2: Taparko Mining Permits and Agreements

Tenement Name	Doc type	Doc Number	Validity	
			From	To
Taparko	Original Convention	n/a	1995-12-15	2020-12-15 Being renewed
	Original Permit (Decree)	2004/329/PRES/PM/MCE/ MFB/MEDEV/MECV	2004-08-04	2024-08-04
Bouroum	Original Permit (Decree)	2005/342/PRES/PM/MCE/MFB	2005-06-22	2025-06-22
	Original Convention	n/a	2007-05-28	2025-06-22
Baola II	Original Permit (Resolution)	2011/11/278/MCE/SG/DGMGC	2011-09-15	2014-09-15
	Area Extension (Resolution)	2014/00/201/MME/SG/DGMG	2011-09-15	2014-09-15
	1st Renewal (Resolution)	2015/00/302/MME/SG/DGCM	2014-09-15	2017-09-15
	2nd Renewal (Resolution)	2017/17/166/MMC/SG/DGCM	2017-09-15	2020-09-15
Yeou	Original Permit	2017/105/PRES/PM/MEMC/ MINEFID/MEEVCC	2017-03-13	2020-03-13
Yeoupaale	Original Permit	2017/204/MMC/SG/DGCM	2017-11-06	2020-11-06

All mining permits include requirements for the site closure and reclamation after mining, as well as for compliance with other legal health, safety and environmental requirements.

The Taparko mining convention is being renewed; while it is being renewed, the obligations in the agreement are still considered effective. The convention includes obligations pertaining to environmental, social and governance including:

- Protection of the environment (Article 29).
- Allowing for use of access roads by the local population (Article 30).
- Preferential employment of national people (Article 31).
- Support of professional training programs (Article 31).
- Preferential procurement of national services and materials wherever possible (Article 32).

For Bouroum mine, obligations in the convention pertaining to environmental, social and governance include:

- Preferential use of National services and materials wherever possible (Article 6).
- Preferential employment of national people, respecting human rights and employment law and replacing expatriates with nationals who have acquired the same experience (Article 7).
- From the date of first commercial production, contribution to the improvement of hospitals, schools and other community infrastructure (Article 7).
- Protection of the environment (Article 11).

- Maintenance of bank account within Burkina Faso for a restoration fund for the mine site as defined by the mining regulations – the cost must cover the implementation of an environmental preservation and rehabilitation program and is exempt from corporation tax (Article 11).
- Payment of other taxes and fees (Article 18 and 19).

11.2.3 Environmental Approvals

Taparko and Bouroum mines began operations before the Decree on Environmental Assessment Procedures (Decree 1187-2015) came into force. The environmental approvals for these mines were reportedly prerequisites for issue of the mining permits but are not recorded in licence documents. SRK has seen an environmental licence for the Yeou mining project, which is not in the current life of mine. Dated November 2016, this contains a long list of ESG-specific requirements for the project, including stakeholder engagement and community development, closure and resettlement plans, environmental monitoring, impact mitigation measures.

11.2.4 Land Tenure

The land being mined is state-owned. Nordgold is required to resettle people who will be economically and/or physically displaced by mining. Nordgold has a Resettlement Framework that defines its approach to resettlement. This commits to avoiding resettlement where possible and to observing relevant legislation and international standards. The framework recognises that resettlement planning and implementation can take 18 to 24 months. More information on the resettlement is provided in Section 11.13.4.

11.2.5 Permitting Notes

The permits for the Baola II, Yeou and Yeoupaale tenements have expired. None of the deposits in the life of mine plan are on these tenements.

The mining convention for Taparko expired in 2020. Plans for renewal of this are underway.

11.3 Geology

11.3.1 Introduction

This section summarises the current understanding and interpretation of the geological setting of the various deposits that comprise the Taparko gold mine. This forms the basis for the reporting of the Mineral Resources.

11.3.2 Regional Geology

The Taparko gold mine is located along the eastern portion of the Proterozoic Birimian Bouroum-Yalogo Greenstone Belt. The belt has undergone regional lower greenschist metamorphism and is comprised of intermediate to mafic volcano-sedimentary successions with syn to post-kinematic granite and gabbro intrusions, which have been intruded by later dolerite and felsic-porphyry rocks.

The Birimian basement volcano-sedimentary series was extensively deformed and metamorphosed during the Eburnean Orogeny and is bounded on the east and west by Neoproterozoic-Early Cambrian Pan-African mobile zones. The series is composed of volcanic and plutonic bodies (basalt, andesite, rhyolite, rhyodacite, dacite, felsic tuff, gabbro, diorite and ultramafic rocks) distributed within sedimentary and tuffaceous successions of black shale, sandstone, pelitic schists, tuffaceous schist, greywacke, quartzite and chert. This basement succession is overlain by Tarkwaian siliceous and arkosic sandstone and conglomerate.

The Taparko, Bouroum and Yeou gold deposits (collectively the 'Taparko gold mine') have been interpreted as having been formed during the Eburnean orogenic event and are hosted on both limbs of the 15 km wide Bouroum-Yalogo greenstone belt (Figure 11-2).

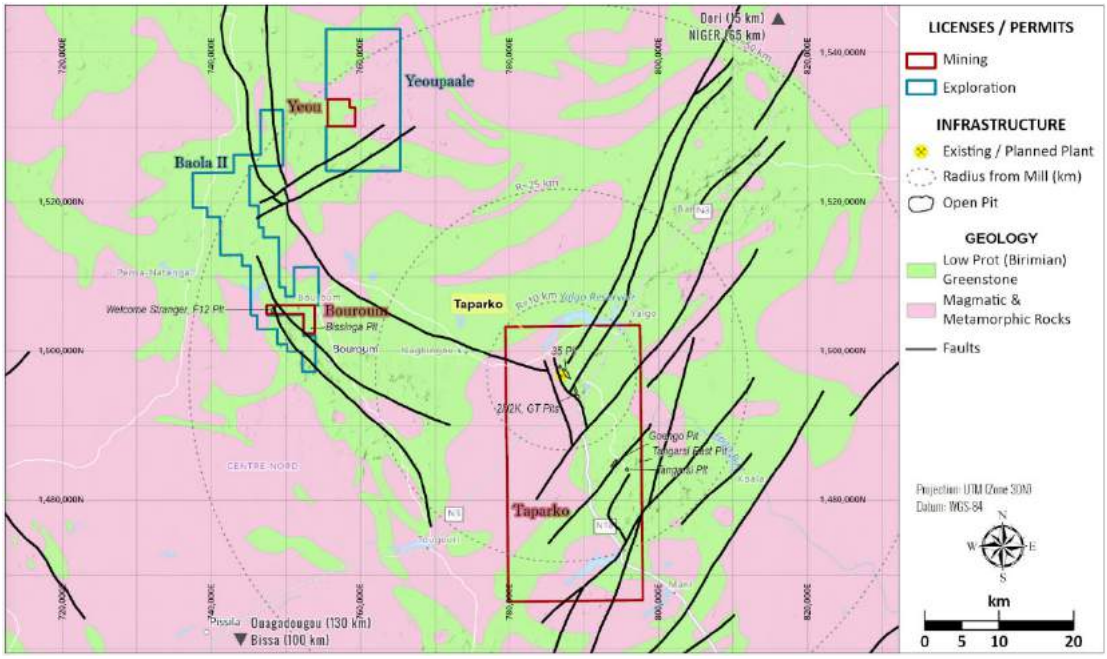


Figure 11-2: Taparko Mine Structural Setting (Nordgold 2020)

11.4 Local Geology and Mineralisation

Structural patterns in the area depict a large open Y-shape resulting from interference of NNW and NNE trending faults and shear zones. The most distinctive structural feature of this area is the NE trending Tiebele-Dori-Markoye fault system (and Bouroum NNW trending deformation corridor), shown in context of regional scale structure in Figure 11-3 which act as hosts to regional gold mineralisation. Primary and secondary structures associated the fault system result in mineralisation occupying both NE and NW trending features.

The Taparko deposits are situated on the eastern limb of the Y-shaped Bouroum-Yalogo greenstone belt, hosted by volcano-sedimentary rocks such as amphibolitic schists, mafic lavas, pyroclastics, and argillaceous sediments, all of which have been intruded by large bodies of diorite or quartz-diorite, and by diabase dykes.

The Bouroum and Yeou deposits are situated on the western limb of the Bouroum-Yalogo greenstone belt. The geology of the Bouroum and Yeou areas is characterised by clastic metasedimentary rocks intercalated with minor mafic tholeitic flows and sills and overlain by a thick series of subaqueous flows and tholeitic sills with intercalated, epiclastic and pyroclastic rocks. Metapelites, ferruginous quartzite and finally andesitic to dacitic volcanic rocks cap the older stratigraphy.

Gold mineralisation at the Taparko, Bouroum and Yeou deposits is predominately (sulphide-poor) quartz-vein hosted and controlled by shear-related veining and alteration. The location of each of the individual Taparko deposits, relative to the Taparko, Bouroum and Yeou Licence areas, is illustrated in Figure 11-1.

At Taparko, gold mineralisation is developed in predominantly sediment-hosted structures, comprising anastomosing and shallow to steeply dipping shear zones, exhibiting multiple, superimposed, phases of veining, alteration and deformation. At Bouroum gabbro, basalts and tuffs (and notably their sheared contacts) represent typical host rocks, with metagabbro and granodiorite forming typical hosts at Yeou.

In general, across all deposits, the weathering profile is deep and typically results in extensive surface oxidation of bedrock to depths of up to approximately 100 m. In such areas, gold deposits typically comprise a surface oxide zone, an intermediate transition zone and a deeper fresh rock zone.

11.5 SRK Comments/Conclusions

SRK considers that the understanding of the geology and the principal controls on mineralisation of the various deposits which comprise the Taparko gold mine to be appropriate. SRK notes that whilst the majority of the deposits have been developed in to production (with consequently good understanding of the geology/ grade distribution within these immediate areas), additional drilling and geological interpretation in to less well drilled parts of the deposits, particularly at depth, is still required and may result in future changes to the interpretation of the mineralisation with depth, the geological modelling and declared Mineral Resources, where this is to be expected given the current information available and associated resource classification.

11.6 Mineral Resources

11.6.1 Introduction

SRK has reviewed the Mineral Resource estimates prepared for the Taparko, Bouroum and Yeou deposits. The estimates were completed by a combination of Nordgold personnel and independent consultants. The key aspects of the Mineral Resource estimates are summarised below.

11.6.2 Exploration History

Exploration

The Taparko gold mine was originally discovered in 1980 by the Burkina Faso Government Bureau of Mines and Geology ("BUMIGEB"). Little information is available regarding early exploration; however, between 1995 and 2003, exploration activities included geological mapping, surface trenching, geophysical and geochemical surveys and exploration drilling principally undertaken by High River Gold. Feasibility studies were undertaken during 2003 with an exploitation permit being granted for the Taparko site in August 2004.

The first gold pour at Taparko Mine occurred on July 2007, with Nordgold acquiring the mine in August 2008. Since then, in addition to exploration drilling (which re-commenced in 2010), ongoing exploration has included additional (more detailed) geophysics, geochemical surveys and geological mapping. No exploration drilling was completed in to mineralised zones in the period between 2003 and 2010.

Drilling

Multiple types of exploration drilling have been conducted at the Taparko gold mine, namely Reverse Circulation ("RC") (which represents the dominant sample type), Diamond Drillholes ("DDH") and a small number of RC-DDH tails ("RC_DD"), Air Core ("AC") and Rotary Air blast ("RAB"). Grade control drilling is undertaken using RC methods. Summary statistics for the exploration and grade control drilling at the Taparko gold mine are shown in Table 11-3. For Mineral Resource estimation, typically only RC, DDH and (for certain deposits) grade control drillholes are used. Exploration drilling is conducted on sections, generally orientated close to perpendicular to the mineralisation for each individual deposit within the Taparko gold mine. Exploration drill spacing typically varies between 25 m and 50 m apart, and wider (typically >70-90 m) in areas down-dip or further from areas of mining production. Grade control drilling is typically conducted on a grid, with drillholes approximately 10 m apart, and is clustered in near surface areas of the deposits that have been mined.

Table 11-3: Taparko Drilling Completed Summary *

Deposit	EXPL				GC			
	No. Holes	m	Spacing	Methodology (%)	No. Holes	m	Spacing	Methodology (%)
Yeou	191	22,169	Typically 25-50 m grid	AC (0), DD (34), RAB (0), RC (66), RC_DD (0)	-	-	-	RC (100)
Tangarsi East	567	43,391	Typically 25-100 m grid	AC (8), DD (12), RAB (12), RC (69), RC_DD (0)	1,087	38,833	10 m grid	RC (100)
Tangarsi	406	35,499	Typically 25-90 m grid	AC (10), DD (6), RAB (4), RC (80), RC_DD (0)	2,479	55,437	10 m grid	RC (100)
Nayiri	624	69,287	Typically 40-90 m x 20 m	AC (0), DD (11), RAB (3), RC (85), RC_DD (0)	-	-		RC (100)
2N2K and GT	1,905	110,020	Typically 30-70 m grid	AC (0), DD (70), RAB (3), RC (19), RC_DD (8)	19,845	203,062	10 m grid	RC (100)
Goengo	1,093	94,376	Typically 25-100 m grid	AC (0), DD (23), RAB (6), RC (69), RC_DD (2)	2,835	62,254	10 m grid	RC (100)
35_UG and 35_OP	1,309	84,212	Typically 30-90 m grid	AC (0), DD (48), RAB (19), RC (20), RC_DD (13)	34,559	246,808	10 m grid	RC (100)
Bissinga	50	4,979	Typically 20-50 m grid	AC (0), DD (10), RAB (0), RC (90), RC_DD (0)	455	9,748	10-20 m grid	RC (46) and BH (54)
Bouroum	1758	86651	Typically 25-50 m grid	DD (10%), RC(90%)	469	4502	5 x 10 m	BH(45), RC(37), FGC(18)

*Note: Deposits 35_UG and 35_OP, and GT and 2N2K are based on the same drillhole databases, separated for modelling and estimation by pit area

Sampling and Assaying

All core is placed in core boxes and transferred to the core logging facility. When the core boxes arrive at the logging facility, the core description includes information covering core recovery, weathering, lithology, alteration, geological structures and mineralisation. In general, core recoveries are good and typically vary between 75-95% (WAI 2013), including in saprolite material where triple-tube techniques were used. Dry density measurements were taken from core typically using a water immersion technique.

RC samples are typically taken at 1-2 m intervals and collected into labelled plastic bags that are laid out in sequential order. Each dry sample is passed through a riffle splitter to yield two equal samples of approximately 2 kg, with rejects collected separately. Samples are dispatched to the laboratory for gold analysis, pre-tagged with unique sample numbers. The chain-of-custody for current RC samples is maintained by the geologists until the samples are handed over to the laboratory staff.

Half or quarter core samples were collected. Sampling intervals were marked by a geologist depending on the logged lithology/ position of geological contacts. Sampling intervals averaged between 1-2 m, with variations to account for lithological boundaries during sample selection.

Several different analytical laboratories have been utilised over the course of the exploration campaign including Analabs and Bondar Clegg, in Ouagadougou between 1996-1999, Abilab, Bamako laboratory during 2003 and ALS laboratory, Ouagadougou between 2004-2010. Since then, sample analysis has mainly been completed at the Taparko onsite laboratory and partly at ActLabs, Ouagadougou.

The analytical assay method applied at the onsite laboratory comprises of jaw crushing to 3.0 mm with 200 g then taken and pulverised to 95% passing -75 µm. From this, a 50 g split is sent for Fire Assay digest AAS (Atomic Absorption Spectrometer) finish.

Exploration samples sent to external laboratories are reported to have been analysed for gold following a similar method to the on-site laboratory, based on fire assay digest.

Grade control samples, which are collected based on RC drilling methods, are understood to have followed the same sampling and analytical procedures as described for the RC exploration drilling.

Quality Assurance and Quality Control

The exploration and grade control drilling and sampling programmes are supported by an industry standard Quality Assurance and Quality Control (“QAQC”) system. This includes the incorporation of blanks, field duplicates, and certified reference material samples into the sample stream. Certified reference material samples are purchased from Rocklabs and Geostats.

The rate at which the QC samples are currently included is approximately 1 in 10. Historically, prior to 2003, the QC sample insertion rate was lower, typically being either 1 in 40 (between 1996-1999) and 1 in 20 (during 2003). SRK notes that the level of assay QC support has varied over time, both since the start of Nordgold’s drilling in 2010 and prior to 2003; however, much of the early drilling relates to areas that have now been mined and supported by mining reconciliation.

11.6.3 Mineral Resource Estimation

Geological Modelling

Geological modelling for the various Taparko gold mine deposits is undertaken in Leapfrog or Surpac. The mineralisation is variable in geometry and orientation, depending upon the host lithology and local structural controls. The methodology used to derive the mineralisation models, and the approximate dimensions for each of the deposits is given in Table 11-5, with an example cross-section for 2N2K shown in Figure 11-3.

Table 11-4: Taparko Geological Modelling and Deposit Dimensions

Deposit	Geological Modelling Methodology	Deposit Dimensions	Width of Mineralised Structures
2N2K	Leapfrog vein modelling, constructed using 0.5 g/t cut-off at hangingwall ("HW") and footwall ("FW") contacts	Surface expression - 1.5km x 0.2km Mineralisation intersected to 300m below surface Mineralisation in main area is open at depth	Typical range: 2-10m
GT	Surpac 2D sectional modelling, constructed using 0.5 g/t cut-off at HW and FW contacts	Surface expression - 0.8km x 0.2km Mineralisation intersected to 300m below surface Mineralisation is open at depth	Typical range: 2-10m
35 OP	Leapfrog vein modelling for exploration data, constructed using 0.5 g/t cut-off at HW and FW contacts Leapfrog intrusion modelling for GC data, constructed using 0.5 g/t cut-off (mainly limited to the mined-out portion of the open pit)	See 35 UG (below), which represents the same deposit as 35 OP, separated by design pit surface	Typical range: 1-25m (above the 35-design pit)
35 UG	Surpac 2D sectional modelling, constructed using 1 g/t cut-off at HW and FW contacts Internal waste domains (and local pinch-outs) modelled to exclude lower grade mineralisation	Surface expression - 1.5km x 0.2km Mineralisation intersected to 350m below surface Mineralisation is open at depth	Typical range: 1-12m (below the 35-design pit)
Bissinga	Surpac 2D sectional modelling, constructed using 0.5 g/t cut-off at HW and FW contacts	2 separate mineralised zones Surface expression - 0.5km x 0.15km Mineralisation intersected to 90m below surface Mineralisation closed at depth	Typical range: 2-15m
Goengo	Leapfrog vein modelling for exploration data, constructed using 0.5 g/t cut-off at HW and FW contacts Leapfrog intrusion modelling for GC data, constructed using 0.5 g/t cut-off (mainly limited to the mined-out portion of the open pit)	2 separate mineralised zones Surface expression - 1.2km x 0.5km Mineralisation intersected to 150m below surface Mineralisation partly open at depth	Typical range: 2-20m
Nayiri	Leapfrog vein modelling, constructed using 0.3 g/t cut-off (or where there are visually evident step changes in gold grade) at HW and FW contacts	2 separate mineralised zones Surface expression - 1.5km x 0.7km (south), 1.5km x 0.5km (north) Mineralisation intersected to 120m below surface Mineralisation partly open at depth	Typical range: 2-10m
Tangarsi	Mainly leapfrog vein modelling for exploration data, constructed using 0.3 g/t Au cut-off at HW and FW contacts Leapfrog intrusion modelling for GC data (mainly limited to the mined-out portion of the open pit) and modelling of the main mineralised zone to depth, constructed using 0.3 g/t Au cut-off	Surface expression - 0.7km x 0.2km Mineralisation intersected to 250m below surface Mineralisation pinching at depth	Typical range: 2-20m
Tangarsi East	Leapfrog vein modelling for exploration data, constructed using 0.5 g/t cut-off at HW and FW contacts Leapfrog intrusion modelling for GC data, constructed using 0.5 g/t cut-off (mainly limited to the mined-out portion of the open pit)	2 separate mineralised zones Surface expression - 1.5km x 0.75km Mineralisation intersected to 200m below surface Mineralisation partly open at depth	Typical range: 2-15m
Yeou	Leapfrog vein modelling, constructed using 0.5 g/t Au cut-off at HW and FW contacts and approximately >3 g/t Au for internal high-grade domains	2 separate mineralised zones Surface expression - 1.5km x 0.3km Mineralisation intersected to 150m below surface Mineralisation in main area is open at depth	Typical range: 2-12m
Bouroum	Surpac 2D sectional modelling, constructed using approximately 0.3 g/t Au cut-off (or where there are visually evident step changes in gold grade) at HW and FW contacts	3 separate mineralised zones (F12, WS_W, and WS_E) Surface expression - 0.85km x 0.2km Mineralisation intersected to 250m below surface Mineralisation locally open at depth	Typical range: 2-15m

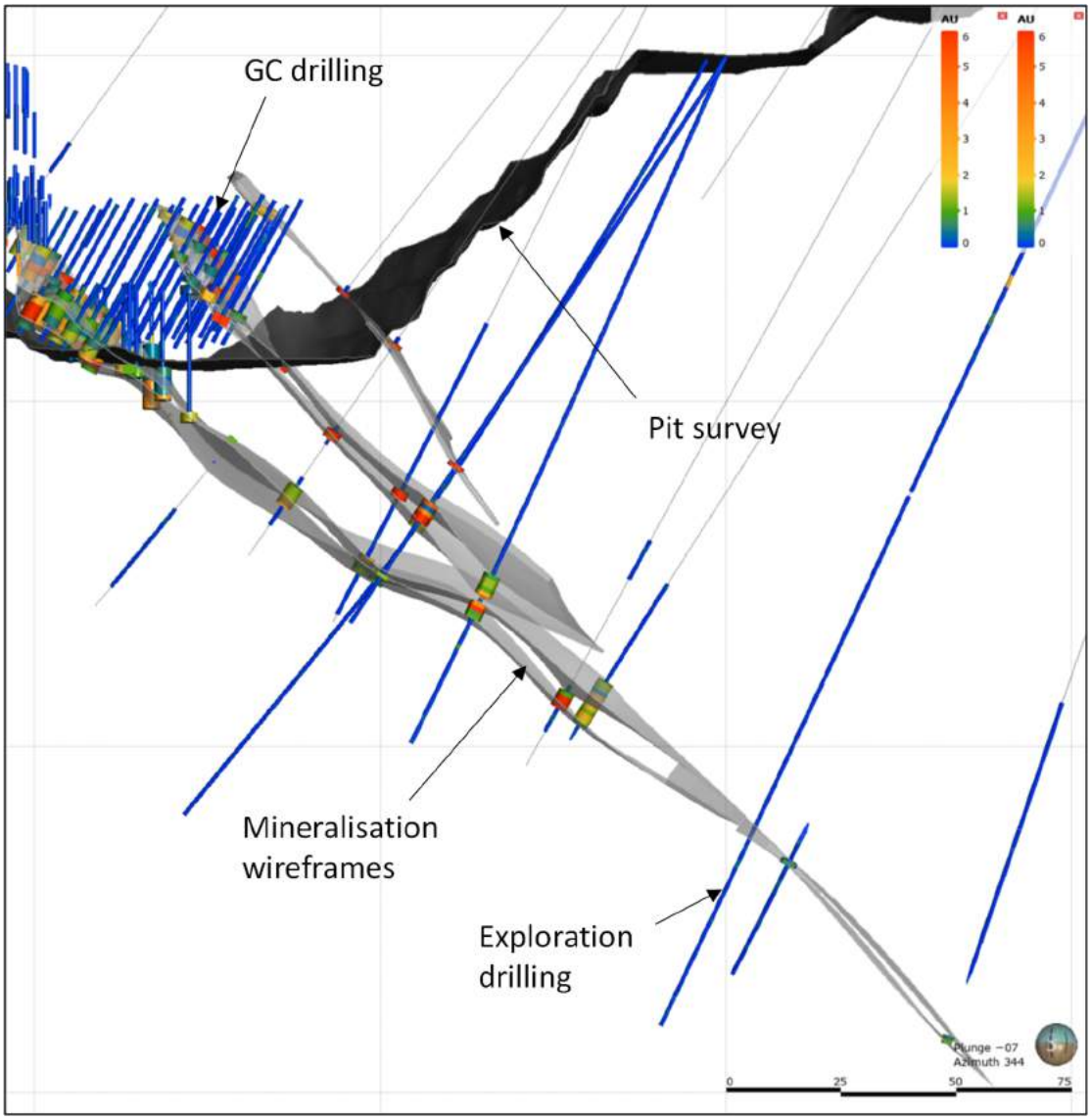


Figure 11-3: Taparko Mineralisation Model Cross Section at 2N2K Deposit

Grade and Tonnage Estimation

Grade and tonnage estimation for the Taparko gold mine deposits was undertaken in either Leapfrog or Surpac. The estimates were either completed by Nordgold personnel or external consultants. The basic parameters used to generate the estimates are reported in Table 11-5. The parameters used for each deposit varied depending on the mineralisation style, and complexity of the deposit in question. The initial search ellipsoid dimensions for each deposit were based on a combination of drillhole spacing and the variogram range. Search ellipsoids were locally aligned with the orientation of the mineralisation wireframes, by domain.

Table 11-5: Taparko Gold Mine Deposits Grade and Tonnage Estimation Parameters

Deposit	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density	Block model validation methodology
2N2K	1 m	Cap of 20 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 10 x 10 x 5 m Sub-block size: 1.25 x 1.25 x 1.25 m No rotation	Variograms: Directional: nugget 35%, max range: 50 m Min. no. composites: 5 Max. no. composites: 15 Max. no. composites per drillhole: 4 Search ellipse dimensions: 25 m(dip) x 25 m(strike) x 7 m(across strike) Search passes: 3, increase factors of 1, 2, and 4 Grade estimation: Ordinary Kriging	Weathered: 2 t/m^3 Transition: 2.3 t/m^3 Fresh: 2.6 t/m^3	Visual checks Swath plots Statistical analysis
GT	1 m	Cap of 29.2 g/t Au in domain1 and 23.3 g/t Au in domain2 Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 2.5 x 3 x 2.5 m Sub-block size: 1.25 x 1.5 x 1.25 m No rotation	Variograms: Omnidirectional: nugget 35-50%, max range: 53 m Min. no. composites: 10 Max. no. composites: 30 Max. no. composites per drillhole: 10 Search ellipse dimensions: Set using variogram ranges Search passes: 3, increase factors of 1, 2, and 20 Grade estimation: Ordinary Kriging	Weathered: 2 t/m^3 Transition: 2.29 t/m^3 Fresh: 2.59 t/m^3	Swath plots Statistical analysis
35 OP	1 m	Cap of 30 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5 x 5 x 5 m Sub-block size: 1.25 x 1.25 x 1.25 m No rotation	Variograms: Directional: nugget 15%, max range: 24m Min. no. composites: 5 Max. no. composites: 15 Max. no. composites per drillhole: 3 Search ellipse dimensions: 30m(dip)*40m(strike)*13m(across strike) Search passes: 3, increase factors of 1, 2, and 6 Grade estimation: Ordinary Kriging	Weathered: 2 t/m^3 Transition: 2.3 t/m^3 Fresh: 2.6 t/m^3	Visual checks Swath plots Statistical analysis
35 UG	1 m	Cap of 25 g/t Au Based on statistical review	Soft boundaries between estimation domains, controlled using search ellipse anisotropy	Parent block size: 5 x 5 x 5 m Sub-block size: 1.25 x 1.25 x 1.25 m No rotation	Variograms: Omnidirectional: nugget 68%, max range: 31m Min. no. composites: 10 Max. no. composites: 15 Max. no. composites per drillhole: 5 Search ellipse dimensions: 30m(plunge)*15m(strike)*15m(across plunge) Search passes: 3, increase factors of 1, 2, and 10 Grade estimation: Ordinary Kriging	Weathered: 2 t/m^3 Transition: 2.3 t/m^3 Fresh: 2.6 t/m^3	Visual checks Swath plots Statistical analysis
Bissinga	1 m	Cap of 30 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5 x 10 x 2.5 m Sub-block size: 2.5 x 5 x 1.25 m No rotation	Variograms: Directional: nugget 10-11%, max range: 62m Min. no. composites: 4 Max. no. composites: 18 Max. no. composites per drillhole: - Search ellipse dimensions: 50-75 m(dip)*50 m(strike)*40m(across strike) Search passes: 2, increase factors of 1 and approximately 1.5 Grade estimation: Ordinary Kriging	Laterite: 2.1 t/m^3 Weathered: 2.15 t/m^3 Transition: 2.7 t/m^3 Fresh: 2.8 t/m^3	Visual checks Swath plots Statistical analysis
Goengo	1 m	Cap of 20 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5 x 5 x 5 m Sub-block size: 1.25 x 1.25 x 1.25 m No rotation	Variograms: Directional: nugget 15-40%, max range:122 m Min. no. composites: 5 Max. no. composites: 20 Max. no. composites per drillhole: 7 Search ellipse dimensions: 60m(dip)*20m(strike)*10m(across strike) Search passes: 3, increase factors of 1, 2, and 3 Grade estimation: Ordinary Kriging	Weathered: 2.17 t/m^3 Transition: 2.54 t/m^3 Fresh: 2.82 t/m^3	Visual checks Swath plots Statistical analysis

Deposit	Composite length	High grade capping	Hard / soft boundaries	Block model parameters	Grade estimation methodology	Density	Block model validation methodology
Nayiri	1 m	Cap of 10 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 4 x 4 x 2 m Sub-block size: 1.0 x 1.0 x 2.0m No rotation	Variograms: Directional: nugget 26-47%, max range: 310 m Min. no. composites: 4 Max. no. composites: 15 Max. no. composites per drillhole: 3 Search ellipse dimensions: 25 m(dip) x 50 m(strike) x 5 m(across strike) Search passes: 3, increase factors of 1, 1.3, and 4 Grade estimation: Ordinary Kriging	Saprolite: 2.1 t/m^3 Saprock: 2.57 t/m^3 Transition: 2.75 t/m^3 Fresh: 2.81 t/m^3	Swath plots Statistical analysis
Tangarsi	1 m	Cap of 15 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 2.5 x 5 x 5 m Sub-block size: 0.3125 x 0.625 x 1.25 m No rotation	Variograms: Directional: nugget 50%, max range: 41m Min. no. composites: 3 Max. no. composites: 10 Max. no. composites per drillhole: 8 Search ellipse dimensions: 25 m(dip) x 25 m(strike) x 5 m(across strike) Search passes: 3, increase factors of 1, 2, and 4 Grade estimation: Ordinary Kriging	Weathered: 2 t/m^3 Transition: 2.2 t/m^3 Fresh: 2.72 t/m^3	Visual checks Swath plots Statistical analysis
Tangarsi East	1 m	Cap of 20 g/t Au Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 10 x 10 x 5 m Sub-block size: 1.25 x 1.25 x 1.25 m No rotation	Variograms: Directional: nugget 35%, max range: 48 m Min. no. composites: 5 Max. no. composites: 15 Max. no. composites per drillhole: 4 Search ellipse dimensions: 32 m(dip) x 31 m(strike) x 19.5 m(across strike) Search passes: 3, increase factors of 1, 2, and 4 Grade estimation: Ordinary Kriging	Weathered: 2.05 t/m^3 Transition: 2.45 t/m^3 Fresh: 2.75 t/m^3	Visual checks Swath plots Statistical analysis
Yeou	1 m	Cap of 20 g/t Au in high grade domain and 10 g/t Au in low grade domain Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 10 x 10 x 5 m Sub-block size: 0.5 x 0.5 x 0.5 m No rotation	Variograms: Directional: nugget 47%, max range: 89 m Min. no. composites: 4 Max. no. composites: 13 Max. no. composites per drillhole: 3 Search ellipse dimensions: 20 m(dip) x 15 m(strike) x 8 m(across strike) Search passes: 4, increase factors of 1, 2, 4 and 5 Grade estimation: Ordinary Kriging	Laterite: 2.22 t/m^3 Saprolite: 2.13 t/m^3 Saprock: 2.57 t/m^3 Transition: 2.79 t/m^3 Fresh: 2.83 t/m^3	Visual checks Swath plots Statistical analysis
Bouroum	1 m	Cap ranging from 17-20 g/t Au for F12 domains and from 15-35 in WS domains. Based on statistical review	Hard boundaries between all estimation domains	Parent block size: 5 x 5 x 5 m Sub-block size: 0.625 x 0.625 x 0.625 m No rotation	Variograms: Directional: nugget 6% - 37% for F12 and 4% - 18% for WS, max range: 56 m and 44 for F12 and WS respectively Min. no. composites: 5-10 Max. no. composites: 15-30 Max. no. composites per drillhole: - Search ellipse dimensions: Set using variogram ranges Search passes: 2, increase factor not specified, however sufficient for block fill Grade estimation: Ordinary Kriging	Weathered: 2.31 t/m^3 Transition: 2.65 t/m^3 Fresh: 2.76 t/m^3	Visual checks Swath plots Statistical analysis

Mineral Resource Classification

The approach to Mineral Resources classification varied slightly between deposits. The classification applied for each of the individual deposits is based on the understanding of geological and grade continuity, data quality, and the spacing of the available drilling. The typical classification scenarios are described below. In some areas, these broad guidelines maybe varied to account for variations between individual deposits.

- Measured Mineral Resources: Areas drilled at a spacing of less than 25 m, typically relating to mineralisation located adjacent to open pit mining operations, where this is typically supported by close-spaced (10 m) grade control information.
- Indicated Mineral Resources: Typically in areas covered by drilling at a 25 m to 50 m spacing.
- Inferred Mineral Resources: Typically in areas covered by drillholes at a spacing of greater than 25 m to 50 m, up to a maximum of approximately 90-100 m, or in areas with lower geological confidence.

11.6.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for the Taparko gold mine (Table 11-6) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as reported in Table 11-6, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. RPEEE has been considered with the reporting of Mineral Resources within the final open pit design and within the optimised MSO shapes for the underground portion.
3. Depletion is applied for mining up to 31 December 2020.
4. Open pit Mineral Resources are presented at a 0.76 – 1.09 g/t Au CoG based on a long-term Au price of USD1,750/oz, location of open pit and material type. Open pit Mineral Resources are reported within a Whittle pit shell based on the following parameters: open pit mining factors 1.5% dilution and 82% recovery, and 75-90% processing recovery depending on material types, open pit mining cost of USD2.36/t, processing cost of USD14.50-17.20/t_{ore} dependent on material type, G&A at USD12.66/t_{ore}. Sustaining capital of USD1.75/t mined.
5. The underground Mineral Resources are reported at 1.40/t Au on long term Au price of USD1,750/oz. Processing cost of USD17.20/t milled, general and administrative cost of USD9.70/t_{ore} milled (includes all power generation costs), average stoping cost of USD27.27/t_{ore} mined, processing recovery of 84.46%. Sustaining capital of USD2.15/t mined is planned. The unplanned backfill dilution of 5% is considered.
6. Mineral Resources are not Ore Reserves and do not have to demonstrated economic viability.
7. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
8. Mineral Resources are presented on a 100% basis.

Table 11-6: Taparko Gold Mine Mineral Resources Estimate as of 31 December 2020

Mineral Asset	Deposit	Ore Zone/Type	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
				Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Taparko	35	OP	0.76	3	1.39	0	244	3.63	28	248	3.59	29	-	-	-	248	3.59	29
	35	Crown Pillar	1.40	100	3.23	10	109	3.73	13	208	3.49	23	52	4.67	8	260	3.73	31
	35	UG	1.40	88	3.73	11	917	3.90	115	1,005	3.88	125	898	3.69	106	1,903	3.79	232
	GT	All Zones	0.76	81	3.30	9	210	4.77	32	290	4.36	41	212	3.97	27	502	4.20	68
	2N2K	All Zones	0.77	160	1.82	9	679	2.11	46	838	2.05	55	14	2.16	1	852	2.05	56
	Bouroum	All Zones	0.90	591	2.16	41	506	2.62	43	1,097	2.37	84	0	1.39	0	1,098	2.37	84
	Yeou	All Zones	0.99	-	-	-	271	2.08	18	271	2.08	18	55	2.63	5	326	2.18	23
	Goengo	All Zones	0.96	49	3.30	5	122	2.46	10	170	2.70	15	92	1.51	4	263	2.28	19
	Tangarsi	All Zones	0.84	103	1.53	5	364	2.15	25	467	2.01	30	107	2.78	10	574	2.15	40
	Tangarsi East	All Zones	1.09	-	-	-	24	2.45	2	24	2.45	2	4	2.22	0	28	2.41	2
	Nayiri	All Zones	0.90	-	-	-	365	1.98	23	365	1.98	23	207	2.26	15	571	2.08	38
	Bissinga	All Zones	0.93	25	3.85	3	96	3.77	12	120	3.79	15	15	2.84	1	135	3.69	16
	Stockpiles (All Types)			-	-	-	3,497	0.82	92	3,497	0.82	92	-	-	-	3,497	0.82	92
		Total Taparko		**1,199**	**2.42**	**93**	**7,402**	**1.93**	**459**	**8,601**	**2.00**	**552**	**1,657**	**3.34**	**178**	**10,259**	**2.21**	**730**

11.6.5 Exploration Potential

In terms of exploration potential, exploration drilling has focused most recently on the down dip potential below the current open pits. Whilst most of the deposits remain at least partly open to depth, the mineralisation appears in general to be reducing in thickness and showing more bifurcating geometry with zones separated vertically by unmineralised host rock. Additional step out drill planning towards depth will need to consider whether this material remains sufficiently attractive to future mining before being further development as exploration targets.

11.6.6 SRK Comments and Recommendations

SRK considers that in most areas, the Mineral Resource block models generated are reasonable representations of the mineralisation at the deposits and the overall estimation techniques used and underlying sampling data from which the estimates are derived are generally unbiased. An example of visual and statistical validation for the 35 UG deposit is shown in Figure 11-4.

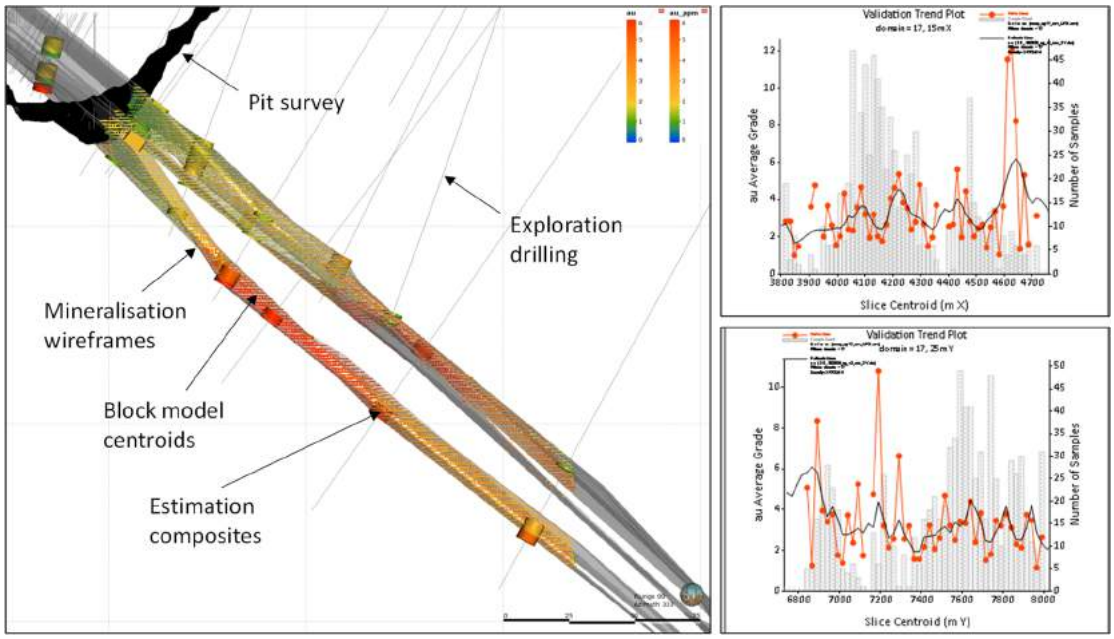


Figure 11-4: Taparko: Visual Validation Section and Swath Plot showing Overall Correlation Between Block Model and Composite Gold Grades for 35 UG Model

Previous technical reports have highlighted the potential occurrence of a small to moderate number of QAQC sample ID mix-ups, mainly relating to the misallocation/ mislabelling of blanks and CRM, which SRK also noted during review of QAQC summary charts. Whilst further investigation is recommended to address this issue for future exploration drilling, given that multiple samples are used to estimate block grades, any assay anomalies are likely to be averaged, and furthermore a significant proportion of these areas have now been mined out and have support from mining reconciliation; therefore, SRK considers this to be of overall low significance.

There are certain areas where SRK notes that block model refinements are warranted; however, given that these are considered to have generally small volumetric significance are not considered material issues overall. These include the following observations:

- Removal of a small number of isolated wireframe discs resulting from intrusion modelling of GC data at the base of the open pits.
- Further control of the grade interpolation for certain high-grade intercepts extrapolated at depth in those areas poorly drilled and typically classified as Inferred.
- Infill drilling to cover data coverage gaps in a small number of areas currently classified as Indicated Mineral Resources.
- Incorporation of grade control data into the geological models and block grade estimates for the deposits where this is currently not the case, to help inform the interpretations and grade distributions with these areas and increase confidence.
- Ensure that the minimum composite length assigned is appropriate for the width of the mineralised body, to prevent the loss/ exclusion of sample intervals from certain thinner zones.
- Update the 2D sectional geological models produced in Surpac using 3D modelling software such that areas of wireframe angularity/ zig-zags are made more geologically representative.

Specifically, in reviewing the Mineral Resource estimates for each of the deposits at the Taparko gold mine, SRK makes the following key comments and recommendations, to be considered as part of future block model updates:

35 UG

- In several instances, mineralised (low grade, typically >0.25 g/t Au) drillhole intercepts that occur on the plane of the mineralised structure but are less than the modelling cut-off (<1 g/t Au) have been excluded from the wireframe by locally pinching the HW/FW contacts around the drillhole. There is a risk that this approach may be potentially biasing block grades within these areas being informed by higher grade intercepts. Whilst the overall impact on the Mineral Resource Statement is not consider material, SRK considers that this should be rectified during future block model updates.
- SRK understands and agrees that the next phase of work for 35 UG will include infill drilling to upgrade more of the Inferred to Indicated, notably within the area currently targeted by the Company's mine planning studies.

Bouroum

- In the WS deposit zone, within the MRE pit shell, SRK notes that there is area of elevated geological complexity where new drilling has been completed but the block model not updated. SRK considers this area, consisting of mainly Indicated Mineral Resources, requires updating in terms of its geological interpretation and estimation; however, given the overall relatively low contribution to the tonnage in MRE Statement (6.5%), SRK has no overall material concerns.

Yeou

- SRK notes several occurrences where high grade ("HG") domain composites have been duplicated during the compositing process, resulting in interpolation of HG domain samples into both HG and low grade ("LG") domains, thus potentially locally biasing blocks towards higher grade samples. The areas affected are mostly located below the MRE pit shell and contribute only a few percent to the block model metal inventory (>0.5 g/t Au), and hence the overall significance is low. SRK recommends that this error is rectified during future block model updates.

GT

- A minimum composite length of 1.5 m appears to have resulted in the exclusion of several samples located in narrow wireframe zones, thus potentially biasing resulting block grades in these areas; however, most of the affected intercepts occur below the MRE pit shell, with the few instances that do occur above the MRE pit shell generally being well supported by adjacent drilling and therefore impacted to a lesser degree. Whilst the overall significance of this is considered low, the loss of these samples should be rectified during future model updates.
- The QAQC associated to the recent (2017) analysis of the drilling results for the GT deposit, suggests reasonable performance at the Taparko on-site laboratory by way of blanks and field duplicates; however, SRK notes a relatively consistent bias towards lower grade (-8% relative) in the results of the two main CRM. Further investigation is recommended to understand if this issue and the potential for the assay data to be potentially slightly underestimated for the corresponding period. This slight shortfall in data quality, however, is considered of low significance particularly in areas where grade estimates are supported by close-spaced grade control drilling at the base of the GT pit.

11.7 Mining and Ore Reserves

11.7.1 Current Mining Operations, Operating Strategy and Mining Fleet

Taparko plant is a central point for the existing and future open pits. Current mining operations at Taparko are focused around multiple pits, namely: 35, 2N2K, Goengo, Tangarsi East (currently operating), Bouroum, Bissinga, Grand Trench (currently on hold) and Nayiri (new pit). The pits, however, are of relatively small sizes and all will be mined out before 2024. Currently, the main pits would include 35 and 2N2K which are both located in the nearest vicinity to the plant. These pits and a general layout are shown in Figure 11-5.

Production is undertaken through conventional drilling, blasting, loading, hauling, dumping and stockpiling processes.

There are currently 12 rigid body mining trucks with a payload of 55 t and 6 rigid body mining trucks with a payload of 91 t (both Caterpillar) that are used for production. Cycle times estimated by Nordgold average 16 minutes and range from 9 to 36 minutes.

Load and haul productivity values are in line with the historical values but SRK notes that the strip ratio and overall material movement requirements will be increasing (approximately 15 Mtpa in 2020 vs approximately 20 Mtpa in 2022) in the next two years additional mining equipment has been included in the capital to enable this increase. This increase is due to new pits being developed and resulting waste stripping necessity. The mines will be depleted in 2023. Upon completion it is understood that any surplus equipment will be relocated to other Nordgold mines.

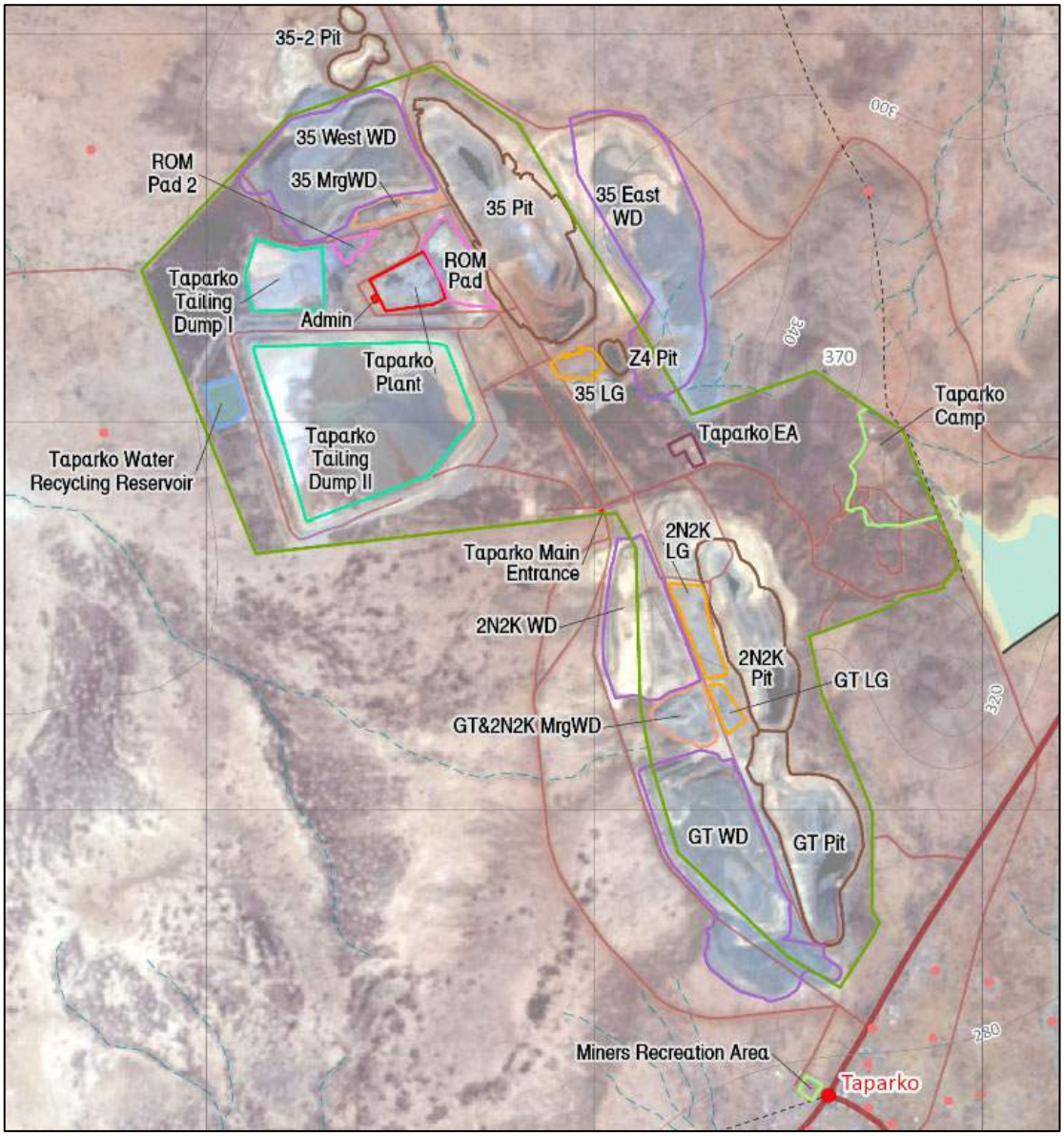


Figure 11-5: Taparko Mine Site, Main Pits and WRD, Plant, TSF, and Camp

11.7.2 Historical Mining Production

Production from 2016 through to end-2020 is presented in Table 11-7.

Table 11-7: Taparko Historical (2016 to 2020) Mining Production Statistics

Statistics	Units	2016	2017	2018	2019	2020
Open pit						
Mined	(kt)	20,198	19,461	24,862	23,277	15,474
Waste	(kt)	18,204	18,053	23,515	21,732	13,729
Ore	(kt)	1,994	1,407	1,347	1,545	1,745
	(g/t Au)	2.34	2.18	2.15	1.58	2.00
	(koz Au)	150	98	93	79	112
Stripping ratio	(t_{waste}:t_{ore})	9.1	12.8	17.5	14.1	7.9

11.7.3 Open Pit Geotechnical Considerations

The Taparko mining complex is formed from a number of small to medium size pits of varying maturity. The smaller pits generally mine oxide only, while the larger pits mine oxide and sulphide and are primarily excavated within fresh rock.

The Taparko and Bouroum mining complexes exhibit differing geological conditions. Bouroum is formed within gabbros, basalts (varying states of alteration) and tuffs, while Taparko is formed within meta-sediments, meta-volcanics and granodiorite.

Overburden slopes are formed from Saprolite that ranges in thickness but is in general approximately 25 m thick and can be considered soil strength with the presence of remnant structures that can lead to instability issues. The underlying fresh rock can be considered as Strong and with RMR values in the region of 55-65 with a very dominant foliation dipping at approximately 45° to the east.

Figure 11-6 shows a view of Pit 35 at the main Taparko complex.

Figure 11-6: Taparko Pit 35 Hangingwall, looking East

All open pits have been assigned specific mine design criteria to allow for mine planning. Slope angles within the Saprolite, Transition and Fresh have been based on minimal geotechnical data and analyses. Slope angles in Saprolite have been designed on the assumption that the Saprolite slopes will be depressurised. SRK understands that no slope depressurisation has taken place to date and it is not clear if the Saprolite slopes can be depressurised given recharge and transient conditions; however, depressurisation is planned for pit 35 associated with the UG operations. Slope angles within the fresh rock have distinct geotechnical design domains defining the hangingwall and footwall. All footwall slopes are controlled by intense foliation that will become unstable when undercut.

Table 11-8 presents the slope design criteria for the 35 and 2N2K operations.

Table 11-8: Taparko Slope Design Criteria Used to Develop 2020 LoM Pits for 35 and 2N2K Operations

Pit	Slope	Regolith	BFA (°)	BH (m)	B Width (m)	IRA (°)	Max. Stack Height(m)	GT Berm Width (m)
2N2K	West (FW)	Saprolite	40	5	3	29	20	
		Transition	45	5	3	32	10	
		Fresh	50	20	8	40	70	
2N2K	East (HW)	Laterite	55	5	4	34	20	
		Saprolite	65	10	5	46	10	
		Transition	75	20	8.5	58	70	
35	West (FW)	Saprolite						
		Transition						
		Fresh	60	10	6	42		
35	East (HW)	Saprolite						
		Transition						
		Fresh	80	10	4.5	58		

The following range of inter-ramp angles have been used to design the remaining pits within in the Taparko mining complex:

- Saprolite 30° to 34°
- Transition 37° to 49°
- Fresh 40° to 55°

Failure within the saprolite slopes has occurred within the current operations. Instability has most likely been a result of the presence of remnant structure. For the smaller pits, it would appear that design criteria have been extrapolated from other mines. Geotechnical models are at conceptual level due to the minimal development of lithological, rock mass, structural and hydrogeological models.

The mature mines in the Taparko mining area exhibit poor slope conditions in both the hangingwall and footwall slopes. The hangingwall is defined by loss of benches and catch berms, which in addition to historical blast damage has resulted in potential rockfall risk at the base of the pit or on the haul roads. Within the footwall slopes, benches have broken back to foliation which has resulted in an undulating slope profile rather than defined benches as per the design. The major concern for the footwall slopes in the Taparko mines is the undercutting of foliation on an inter-ramp or overall slope scale. If this were to happen it may lead to significant failure and loss of access to the base of the pit. It is critical that the variability in the dip of the foliation structure is understood to ensure undercutting on an inter-ramp scale is not implemented.

SRK has been engaged by the Company to develop and assist in the implementation of a standard industry best practice Ground Control Management Plans (GCMP), Surface Water Management Plans (SWMP) and Ground Water Management Plans (GWMP) for all sites. As such SRK will review current processes used at Taparko in order to assist the mine in appropriately managing the existing and future slopes and minimise risk associated with geotechnical and operational conditions.

11.7.4 Mine Water Management

The climate at Taparko is semi-arid, with most rainfall occurring in the wet season months of June to September, typically peaking in August. Around 400 to 600 mm/annum precipitation occurs on average, although this can be highly variable. During November to March, little to no precipitation occurs.

The site drains towards the Yalgo River which is dammed approximately 14 km from the site, forming the perennial Yalgo Reservoir. This reservoir provides the site's fresh water supply.

Most groundwater flow in this region occurs in the shallow weathered system where fractures are abundant and in alluvial aquifers associated with larger river courses. There are no hydraulic conductivity measurements for the site. Without testing information, it is assumed that groundwater flow at depth below the weathered interval is limited, structurally dominated, with compartmentalisation between faulted regions. Shears and faults present in the Zone 35 and GT deposits represent zones of potential inflow and/or compartmentalization. Exploration boreholes at site are not grouted as a routine.

Water inflows to the pits mainly arise from direct precipitation and run-off, with anecdotally little groundwater contribution outside the wet season. Pit sumps are equipped with sump pumps to remove the water to surface. Water is currently ponded in the 35 Pit to the 130RL elevation. Approximately 2,400 m^3/day is extracted from the GT pit sump (AMC, 2019). Where identified, boreholes intersecting the underground operations are being grouted; however, future underground groundwater inflow estimates will take into account the potential for preferential water pathways to exist from ungrouted boreholes.

Raw water for the site is provided from the Yalgo Reservoir, which is dependent on seasonal runoff. The site abstracts from this reservoir during/after the wet season from June to January, when water is abundant and stored on site in the main storage pond at Dam 4. In 2020, plant water usage was around 3.2 Mm^3, of which 1.8 Mm^3 came from the fresh water supply at Dam 4, 1.2 Mm^3 was recycled from the process/TSF, and the remainder from the pits. Potable and domestic water are also sourced from the fresh water supply at Dam 4, amounting to 70,000 m^3 in 2020. The site abstracted a total of 1.96 Mm^3 from the Yalgo Reservoir in 2020. The Yalgo Reservoir is also used by local communities and the mine is in a region where water supply is scarce during the dry season. The proposed underground mine expansion is not anticipated to increase water consumption from current volumes.

There are limited groundwater monitoring facilities for assessing any impacts to groundwater level or quality. Monitoring procedures for ephemeral run-off channels from waste dumps in the wet season are unclear. Given the ARDML potential, increased surveillance of groundwater and surface water emissions would be appropriate around the waste rock facilities.

11.7.5 Open Pit Mine Design and Planning

Open Pit Cut-off Strategy

Currently, there are four quality bins in relation to the ore material and applied cut-off grade. These are: High Grade (“HG”), Medium Grade (“MG”), Low Grade (“LG”) and Marginal ore (“MA”). Consequently, there are four cut-off grades in use, namely: Reserve Cut-off, Marginal Cut-off (excluding overheads and fixed costs) and MG Cut-off (including mining costs).

Given that there is just over two years of mining activities left to deplete various pits, it is difficult to define a strategy at this stage; however, it is noted that gold grades in the feed material are growing towards the end of the LoMp. Table 11-9 shows estimated Reserve Cut-off grades and parameters used for their estimation.

Table 11-9: Taparko Open Pit Cut-off Grade Parameters

Parameter	Unit	35	2N2K	GT	BRM.	BIS.	YEOU	GNG.	TAN.	TAN. EAST	NAYIRI
Gold Price	(USD/oz)	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Treatment costs	(USD/oz)	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04
Royalty	(%)	3.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00	3.00	4.00
Community and Social Development	(%)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Metallurgical Recovery											
Oxide	(%)	90	90	90	90	90	90	90	90	90	90
Transition	(%)	85	85	85	90	90	90	88	88	88	90
Fresh	(%)	75	80	85	90	90	90	80	85	85	90
Total Ore Based Costs											
Oxide	(USD/t)	28.71	29.93	29.67	36.35	37.83	40.22	32.76	32.45	32.76	36.36
Transition	(USD/t)	31.38	32.61	32.34	39.03	40.47	42.89	35.39	35.13	35.41	39.05
Fresh	(USD/t)	31.44	32.66	32.39	39.09	40.57	43.00	35.53	35.20	35.49	39.15
Reserve Cut-off grade											
Oxide	(g/t)	0.82	0.86	1.27	1.08	1.12	1.19	1.08	0.97	1.26	1.08
Transition	(g/t)	0.95	0.99	1.47	1.16	1.20	1.27	1.20	1.08	1.39	1.16
Fresh	(g/t)	1.08	1.05	1.47	1.16	1.20	1.27	1.32	1.12	1.45	1.16

Open Pit Modifying Factors for Mine Design

The modifying factors for the Taparko design are shown in Table 11-10.

The modifying factors are supported with years of experience and appropriate studies. SRK notes, however, that Mining Recovery and Dilution were estimated using Grade Control ("GC") and Mining Model ("MM", regularised resource model). Therefore, actual dilution and loss factors may be higher than presented here.

Table 11-10: Taparko Open Pit Modifying Factors

Parameter	Unit	35	2N2K	GT	BRM.	BIS.	YEOU	GNG.	TAN.	TAN. EAST	NAYIRI
Minimum Mining Width Ore	(m)	24	24	18	15	15	15	18	18	18	15
Mining Recovery	(%)	90%	90%	60%	88%	88%	88%	78%	86%	67%	88%
Dilution	(%)	100%	110%	99%	101%	101%	101%	138%	101%	61%	101%
Bench Height	(m)	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10
Face Angle	(^{0})	50-80	45-75	55-75	65-75	65-75	65-76	60-74	60-75	60-75	65-75
Berm Width	(m)	5	5	5	5	5	5	5	5	5	5
Ramp Width – Double Lane	(m)	24	24	18	15	15	15	18	18	18	15
Ramp Width – Single Lane	(m)	N/A	N/A	N/A	N/A	15	15	18	18	18	15
Ramp Gradient	(%)	10	10	10	10	10	10	10	10	10	10

Open Pit Ore Reserve Case Mine Designs

The pit designs for Taparko are shown in Figure 11-7. The pits have been designed based on the geotechnical parameters presented in the previous section. The ramps have been designed at a gradient of 10% at 15-24 m width (dual lane, depending on the pit). The mining benches are 5-10 m high. 2N2K, 35 and Bouroum pits are the largest and deepest pits at Taparko. 35 pit is planned to be as deep as 220 m.

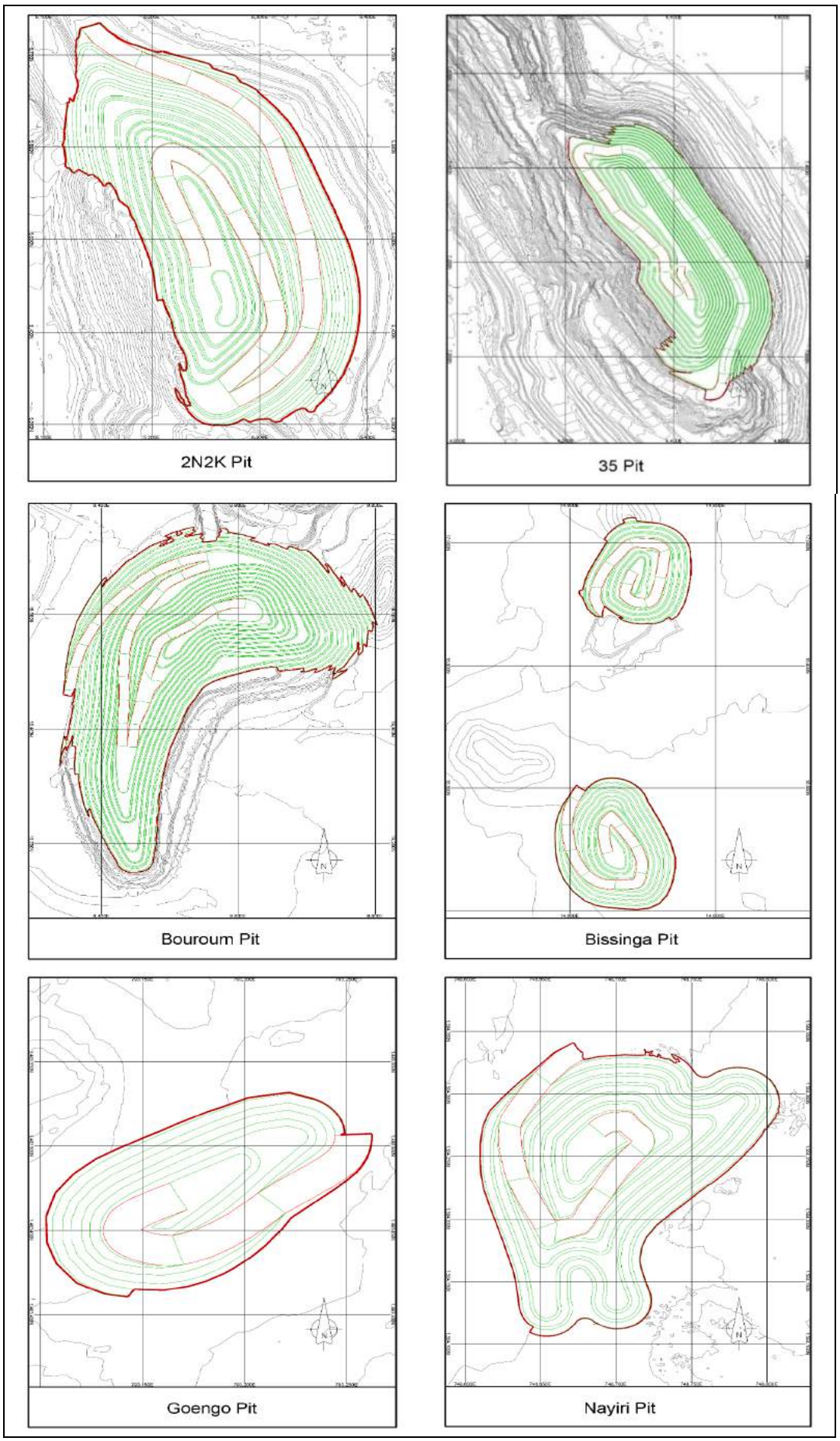


Figure 11-7: Taparko Open Pit Design (Ore Reserve Case) (Nordgold 2021)

Open Pit Base Case Design and Life of Mine Plan

The 2020 Base Case LoMp has been used for the purposes of the CPR. The mine plan includes additional pit when compared to the Ore Reserve Case, which is named Grand Trench ("GT"). This pit is located next to 2N2K and its location is shown on Figure 11-5. SRK notes that the Base Case mine plans are developed on pit designs resulting from pit optimisations which used a USD1550/oz Au metal price due to the short life of the mine (as opposite to the Ore Reserves price of USD1400/oz Au) and in addition to that, Mineral Resources classified as Inferred are included. The quantum of these Inferred Resources is considered insignificant in view of developing the pits and will not materially impact the mining sequence.

As described earlier, remaining pits are fairly small and will be mined from top to bottom, without development of any further cutbacks, which makes the mining sequence straightforward. In the larger view; however, it appears that number of pits placed in various locations and different distances from the plant will be mined in relatively short period of time (three years). This will require moving the equipment between the sites in an efficient manner.

Table 11-11 shows the Base Case LoMp forecast for the Taparko open pits.

Table 11-11: Taparko Open Pit Forecast (2021 to End LoM) Mining Production Statistics for Base Case LoMp

	Unit	Total	2021	2022	2023
All Pits					
Total Tonnes	(Mt)	40.6	16.5	19.7	4.3
Total Waste Tonnes	(Mt)	38.0	15.4	18.9	3.7
Total Ore Tonnes	(Mt)	2.5	1.2	0.8	0.6
Mined Grade	(g/t)	2.1	1.9	2.4	2.2
Metal Content	(koz)	173	70	61	42
Strip Ratio	(t:t)	15.0	13.3	24.1	6.4
35 Pit					
Total Tonnes	(Mt)	0.6	0.6	-	-
Total Waste Tonnes	(Mt)	0.3	0.3	-	-
Total Ore Tonnes	(Mt)	0.2	0.2	-	-
Mined Grade	(g/t)	2.0	2.0	-	-
Metal Content	(koz)	16	16	-	-
Strip Ratio	(t:t)	1.4	1.4	-	-
2N2K Pit					
Total Tonnes	(Mt)	8.3	7.8	0.6	-
Total Waste Tonnes	(Mt)	7.6	7.0	0.5	-
Total Ore Tonnes	(Mt)	0.8	0.8	0.0	-
Mined Grade	(g/t)	1.9	1.9	2.5	-
Metal Content	(koz)	46	45	1	-
Strip Ratio	(t:t)	9.9	9.3	35.9	-
GNG Pit					
Total Tonnes	(Mt)	0.7	0.7	-	-
Total Waste Tonnes	(Mt)	0.6	0.6	-	-
Total Ore Tonnes	(Mt)	0.1	0.1	-	-
Mined Grade	(g/t)	1.3	1.3	-	-
Metal Content	(koz)	5	5	-	-

	Unit	Total	2021	2022	2023
Strip Ratio	(t:t)	5.0	5.0	-	-
BRM Pit					
Total Tonnes	(Mt)	11.2	1.2	6.6	3.4
Total Waste Tonnes	(Mt)	10.5	1.2	6.4	2.9
Total Ore Tonnes	(Mt)	0.6	-	0.1	0.5
Mined Grade	(g/t)	2.1	-	1.9	2.2
Metal Content	(koz)	44	-	8	37
Strip Ratio	(t:t)	16.3		50.4	5.6
BIS Pit					
Total Tonnes	(Mt)	2.5	-	1.7	0.8
Total Waste Tonnes	(Mt)	2.3	-	1.6	0.7
Total Ore Tonnes	(Mt)	0.1	-	0.1	0.0
Mined Grade	(g/t)	3.0	-	2.8	3.4
Metal Content	(koz)	10	-	6	4
Strip Ratio	(t:t)	21.9	-	24.0	18.3
NAY Pit					
Total Tonnes	(Mt)	5.1	0.0	4.9	0.2
Total Waste Tonnes	(Mt)	4.8	0.0	4.6	0.1
Total Ore Tonnes	(Mt)	0.3	0.0	0.3	0.0
Mined Grade	(g/t)	2.0	2.4	2.1	1.3
Metal Content	(koz)	20	0	18	1
Strip Ratio	(t:t)	15.3	36.1	16.5	4.2
GT Pits					
Total Tonnes	(Mt)	12.3	6.3	6.0	-
Total Waste Tonnes	(Mt)	11.9	6.2	5.7	-
Total Ore Tonnes	(Mt)	0.3	0.1	0.3	-
Mined Grade	(g/t)	2.9	2.9	2.9	-
Metal Content	(koz)	32	5	27	-
Strip Ratio	(t:t)	34.3	120.6	19.2	-

11.7.6 35 Underground Mine Project

SRK has undertaken an underground mining study at the Taparko 35 pit to generate Ore Reserve Case and Base Case scenarios as defined by the Company. The purpose of the Taparko underground mining study was to determine if the LoM could be extended by mining below the 35 Pit and supplementing the feed from stockpiles to the plant after the completion of the Taparko open pits by the end of Q1 2021, as per the Business Plan 2021.

Underground Modifying Factors

As provided by the Company, the dilution skin for the footwall (“FW”) was 0.3 m, and 1.4 m for the hanging wall (“HW”). Given the limited data set at this stage; however, it was considered appropriate to maintain the 1.4 m HW dilution skin assumed for this study, and to update this as the understanding of the rock mass improves.

In addition to the dilution skin included in the stopes shapes, an additional 5% unplanned dilution was included in the schedule to account for backfill dilution.

Underground Mining Recovery

The mining recovery was defined based on a split by stope width given the flat and narrow nature of the orebody. A lower mining recovery was applied to the narrower stopes. A 12 m cut-off width was selected based on the geotechnical review described in Section 11.7.3.

The mining recovery was also adjusted for stopes defining sill pillars. The applied values split by category are shown in Table 11-12.

Table 11-12: Taparko Underground Mining Recovery per Stope Type and Width

Stope Width	Normal Stope (%)	Sill Pillar Stope (%)
Width <12 m	80	60
Width ≥12 m	85	65

Underground Cut-off strategy

The cut-off grade approach involves the calculation of three different values:

- **Breakeven CoG:** This cut-off grade defines the economic stopes which form the base for the design and schedule. It includes mining, processing, General and Administrative ("G&A") and sustaining capital expenditures.
- **Marginal CoG:** This cut-off grade defines potential additional stopes for the design and schedule that are only economic after discounting the development and non-sustaining infrastructure costs, which means that the stopes needs to be located inside the layout defined by the Breakeven CoG. It includes only production-related costs in the mining cost, processing, G&A and sustaining capital.
- **Development CoG:** This cut-off grade defines the destination of the development tonnage. Since the development is already considered in the design and therefore mined irrespective of the grade, in order to be processed, it only needs to cover the costs after mining. It includes processing, G&A and sustaining capital.

The Company provided a metallurgical recovery formula derived from a logarithmic regression based on six gold recoveries from test work on fresh material samples, which was applied in the cut-off grade assessment:

*(1) Recovery = Max (8.4702 * ln(Grade)+74.624, 90)*

Based on the input parameters as presented in Table 11-13, the resulting revenue factor is USD35.5/g Au, while the total units cost ranges from USD75.5/t to USD29.7/t depending on the cut-off grade type. The cut-off grade is first calculated on a fully diluted base. The unplanned backfill dilution of 5% is considered to determine the cut-off grade for the stope shapes including dilution skin.

Based on the revenue, costs calculation and dilution, a 2.3 g/t Au breakeven cut-off grade was defined to determine the economic stopes. Marginal and development cut-off grades were defined at 1.8 g/t Au and 1.0 g/t Au, respectively.

Table 11-13: Taparko Underground Cut-off Grade Results

Description	Units	Breakeven	Marginal	Development
Revenue				
Gold Price	(USD/oz)	1,400	1,400	1,400
Mining tax	(%)	3.00	3.00	3.00
Royalty	(%)	2.00	2.00	2.00
Local tax	(%)	1.00	1.00	1.00
Treatment costs	(USD/oz)	10.04	10.04	10.04
Net Price	(USD/g)	41.99	41.99	41.99
Metallurgical Recovery	(%)	84.46	84.46	84.46
Revenue	(USD/g)	35.46	35.46	35.46
Costs				
Underground Mining	(USD/t ore)	39.88	27.61	-
Production	(USD/t ore)	27.61	27.61	-
Development and Others	(USD/t ore)	12.27	-	-
Processing	(USD/t ore)	17.20	17.20	17.20
G&A	(USD/t ore)	9.70	9.70	9.70
Maintenance Capital	(USD/t ore)	2.15	2.15	2.15
Infrastructure Non-Sustaining	(USD/t ore)	5.95	-	-
Infrastructure Sustaining	(USD/t ore)	0.66	0.66	0.66
Total Cost	**(USD/t ore)**	**75.53**	**57.31**	**29.70**
Cut-off grade				
Cut-off grade (fully diluted)	(g/t)	2.13	1.62	0.84
Backfill dilution	(%)	5.00	5.00	5.00
Cut-off grade (dilution skin only)	(g/t)	2.24	1.70	0.88
Resulting Cut-off grade	**(g/t)**	**2.30**	**1.80**	**1.00**

Stope Optimisation and Cut-off Grades

SRK was provided by the Company with an undepleted Mineral Resource block model in Surpac format. The block model contains an estimate for density to be used in the optimisation process.

The stope optimisation parameters utilised are presented in Table 11-14. It is noted that further unplanned dilution has been added in the scheduling process to account for the backfill dilution.

SRK generated stopes shapes for a breakeven cut-off grade of 2.3 g/t Au and a marginal cut-off grade of 1.8 g/t Au.

Table 11-14: Taparko Stope Optimisation Parameters

Parameters	Unit	Value
First rotation axis		Z
First rotation angle	(°)	-27
Height	(m)	15
Length	(m)	3
Stope minimum width	(m)	2.8
Stope maximum width	(m)	21
Stope pillar	(m)	15
Dilution skin HW	(m)	1.4
Dilution skin FW	(m)	0.3

Underground Mine Design

The resulting stopes from the optimisation process were selected inside the target area located to the north of the 35 Pit design and two development designs were created for the Ore Reserve Case (Figure 11-8 and Figure 11-9) and Base Case (Figure 11-10 and Figure 11-11).

Figure 11-8: Taparko Underground Ore Reserve Case Development Design

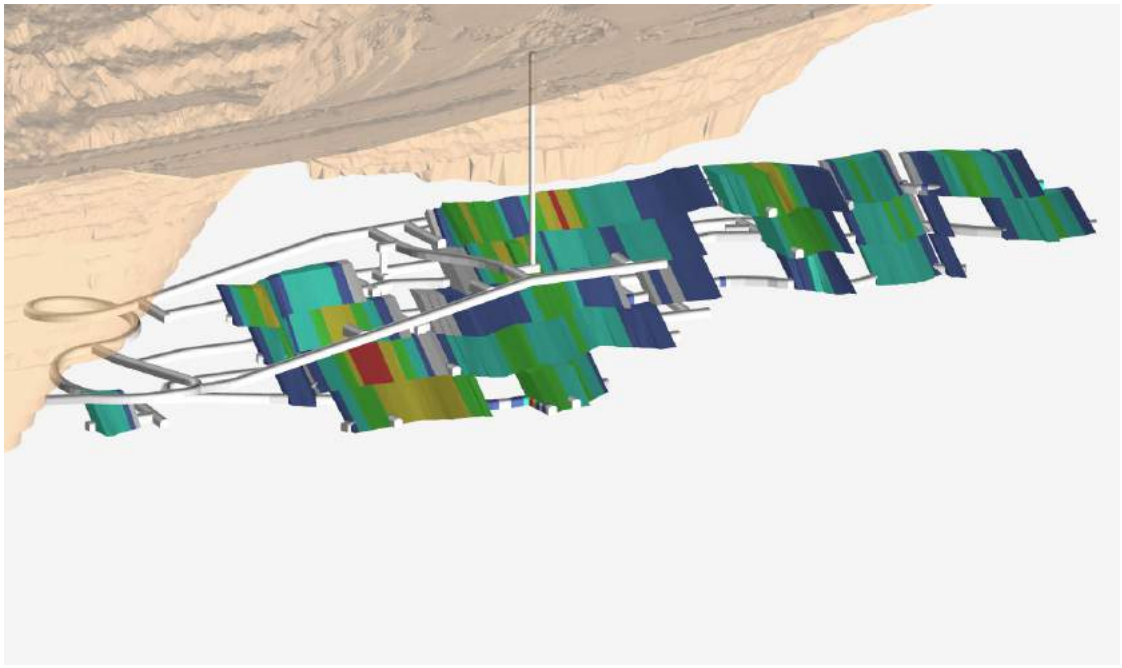


Figure 11-9: Taparko Underground Ore Reserve Case Mine Design

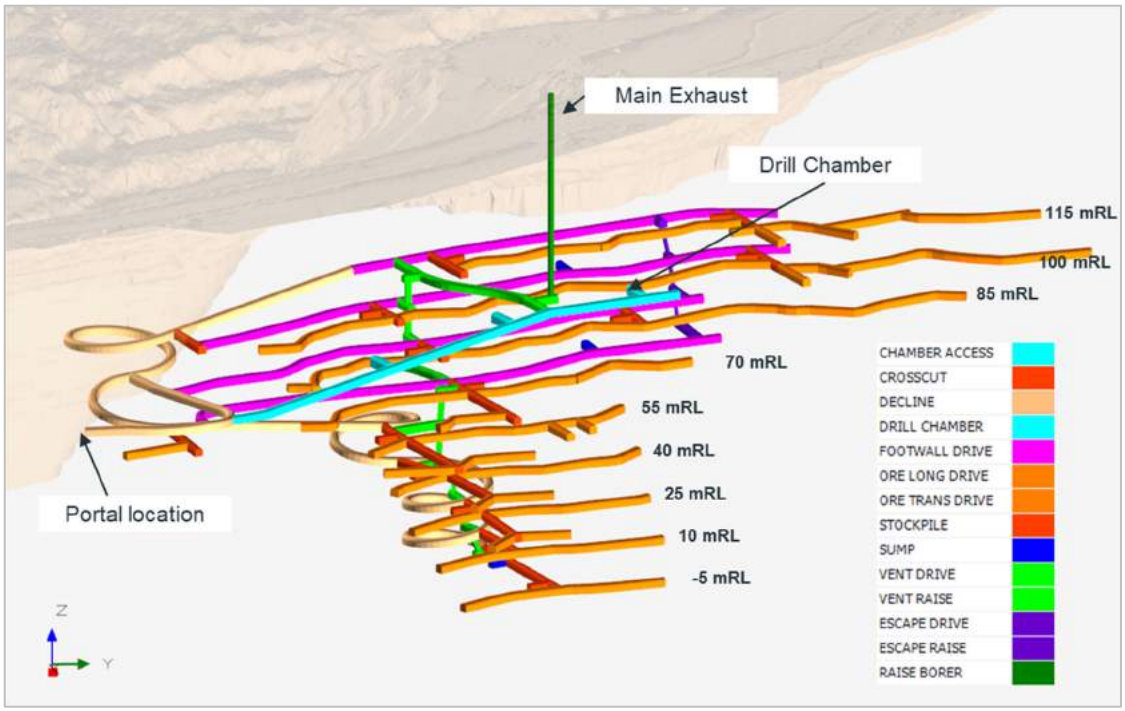


Figure 11-10: Taparko Underground Base Case Development Design

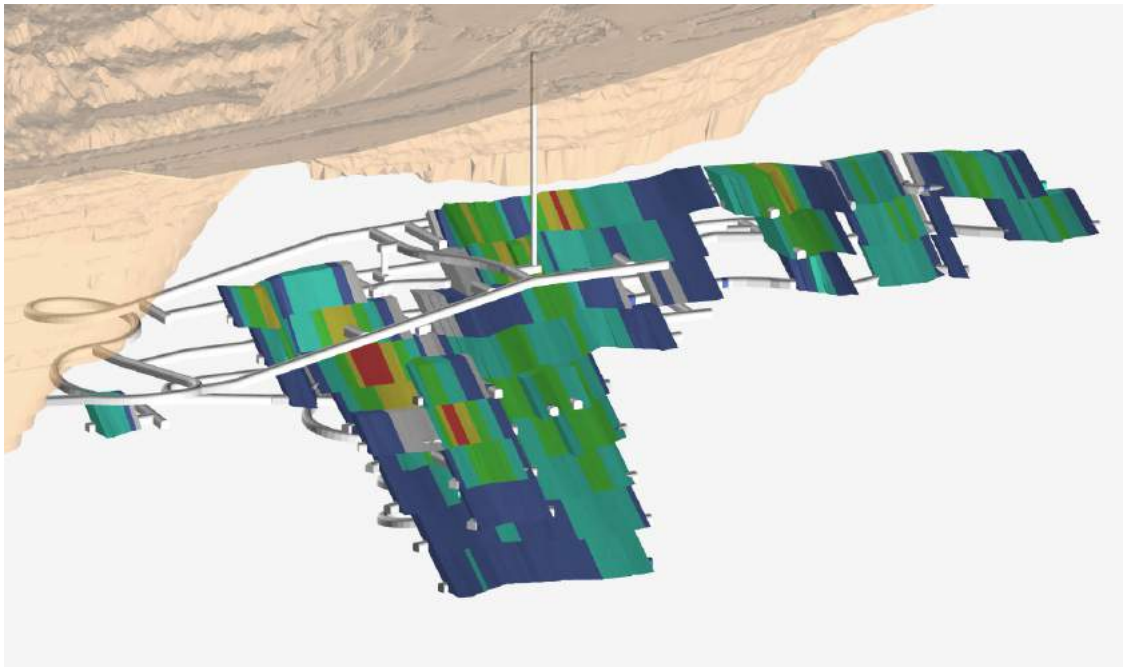


Figure 11-11: Taparko Underground Base Case Mine Design

Portal location

The selected portal location is in the east (hanging) wall NE corner, below the pit access ramp. This location provides at least 20 m of wall above the decline to prevent the ramp being affected by the initial blasting. The ramp will act as a wide berm, which will reduce the amount of geotechnical work required to secure the wall above the portal.

Underground Production Schedule

The mine schedule begins on 1 April 2022. SRK has been provided with the end of October 2020 surveys and final pit design. Lateral development tasks were scheduled with two jumbos at 240 m per month each.

The mine schedule was developed using a bottom-up sequence of sublevels spaced 15 m with a sill pillars in between the level 25 mRL and 40 mRL to allow high grades zones to be mined earlier in the schedule.

Underground Ore Reserve Case Life of Mine Plan

The Ore Reserve Case LoMp achieves a production rate at 36 ktpm as in the Base Case scenario, with some drops in monthly tonnage due to reduced production locations.

The monthly development and production profiles are shown in Figure 11-12 and Figure 11-13, respectively. The annual development, production plan and contained metal schedule is shown in Table 11-15.

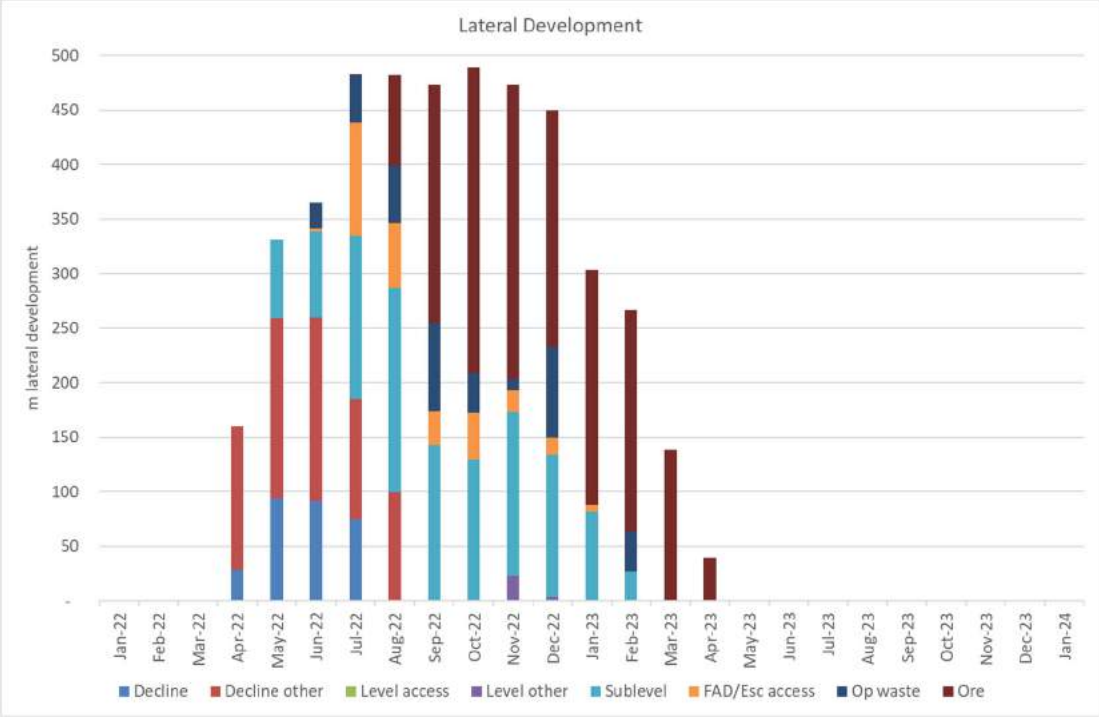


Figure 11-12: Taparko Underground Ore Reserve Case LoMp Monthly Development Profile

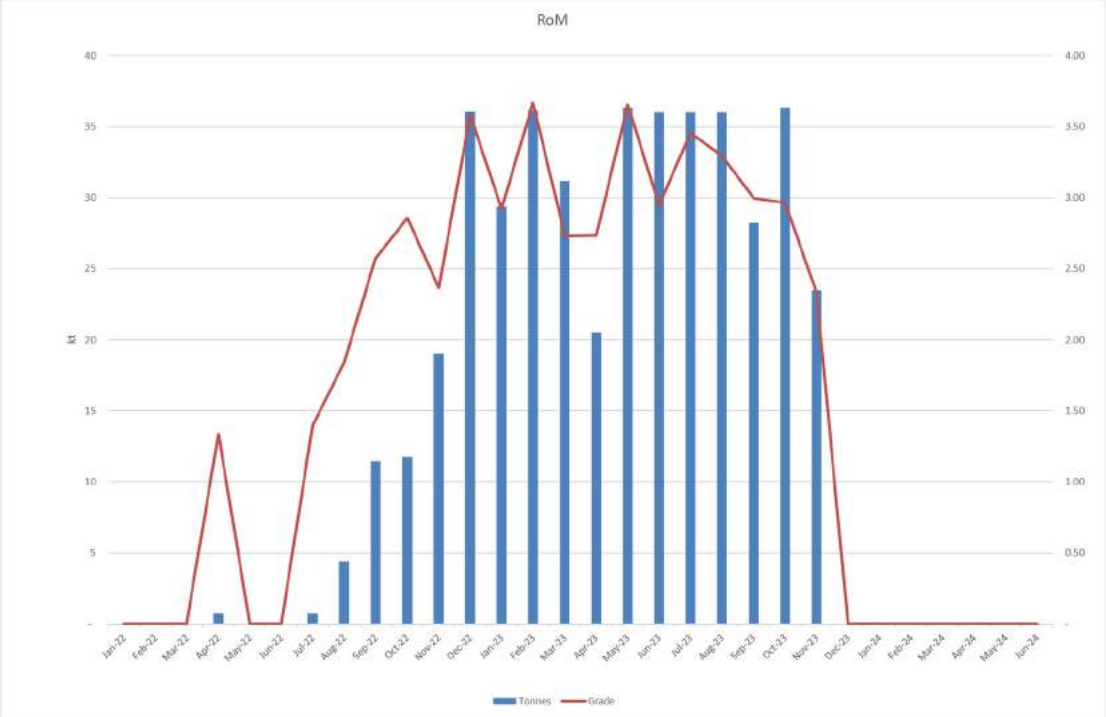


Figure 11-13: Taparko Underground Ore Reserve Case LoMp Monthly Production Profile

Table 11-15: Taparko Underground Ore Reserve Case LoMp Schedule

Description	Units	Totals	2022	2023	2024
Ore Tonnes	(t)	433,663	84,168	349,495	-
Stope Tonnes	(t)	356,561	33,325	323,236	-
Ore Development	(t)	77,102	50,843	26,259	-
Au Grade	(g/t)	3.08	2.94	3.11	-
Au Metal	(oz)	42,942	7,949	34,993	-
Development	(m)	4,636	3,852	783	-
Lateral	(m)	4,454	3,706	748	-
Vertical	(m)	181	146	35	-

Underground Base Case Life of Mine Plan

A natural production rate of 36 ktpm is achieved in the Base Case. The monthly development and production profiles are shown in Figure 11-14 and in Figure 11-15, respectively. The annual development, production plan and contained metal schedule is shown in Table 11-16.

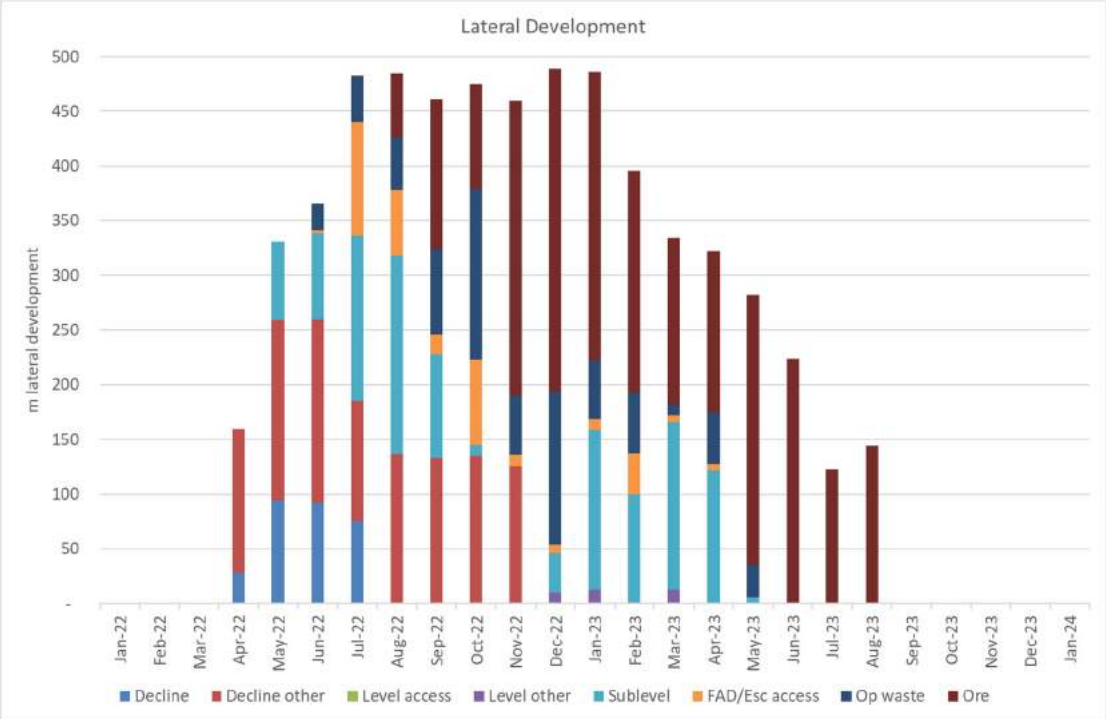


Figure 11-14: Taparko Underground Base Case LoMp Monthly Development Profile

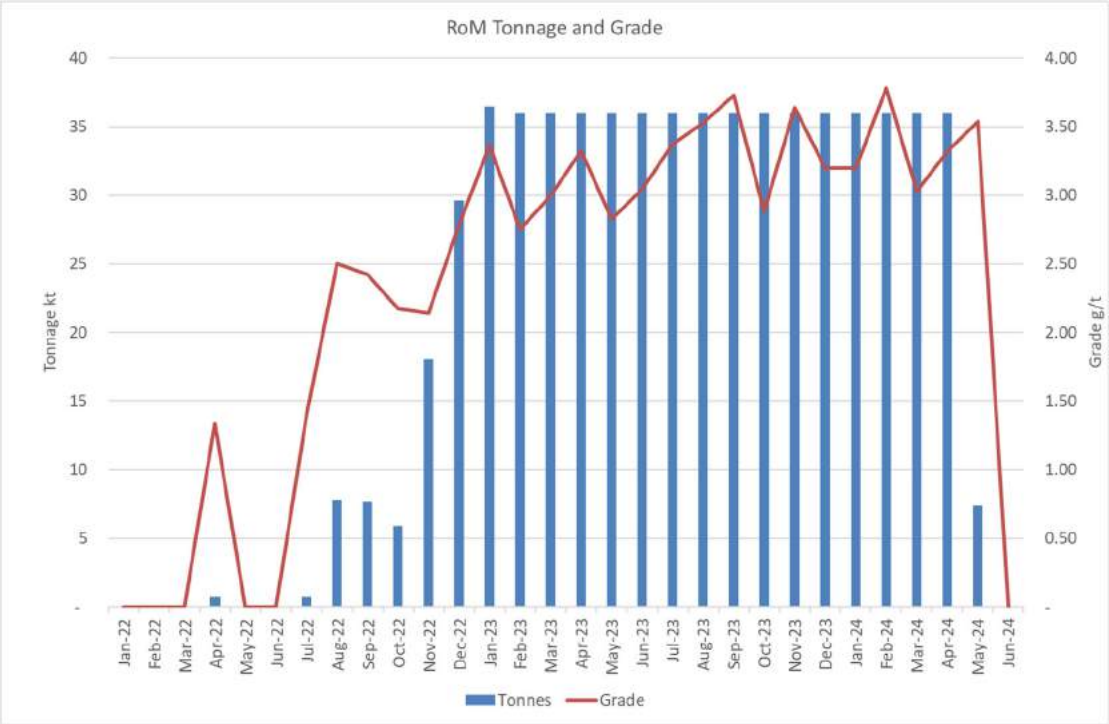


Figure 11-15: Taparko Underground Base Case LoMp Monthly Production Profile

Table 11-16: Taparko Underground Base Case LoMp Schedule

Description	Units	Totals	2022	2023	2024
Ore Tonnes	(t)	654,361	70,491	432,481	151,389
Stope Tonnes	(t)	541,038	24,062	365,587	151,389
Ore Development	(t)	113,323	46,429	66,894	-
Au Grade	(g/t)	3.17	2.47	3.22	3.34
Au Metal	(oz)	66,665	5,597	44,797	16,271
Development	(m)	6,250	3,902	2,348	-
Lateral	(m)	6,020	3,707	2,313	-
Vertical	(m)	230	195	35	-

11.7.7 Ore Reserve Case Life of Mine Plan (Open Pit and Underground)

The 2020 Ore Reserve Case LoMp for Taparko is Nordgold's mine plan optimised for the extraction of measured and indicated ore and aligned with the physicals presented in the reserve statement. The summary forecast production schedule for the Ore Reserve Case is presented in Table 11-17, and is a combination of the open pit and underground LoMp.

Table 11-17: Forecast mining production for the Ore Reserve Case LoMp

Statistics	Units	Total LoM	2021	2022	2023
Mined	(kt)	16,054	6,845	8,848	361
Waste	(kt)	14,208	6,036	8,161	11
Ore	(kt)	1,846	810	687	349
	(g/t Au)	2.33	2.01	2.31	3.11
	(koz Au)	138	52	51	35

11.7.8 Base Case Life of Mine Plan (Open Pit and Underground)

Table 11-18 shows the Base Case LoMp forecast for the Taparko operation, combining the open pit and underground LoMp as presented above.

Table 11-18: Forecast mining production for the Base Case LoMp

Statistics	Units	Total LoM	2021	2022	2023	2024
Mined	(kt)	40,914	16,526	19,906	4,330	151
Waste	(kt)	37,745	15,367	19,050	3,328	-
Ore	(kt)	3,169	1,159	856	1,002	151
	(g/t Au)	2.34	1.88	2.44	2.64	3.34
	(koz Au)	239	70	67	85	16

11.7.9 Ore Reserve Statement

The Open Pit Ore Reserves are based on the remaining pit inventory on 31 December 2020 within the Ore Reserve Case design pits. The cut-off grades have been calculated from the parameters shown in Table 11-9. The Ore Reserve estimate for the Taparko 35 Underground Mine has been undertaken by SRK in accordance with the JORC Code. The Audited Ore Reserve Statement as of 31 December 2020 is presented in Table 11-19.

In reporting the Ore Reserves as stated in Table 11-19, SRK notes the following:

1. All figures are rounded to reflect the relative accuracy of the estimate.
2. Open pit Ore Reserves are presented at a 0.86-1.32 g/t Au cut-off grade based on a long-term Au price of USD1,400/oz, location of open pit and material type and within an optimised pit design. The applied open pit mining factors are 1.5% dilution and 82% recovery, and 75-90% processing recovery depending on material type, open pit mining cost of USD2.36/t, processing cost of USD14.50-17.20/t_{ore} depending on material type, G&A at USD12.66/$t_{ore,}$ and sustaining capital of USD1.75/t mined.
3. The underground Ore Reserves are reported at 1.80 g/t Au on long term Au price of USD1,400/oz. Ore Reserves are external to the final pit design of pit 35 and reported within a mineable MSO stope shape, with a minimum mining width of 2.8 m with. Processing cost of USD17.20/t milled, general and administrative cost of USD9.70/t_{ore} milled (includes all power generation costs), average stoping cost of USD27.27/t_{ore} mined, processing recovery of 84.46%. Sustaining capital of USD2.15/t is planned. The unplanned backfill dilution of 5% is considered. The underground inventories were defined using MSO optimisation software.
4. Ore Reserves have demonstrated economic viability.
5. The pit inventories were constrained within the Company's existing LoM pit designs.
6. The underground inventories were defined using MSO optimisation software
7. The Ore Reserve comprises a mine life of approximately three years.
8. Ore Reserves are presented on a 100% basis.

Table 11-19: Taparko Gold Mine Ore Reserve Statement as at 31 December 2020

Mineral Asset	Deposit	CoG	Proved Ore (kt)	Proved Au (g/t)	Proved Au (koz)	Probable Ore (kt)	Probable Au (g/t)	Probable Au (koz)	Proved + Probable Ore (kt)	Proved + Probable Au (g/t)	Proved + Probable Au (koz)
Taparko	35	1.08	248	2.2	17	-	-	-	248	2.2	17
	2N2K	0.86-1.05	78	1.8	5	408	1.9	25	487	1.9	29
	Bouroum	1.08-1.16	273	2.0	17	250	2.4	19	523	2.2	36
	Goengo	1.08-1.32	-	-	-	26	1.3	1	26	1.3	1
	Bissinga	1.12-1.20	25	3.3	3	51	3.3	5	76	3.3	8
	Nayiri	1.08-1.16	-	-	-	52	2.0	3	52	2.0	3
	Total Open Pits		624	2.1	42	788	2.1	53	1,412	2.1	95
	35 Underground	1.80	59	3.1	6	375	3.1	37	434	3.1	43
	Stockpiles		-	-	-	2,597	0.9	72	2,597	0.9	72
	Total Taparko		**683**	**2.2**	**48**	**3,760**	**1.3**	**163**	**4,443**	**1.5**	**211**

11.7.10 SRK Comments

In the opinion of SRK, the Ore Reserves estimate prepared for Taparko Open Pit Gold Mine provide a sound and unbiased basis for development of the Ore Reserve Case LoMp.

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

11.8 Mineral Processing

11.8.1 Flowsheet Description

The Taparko process plant treats non-refractory oxidised saprolite and transitional and fresh saprock hosted gold ore through a conventional CIL circuit, producing doré on site.

The plant commenced production in 2007 at a design production rate of 1 Mtpa. Subsequent upgrades and expansions took the plant capacity to 1.5 Mtpa in 2010, and to the current 1.8 Mtpa in 2012.

The key unit processes are:

- Crushing: The original Taparko crushing circuit consisted of a “soft ore” and a “hard ore” circuit. The soft ore crusher has been decommissioned, although the feed system from that circuit is still used (the “1-stage feed bin” in Figure 11-16). The hard ore circuit consist of a jaw crusher and two cone crushers. Primary crushed ore is screened using a double deck screen, with the oversize reporting to the secondary crusher and the middle fraction reporting to the tertiary crusher. Both screens discharge to a second double deck screen, which closes the tertiary crusher. The top deck of this screen is used to divert overload to a “pebble” stockpile. Additional ore is fed into the 1-stage feed bin from a 3-stage mobile crushing plant that was previously used for a heap leach operation. Pebbles, oversize from the secondary double deck screen and ball mill scats, are crushed and returned to the circuit via the pebble crusher.

- Grinding: The original grinding circuit consisted of a second hand 5.0 m diameter, 7.1 m long ball mill, that was fitted with a 4,000 kW motor, operating in closed circuit with cyclones. For the 1.8 Mtpa upgrade, a “regrind” mill was added that treats cyclone underflow, with the primary mill converted to open circuit operation. Part of the cyclone underflow reports to a gravity circuit, which consist of a Knelson centrifugal concentrate, the concentrate from which is upgraded using a Gemeni shaking table. This circuit was part of the original installation, was decommissioned in the operation’s early years, but has recently been recommissioned. After screening for trash removal, cyclone overflow reports to the CIL circuit.
- Cyanidation: The original cyanidation circuit consisted of six 830 m^3 mechanically agitated tanks, giving a circuit residence time of 24 hours. Two additional tanks were added for the 1.5 Mtpa expansion, giving a CIL residence time of approximately 18 hours at 1.8 Mtpa. Carbon is added to all but the first tank, the tanks are fitted with Kemix interstage screens, and carbon is transferred using recessed impeller pumps. A ten tonne per day PSA oxygen plant was installed to improve leach kinetics; oxygen is injected into the CIL circuit though lances at the bottom and the agitator shafts. An Aachen oxygen reactor had been installed recently into CIL Tank 1 to improve oxygenation of the CIL feed.
- Tailings: Tailings were originally thickened then pumped to the TSF, but following breakdown of the rake system and plant throughput expansion, tailings are now sent to the TSF unthickened.
- Metal recovery: Gold is recovered from the loaded carbon in a conventional pressure Zadra elution and electrowinning circuit. Elution is based on a 4 t carbon batch size and the circuit is sized for 20 elution cycles per month. Metal is electrowon using two electrowinning cells, and the cathode sludge is filtered then smelted using a diesel fired smelting furnace.

11.8.2 Supporting Metallurgical Testwork

The first testwork reported on Bouroum ore samples was conducted by International Metallurgical and Environmental in Canada in 1995 and 1997, with further work conducted by Lakefield Research in Johannesburg in support of a scoping study. The conclusions of this work were that the ores were free milling, of low to medium hardness, medium abrasiveness, with a high gravity recoverable component with no evidence of preg-robbing.

The first testwork reported on Taparko ore samples was conducted by Kappes, Cassiday & Associates Australia (“KCAA”) in Reno in 1998. The conclusions of this work were that the ores were free milling, of low to medium hardness and with evidence of preg-robbing, particularly with Saprolite ore samples. Average Au recoveries were 95.6% for Oxide ore, 96.6% for Transition ore and 94.3% for Sulphide ore.

In support of the 2004 Feasibility Study, testwork was conducted focussing on Taparko ore (Pit 35 North, Central and South), with confirmatory testwork conducted on ore samples from Bouroum and Taparko satellite deposits.

Head grades of the eight Taparko samples tested ranged from 0.79 g/t Au to 8.25 g/t Au. Ball Mill Work Indices ranged from 14 kWh//t for Saprock material to 20 kWh/t for Sulphide material. Abrasion indices indicated that the Saprock and Sulphide ore were abrasive and that Quartz ore was highly abrasive. All samples contained appreciable levels of gravity-recoverable gold, and all samples exhibited mild preg-robbing behaviour. The optimum cyanidation conditions were determined to be a grind size of 80% -75 μm, an initial cyanide addition of 1 kg/t and a leach residence time of 24 hours'; the testwork showed that 16 hours was sufficient for the Saprolite and Saprock samples, but that the Sulphide ore samples were still leaching, albeit slowly, after 24 hours. The samples exhibited a low oxygen demand, low to medium slurry viscosity, good carbon adsorption behaviour and, with the exception of the Saprock material, good settling characteristics.

The samples used for the confirmatory testwork included Welcome Stranger, Bissinga and F12 for Bouroum, and NS, GT, Zone 2 and N for Taparko. The Bouroum samples reported variable gravity recovery, with Bissinga Fresh repowering the highest value at 47%. The Taparko Transition samples reported poorer cyanidation recoveries, partially due to low head grades, but the Oxide samples reported the highest Au recoveries, with some degree of variation with head grade. The Bissinga samples reported good gold recoveries, generally with some variation with head grade. Recoveries were lower for Sulphide than Oxide material from Welcome Stranger and F12. Comminution testwork indicated that the Bouroum ores were softer and less abrasive than the Taparko ores, although results were variable depending on ore source and quartz content.

Based on this testwork, optimised process parameters and recoveries were determined for the different ore sources. These are summarised in Table 11-20.

Table 11-20: Taparko and Bouroum Testwork Recoveries

Ore	Au Head Grade (g/t)	Au Recovery (%)
Taparko Oxide	3.49	97.0
Taparko Transition	1.30	95.0
Taparko Sulphide	3.77	93.8
Bouroum Oxide	4.30	97.3
Bouroum Sulphide	3.00	93.0

The Taparko site laboratory conducts numerous metallurgical investigations, and reports from several recent testwork campaigns have been provided for review. One such review tested numerous samples of 3/5 ore in the latter months of 2019. These results returned Au recoveries in the range 74-75%, with little variation with head grade. The samples exhibited mild preg-robbing behaviour, grind sensitivity, although the degree of sensitivity dropped off at grind sizes finer than 80% -75 μm, as well as some sensitivity to cyanide and oxygen levels.

Comparisons with Oxide samples from Goengo and Tangarsi showed these ore samples to exhibit higher Au recoveries, ranging from 91% to 93%.

Similar behaviour was reported for 3/5 ores tested in January 2020; however, samples of 3/5 North and 3/5 South material tested in March reported higher recoveries (79-80%).

A testwork program was undertaken in mid-2000 on “mineralised waste” material. Samples of 35-4 Pit, 2N2K-GT and 35 RoM were tested. With the exception of the 2N2K-GT Fresh material (average head grade for two samples 4.77 g/t Au), the average head grade for the other samples was 1.11 g/t Au or less (down to 0.32 g/t Au). The 35-4 Pit samples had Au recoveries of 82-83% for the Transition and Fresh samples and 90% for the Oxide samples. The 2N2K-GT samples had Au recoveries of 80% for the Transition and Oxide samples, but 91% for (high grade) Fresh samples. The 35 RoM samples had Au recoveries of 74-75%.

A small program of testwork was commissioned in late 2020 in support of the 35 underground project. Three samples, (HG, MG and LG) were tested in duplicate. Au recoveries ranged from 92% for the HG sample (8.14 g/t Au) to 82% for the LG (2.69 g/t Au) sample.

11.8.3 Historical Operating Data

Annual plant operating data for the period 2016 to 2020 are shown in Table 11-21.

Table 11-21: Taparko Historical Processing Data

Item	Unit	2016	2017	2018	2019	2020
Ore Processed	(kt)	1,636	1,662	1,974	1,920	1,797
Au Head Grade	(g/t)	2.54	2.06	1.89	1.41	2.03
Au Recovery	(%)	83.1	86.4	83.7	79.5	81.8
Au Produced	(koz)	111	108	102	68	95
Operating Cost	(USD/t)	19.0	17.0	15.6	16.3	17.3

11.8.4 Forecast Operating Data

Summary processing data for the Ore Reserves and Base Case schedules are presented in Table 11-22. The Ore Reserve Case processes a total of 4.44 Mt in 2021, 2022 and H1 of 2023 only, with a combination of open pit, underground and stockpile production. The Base Case extends into 2024 by processing an additional 2.2 Mt ore, with a maximum throughput of 1.82 Mtpa.

Table 11-22: Taparko Forecast Processing Data

Activity	Units	Ore Reserve Case	Base Case
Processing Feed	(kt)	4,443	6,666
Gold Grade	(g/t Au)	1.49	1.54
	(koz Au)	212	330
Gold Recovery	(%)	83.6%	83.9%
Doré Produced	(kg)	5,520	8,623
	(koz Au)	177	277

11.8.5 Discussion

The Taparko processing circuit is of conventional format and is consistent with the testwork on which its design was based. The testwork predating the plant’s construction indicated that CIL processing would be required for some ore types

Following a slower than expected ramp-up (in 2008 to 2009) due to problems with the second hand ball mill, the plant was quickly able to process ore at a rate well in excess of the design figure of 1.0 Mtpa. This is due to the very wide range of ore hardness values that is typical of West African ores, with very soft laterite and saprolite oxide material trending down into what can be very hard Fresh rock. The ball mill was sized based on treating 100% Fresh ore, albeit at the reduced rate of 0.9 Mtpa. With much of the available ore, at least initially, being much softer, it is unsurprising that the plant has been able to process well in excess of the design ore federate; however, processing at rates above the original design resulted in a decrease in the CIL residence time and an increase in the grind coarseness, both of which were found to be detrimental to recovery. These shortcomings were addressed with the addition of the two additional leach tanks for the 1.5 Mtpa expansion, and the addition of the regrind mill for the 1.8 Mtpa expansion. Recent operating data shows that the plant has been capable of processing even in excess of the current nominal 1.8 Mtpa throughput figure, and the design capacity of the metal recovery circuit, at approximately 90 kozpa, has only been exceeded on numerous occasions.

Figure 11-16 shows the relationship between Au head grade and recovery for the historical and forecast data, as well as recoveries from the testwork results on Oxide, Transition and Fresh ore. The historical and forecast data are annual figures for 2014, 2015 and 2022 onwards, and monthly figures for 2016-2021 inclusive. The historical data shows a range of recoveries, carrying from 75% to 90%. Comparing these figures with the testwork data, the variation is consistent with the plant being fed a blend of Oxide, Transition and Fresh ores, where the average recoveries from the testwork were 89% for Oxide, 84% for Transition and 81% for Fresh. The forecast recoveries are similar or towards the lower end of the range of historical values; this is likely to be due to processing a greater proportion of Fresh ore going forward.

The MPA spreadsheet lists recoveries for each orebody and ore type (Oxide, Fresh etc). These are shown in Table 11-23.

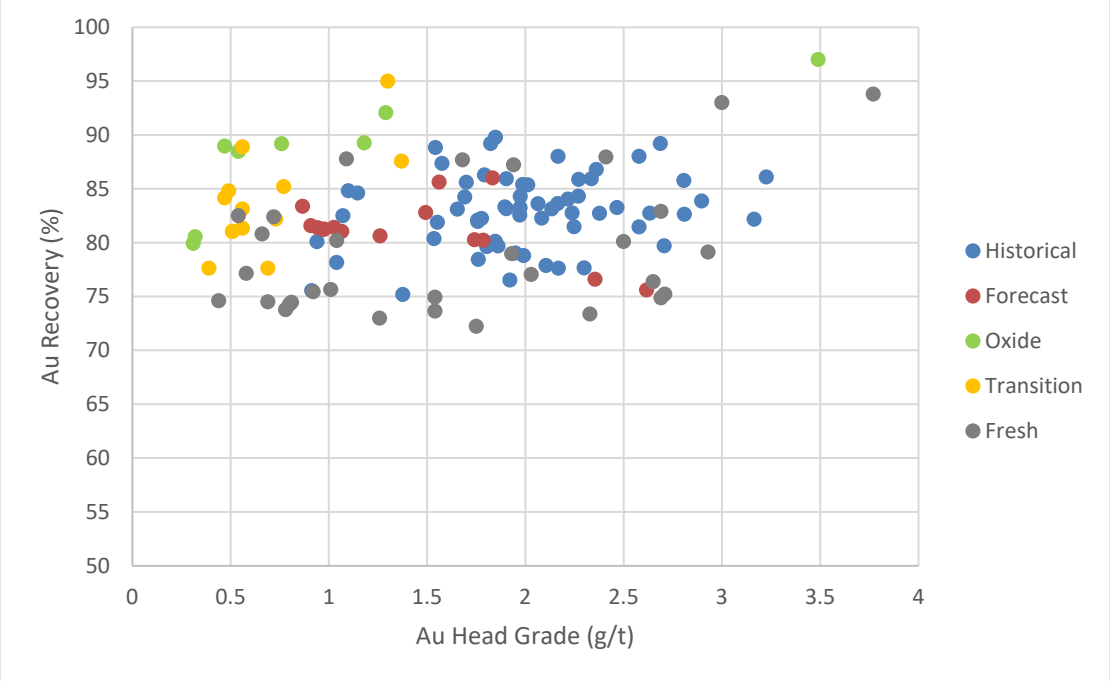


Figure 11-16: Taparko Gold Recovery versus Head Grade

Table 11-23: Taparko MPA Forecast Recoveries

Orebody	Au Recovery (%)		
	Oxide	Transition	Fresh
3/5	90	85	75
2N2K	90	85	80
GT	90	85	85
Bouroum	90	90	90
Bissinga	90	90	90
Yeou	90	90	90
Goengo	90	88	80
Tangarsi	90	88	85
Tangarsi East	90	88	85
Nayiri	90	90	90

SRK understands that there is a significant body of in-house metallurgical data that supports these figures in addition to that which has been covered in this review. Most of the testwork results reviewed are for material from the 35 orebody, and the results correspond with the forecast recoveries for each of the ore types. The few results reviewed for 2N2K-GT material were of low grade ore, for the Oxide and Transition at least, but based on the results for the Fresh ore sample the forecast recoveries seem reasonable. The only testwork reported for Bouroum/Bissinga was from the 2004 Feasibility Study, where a much higher recovery for Oxide was reported, however no head grades were given. Comparative testwork results shown for Goengo and Tangarsi Oxide material were of the same order as the forecast figures. No testwork was reported on ore from the Yeou or Nayiri deposits.

In summary, the forecast recoveries are generally supported by the testwork that has been reviewed; however, there is a lack of data for several of the listed ore types.

The operating costs are of the same order benchmark costs for a plant of a similar configuration and capacity. While the unit cost for site generated power will be relatively high, the softness of the majority of the ore fed means that the grinding power requirements are relatively low. Low labour costs will also be a contributing factor.

The operating costs in the MPA spreadsheet are based on 9 month 2020 actual costs, with a reduction applied for Oxide ore and a supplement applied for Transition and Fresh ores. The same cost is listed for each orebody.

11.9 Tailings Storage Facility

11.9.1 Introduction

The Taparko TSF consists of a paddock style impoundment, located immediately west of the processing plant (Figure 11-17). The facility has been designed as a downstream raised impoundment, which is progressively raised using mine waste material from the open pits.

As of January 2021, the facility has been raised to Stage 6A (RL 292 m), which will provide storage capacity until the end of March 2021. Golder Associates has been commissioned to design an additional downstream raise (referred to Stage 6B to RL 297 m). This will provide an additional 4.5 Mt of storage of capacity, which covers the total forecast tailings production (Open Pit and Underground ore processing) until the end of 2023 (Ore Reserve Case). The downstream raise will be constructed in two phases, to maintain sufficient freeboard in the operating facility. Stage 6B1 to RL 295.5 m is forecast for completion during January 2021. Stage 6B2 to RL 297 m is forecast to commence immediately after, during February 2021.

The Base Case involves processing of an additional 6.7 Mt the remaining mine life until the end of 2024. This will necessitate construction of an additional downstream raise over and above Stage 6B2, which has yet to be designed.

Figure 11-17: Taparko TSF General Arrangement Final Raise

11.9.2 TSF Design

SRK has not received detailed design documentation related to either the as-built TSF embankments or proposed future 6B embankment raise. It is understood that Golder Associates has been commissioned to undertake detailed design covering the final embankment raise and spillway construction.

SRK is not aware of any recent third party inspections by an Independent Engineer. It is therefore unclear as the to the current condition of the TSF.

11.9.3 Stability Analysis

SRK is not aware of any stability analysis completed on the as-built TSF embankments. Both Effective Strength Analysis ("ESA") and Undrained Strength Analysis ("USA") should be undertaken as a matter of priority, adopting a credible estimation of post-peak strength in the stored tailings material and foundations materials. This is necessary to ensure that both as-built and future raise designs are in accordance with accepted international practice.

11.9.4 Hazard and Risk Assessment (Qualitative)

Based upon review of the available data, SRK has identified the following key hazards which could impact the facility:

- External:
  - Meteorological events: **Low.** No upstream catchment area of the TSF facilities, so storm accumulation is unlikely to be a significant issue. This should be managed with if freeboard and the planned emergency spillway which will be constructed for the final embankment raise.
  - Seismic events: **Low.** Area of low seismicity.
  - Human attacks: **Medium.** Villages located nearby; potential to have ingress of local population.
- Internal:
  - Water or tailings barrier: **Medium.** A relatively large pond has previously extended close to the perimeter embankments during the wet season period. Previous issues related to rapid placement of upstream raises on previously deposited material. Embankments have been buttressed with significant volumes of waste rock during construction of the last embankment raise (Raise 6A), which has partially alleviated this issue.
  - Hydraulic structures: **Medium**. Decant capacity unlikely acceptable for operations; no spillway; reliant upon freeboard for storm water management.
  - Electrical and mechanical, including automation, protection and control, communications: **Medium**. Communication is likely to be challenging, potential for vandalism/theft.

The following key risks have been identified upon completion of this review:

- Overtopping: **Low** if design freeboard is maintained at all times; however, water balance must be checked and confirmed. Golder appears to have checked that there is sufficient pond capacity on the TSF upper surface by undertaking 3D modelling of tailings deposition.
- Piping/internal erosion: **Low**. Large waste rock buttress has been installed on downstream slopes of as-built embankments.
- Slope instability/loss of strength: **Medium**. No stability or seepage analysis provided to make this assessment. Generally buttressing of the as-built embankments with downstream raises will likely reduce this risk.
- Contaminated seepage and/or dust: **Low** (unlined TSF; low permeability in the foundations materials).

11.9.5 Comments

Nordgold has confirmed the following capital expenditures have been put aside for construction of the Stage 6B embankment raise:

- Raise 6B1: USD1.22m (cost already incurred).
- Raise 6B2: USD2.85m, to be incurred during 2021.

In addition to the above, Nordgold has confirmed that an additional allowance of USD3.0m has been made for 2022/2023 to cover construction of an additional downstream raise (not yet designed), which will provide LoM storage for all tailings produced under the Base Case.

An overall closure cost of USD3.3m has been included in the rehabilitation provision for the project, specifically related to the TSF. SRK considers this estimate to be low. Based on project experience with similar operations, SRK envisages that an additional USD2.7m (USD6m in total) would be necessary to execute the earthworks required to rehabilitate the facility in line with international best practice guidelines (both Cases).

11.10 Infrastructure and Logistics

The Taparko mine and satellite pits is an operating asset and as such, has the support infrastructure already established to support the current mining and processing operations. This includes:

- equipment maintenance workshops, warehousing, and administrative functions;
- accommodation camp;
- potable water supply, waste, and wastewater management facilities;
- site roads, communications, and security infrastructure;
- fuel storage facility (HFO and diesel) and supplier operated by fuel supplier under contract;
- explosives storage facility.

The Taparko Mine and processing plant is powered by a standalone HFO power plant consisting of six generators with a total installed capacity of 9.9 MW.

No major capital investment is planned for infrastructure assets. The HFO power plant is a critical piece of infrastructure. It is now operated and maintained by the Project team in accordance with the manufacturer’s maintenance schedule.

11.11 Human Resources

Nordgold has provided the following breakdown of staff at the Taparko Mine, as at 31 December 2020, for the current BP in 2021 and for the end of the SBP in Q1 2024. The mine is currently expected to close in 2025.

Table 11-24: Taparko Personnel Breakdown

Business Unit / operation	Total Head Count, FTEs				Head Count in back office / support			
	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)	Actual 2020	Actual 2019	Plan 2021	SBP Final Year (Base Case)
Taparko	549	695	455	0	10	16	12	0

11.12 Occupational Health and Safety

The Taparko Emergency Response Plan ("ERP") was developed in 2014 and reviewed in 2018 and 2020. It includes the description of response procedures for key types of emergencies, including traffic, fire, medical, spills, infrastructure failure, extreme weather, security, community protests. The emergency response team is under responsibility of the Mining Crises Management Team that includes General Director, Security Director, Human Resources director, Mining Director, Process Plant Director, HSE superintendent, Mineral Resources Director, as well as the other departments. The emergency response team includes senior supervisor/firefighter, four emergency team leaders, 12 emergency officers, 56 trained rescuers on the site. The ERP also includes connection to the other West African Nordgold mines of Lefa, Bissa and Bouly for inter-company resources and support.

The medical clinic staff includes two occupational doctors, two nursing supervisors and two nurses (anesthesia resuscitation and surgery). A separate procedure has been developed for sanitary evacuation.

A recent health and safety audit undertaken to improve performance recommended improvements in handovers, change management, tracking and close out of corrective action and systems documentation. It also identified some site-specific unsafe conditions to be addressed.

Table 11-25 summarizes the key health and safety indicators for Taparko.

Table 11-25: Taparko Occupational Health and Safety Statistics

Statistic	Own staff / Contractors	
	2019	2020
Actual Headcount	670/812	551/682
Lost time injury frequency rate ("LTIFR")*	0.14 /0.09	0.00/0.00
Total recordable injury frequency rate ("TRIFR")**	1.42/2.31	2.33/2.42
Fatalities	1/1	0/0
Lost Time Incidents ("LTI")	0/0	0/0
Medical Treatment Incidents ("MTI")	0/3	3/4
First Aid Incidents ("FAI")	15/15	6/8
Near Misses	10/4	5/1
Unsafe Conditions, Fixed	521/302	614/202

*LTIFR is calculated for 200,000 man-hours
**TRIFR is calculated per 1,000,000 man-hours

The Taparko ERP was developed in 2014 and reviewed in 2018 and 2020. It includes the description of response procedures for key types of emergencies, including traffic, fire, medical, spills, infrastructure failure, extreme weather, security, community protests, etc. The emergency response team is under responsibility of the Mining Crises Management Team that includes General Director, Security Director, Human Resources director, Mining Director, Process Plant Director, HSE superintendent, Mineral Resources Director, as well as the other departments. The emergency response team includes senior supervisor/firefighter, four emergency team leaders, 12 emergency officers, 56 trained rescuers on the site. The ERP also includes connection to the other West African Nordgold mines of Lefa, Bissa and Bouly for inter-company resources and support.

The medical clinic staff includes two occupational doctors, two nursing supervisors and two nurses (anesthesia resuscitation and surgery). A separate procedure has been developed for sanitary evacuation.

11.13 Environmental and Social Matters

11.13.1 Environmental and Social Setting

The mining complex is in rural parts of Burkina Faso in Africa's Sahel region, with a low population density. The typical vegetation is Sahelian Acacia savannah. The main type of land-use is extensive pastoral and arable subsistence agriculture. The principal crops are sorghum and millet. The semi-arid climate and variable seasonal rainfall (Section 11.1.3) mean that water supply is a key issue for the ecology and communities of this region.

Taparko is the nearest village to the Taparko mine site. It is situated 0.2 km south of the GT pit and has about 8,000 inhabitants. The other settlements near to the mining complex are smaller. They include: Kario (1.5 km northwest of the Taparko Plant); Tangzougou (0.5 km south of the Tangarsi pit); Goengo (3 km north from the Goengo pit); and Bouroum (2 km north from the Bissinga pit). Yeou is the closest village to the Yeou greenfield project: 0.5 km east from the licence boundaries.

The local infrastructure around Taparko is minimal, but there is the Yalgo water reservoir and a state-owned telecommunications tower providing access to worldwide telephony and internet services. There is no infrastructure at Bouroum village. The national power grid at Ouagadougou is unable to supply the power requirements for the mine, therefore, diesel powered generation (9.6 MW) is employed on site.

All licence areas are within the catchment area of Faga River, a tributary of Niger River. Taparko and Baola II areas are crossed by the Faga River itself, as well as by its tributaries - Guaya River and Unnamed River (Figure 11-18). According to open sources, only the Faga River downstream of Yalgo has a permanent flow, all the rest are ephemeral.

The nearest settlements downstream of the Faga River and its tributaries within approximately 20 km proximity are[23]:

- For Bouroum mine: Barga, Ouayalguen, Torgane, Ambara, Bondibla, Balé, Boum Yiri, Bouroum, Retkoulga, Damkarko, Ibangfo, Loumpini.

[23] *These data are taken from open sources*

- For Taparko mine: Kario, Yalgo, Goengo, Bagkinga, Kolkoida, Tangzougou, Bonsiega, Tankori, Coalla.

Much of the water supply to local communities is from riverbed reservoirs that are recharged during the wet season. Some dams are partially located within licence areas: Yalgo and Gouaya within Taparko, Bouroum within Bouroum, Barga within Baola II. The other source of potable water is boreholes.

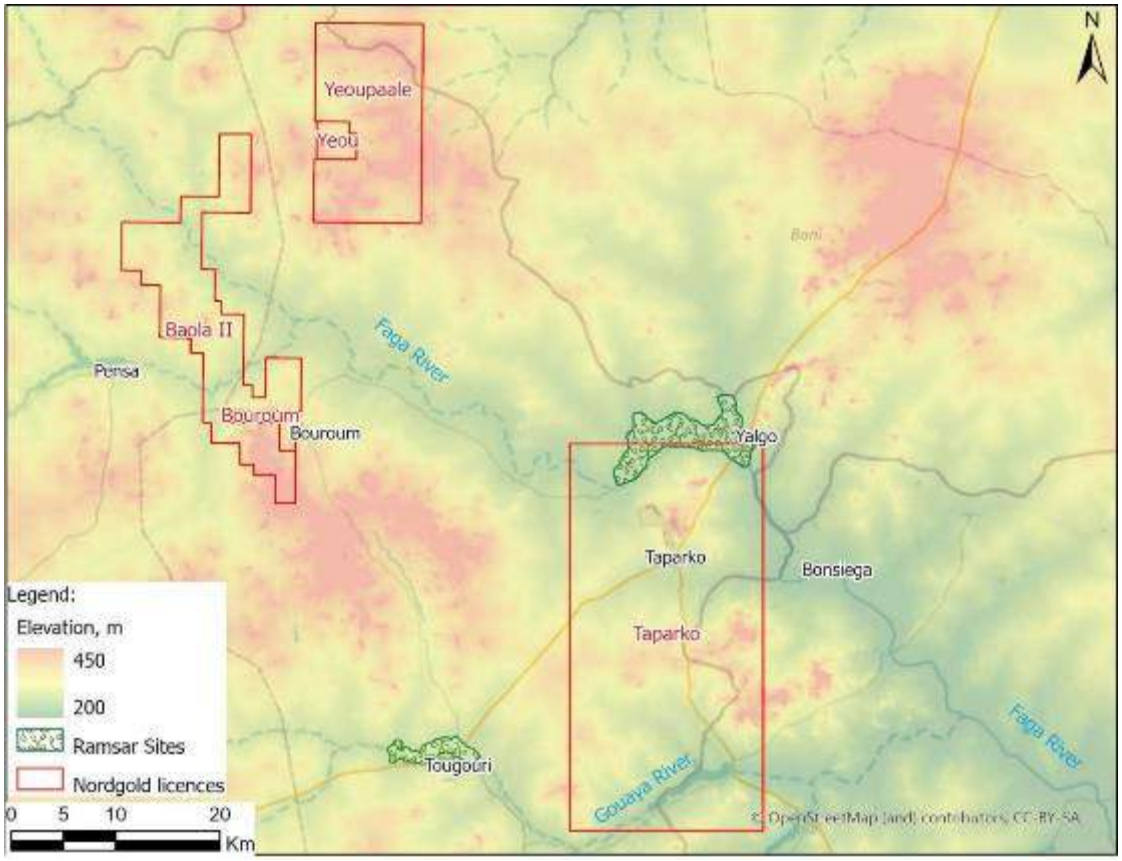


Figure 11-18: Taparko Licences River Catchment Areas and Ramsar Sites (World Terrain Model, World Database on Protected Areas, OpenStreetMap)

Since 2016, the Yalgo Dam (“Barrage de Yalgo”) and its surrounding area have been included in the list of Wetlands of International Importance (Ramsar sites). It is approximately 2.5 km north of the Taparko mine (Figure 11-18) and its catchment area can include the Plant site and the 35 Pit. According to the Ramsar Site description, the Yalgo Dam is the province of Namentenga’s most important reservoir in terms of its water capacity and contribution to the local economy. It is a unique inland wetland characterized by dense savannah vegetation dominated by trees. The wetland is home to different turtle species, the Nile crocodile, royal python, savannah monitor, goliath heron, hammerhead stork, African grey hornbill and the pied crow, which are threatened by hunting and loss of breeding areas. Fish commonly recorded in Yalgo include the Nile tilapia, catfish of the genus Clarias, and the West African lungfish. These are of a high nutritional and commercial value to the local communities. The main hydrological functions of the Yalgo include surface and groundwater supplies for wildlife, human consumption, and irrigation.

The territories of sub-Saharan Africa are classified as zones of risky agriculture due to their climatic features. Extremely adverse weather conditions affect crop yields, which, in turn, affect market prices. Local people have limited facilities for storage of food and experience food insecurity in the adverse weather conditions.

The threat of malaria is very high in the region. The peak incidence occurs from August to November.

Artisanal gold mining is widespread in the region, which is associated with high safety risks, including the use of mercury. Child labour is also often used.

The region is also characterised by political instability and large flows of refugees. There is a constant threat of terrorist attacks.

11.13.2 Approach to Environmental and Social Management

Management System

Nordgold's corporate approach to safety and sustainable development is outlined in Section 3.5. Taparko mine has an environmental management system that is being aligned with ISO 14001:2015. The mine is targeting certification of conformance to this standard in 2023.

Somita has a separate health, safety and environmental ("HSE") department consisting of eight employees and seven contractors. The department is managed by HSE Superintendent.

In 2019, Taparko mine won the Nordgold inter-company awards in nomination "People Focus" for a high level of staff engagement, corporate spirit, and new practices in the field of personnel management.

Environmental Monitoring

The current monitoring is focused mostly on the mine site versus receptors in the receiving environment. Nordgold recognises that it needs to increase its monitoring of impacts on land and water users and habitats surrounding and downstream of the mine.

Somita's water monitoring is focused on drinking water, sewage effluent, industrial water on site and raw water intake. Numerous water samples are taken and analysed, but few provide insight on impacts of mining beyond the site boundaries.

Somita also presented a summary table of multi-year (2015-2020) monitoring of raw water quality from two reservoirs (Yalgo Dam and Dam 4 Taparko) and two pit impoundments (GT/2N2K and 35). Thirty indicators were analysed (general chemistry and heavy metals). No exceedance was detected in reservoirs. In pit waters, a permanent excess was detected for electrical conductivity, nitrates, nitrites and ammonium, and occasionally for arsenic and sulphates.

Stakeholder Engagement

The mine engages with the local communities around Taparko and Bouroum mines. Expectations of assistance from Somita are high. Surrounding communities have fragile livelihoods, affected by changing climate conditions and security in the region. Somita is sensitive to the social tension and continuously engages with the communities.

Examples of records of consultations with local communities were observed. These show the community has a high interest in the mine's compliance with socio-economic obligations; water availability and demand on the resources of the Yalgo reservoir; fencing-off of dangerous areas; and blasting impacts. Somita responds to grievances raised.

Community Development

According to the Somita annual human resources report, there were 677 employees at the end of 2019, more than 97% of which were nationals.

Both mining conventions require the support of professional training programs. The training budget for the 2019 financial year reflects investment in training. The total cost was approximately USD380,000 (HSE, security, mining, human resources, information technology and other training). Somita also provided the payment declaration of the apprenticeship tax for CFA16.3m (about USD30,000) in 2020.

According to the Nordgold's public reports, the main areas of social contribution within the Taparko/Bouroum project are the following:

- Emergency and security: support of police stations, elimination of consequences of floods.
- Education: construction of new school, houses for nurses and teachers, youth leisure centre, partnership programs with the university of Ouagadougou.
- Health and agriculture: new health clinic and reconstruction of the access, program of reorientation of local women's labour from handicraft mining to agriculture, public water reservoirs and artesian wells, cattle vaccination site, donation of food and farm animals.

Somita provided the spreadsheet with the overall 2018-2020 community development budget. It includes the communities of Yalgo (Taparko, Yalgo, Kario, Goengo), Bouroum, Nagbingou, Tangarsi, Yeou, Goengo, Tanzougou, Levry (Tougri), as well as the sponsorships and other donations. The total budget was USD251,000 in 2018 and USD275,000 in 2019 and 2020.

11.13.3 Resettlement

Nordgold has a group Resettlement Framework. It includes general principles, as well as specifications on processes to be followed and stakeholder engagement required during project planning (prefeasibility study) and for the preparation of RAPs.

According to Somita, 117 households have been physically relocated to date. The relocations were needed for the Taparko-Bouroum mine (21 houses, 2003), the Tangarsi I mine (59 houses, 2017) and the Tangarsi II mine (37 houses, 2019). Resettlement completion audits are planned for 2021 – 2022.

The resettlement for the Tangarsi II project ("Tangarsi East mine") was completed in 2019. The RAP plan provides for several types of compensation: in-kind, monetary, as well as measures to restore livelihoods. The cost of RAP implementation was estimated to be USD540,000. The RAP also documents agreements that were negotiated and signed by project-affected parties and Somita representatives. These include:

- Agreements on the relocation sites and house and community infrastructure reconstruction.

- Agreements on compensation, including farming lands compensation.

Nordgold intends to undertake resettlement audits of its resettlement programs, including livelihood restoration. An example of a completed resettlement audit is provided for Bissa (Section 10.16.4).

11.13.4 Other Issues

The operation of the mines depends on the annual seasonal rainfall for process water. The Yalgo reservoir is the main source of water supply for the project. According to public consultations, the water intake is of concern to the local population. Expansion of production (including an underground mining project) is not forecast to increase the demand for water; however, this needs to be communicated to ensure that relations between the Company and local communities remain positive.

Nordgold supports communities with water supply by helping with the development of boulis.

Some static ARDML studies have been undertaken for Taparko and Bouroum mines. The studies were undertaken in 2003, 2016 and 2017. The studies were on a small number of samples and were not well correlated with the lithologies being mined and mine wastes being produced. There is little consistency between the findings of the various studies. More comprehensive and reliable ARDML testwork is required across the pits and extractive waste deposits for closure planning.

11.13.5 Closure

A conceptual closure plan for Taparko and Bouroum mines was first prepared by SOCREGE in 2010. This plan is generally reviewed every two years and the latest iteration was published in 2018. The plan includes measures for four open pits at Taparko and two at Bouroum, with two tailings storage areas, landfill, processing plant, a water storage dam, two drinking water treatment plants, two sewage treatment plants, a power plant, fuel depot, explosives storage, accommodation and an access road.

The currently liability for closure at Taparko was estimated in 2020, in the form of an ARO estimate and was reviewed by Micon International. This amounted to USD16m.

Using the ARO as a base, Nordgold has developed a LoM closure cost estimate for Taparko which amounts to USD18m for the Ore Reserve Case and USD18.6m for the Base Case. Annual contributions to a rehabilitation and closure fund are required. Somita has reportedly contributed USD8.2m to the fund.

11.13.6 Recommendations

Based on the observations on environmental and social matters, SRK recommends that Taparko mine:

- Continues aligning the management systems with recognised standards (ISO 14001:2015 and ISO 45001:2018 standards).
- Establishes a compliance obligations database for obligations in permits and agreements and tracks conformance with these systematically.

- Improves environmental monitoring beyond the mine site to understand impacts on surrounding and downstream users land and water and on habitats and includes the monitoring of underground water near the TSF and waste rock dumps in the monitoring programme.
- Develops a more detailed life of mine closure plan and cost estimate for the mine.
- Improves the knowledge base for closure planning with more ARDML test work.

11.14 Economic Assessment

11.14.1 Introduction

The following section presents the results of the cashflow analysis undertaken for the Taparko gold mine. For generic comment on the details presented, please refer to Section 4.12.1. Nordgold owns 90.0% of the Taparko gold mine and all numbers presented below are on a 100% (unattributable) basis.

11.14.2 Financial Model Assumptions

For generic comments on macro-economic, gold price and working capital/ VAT assumptions, refer to Section 4.12.2.

SRK notes the following assumptions included for the Taparko cashflow analysis:

- Royalty rate of 5.0% of revenue, plus an additional 1% to allow for revenue from silver, which is not further included.
- Corporate income tax rate of 17.5%.
- Closure cost allowance of USD9.8m (with a previously accrued USD8.2m, taking the total closure cost to USD18.0m) and retrenchment cost of USD4.2m have been allowed for in the economic assessment for the Ore Reserve Case. For the Base Case, these total USD10.4m (taking the total to USD18.6 include previously accrued) and retrenchment allowance of USD3.0m.

11.14.3 Production

Historical processing statistics over 2016-2020 are presented in Table 11-26. The remaining life of mine is 3 years and 4 years for the Ore Reserve Case and the Base Case, respectively.

Table 11-26: Taparko Historical Production

Statistic	Units	2016	2017	2018	2019	2020
Production						
Total Material Mined	(kt)	20,198	19,461	24,862	23,277	15,474
Waste	(kt)	18,204	18,053	23,515	21,732	13,729
Capital Waste	(kt)	10,924	4,005	15,855	11,907	-
Operating Waste	(kt)	7,280	14,048	7,660	9,825	13,729
Ore	(kt)	1,94	1,407	1,347	1,545	1,745
Gold Grade	(g/t Au)	2.34	2.18	2.15	1.58	2.00
Gold Contained	(koz Au)	150	98	93	79	112
Surface Haulage	(kt)	-	-	-	1,217	498
Processing Feed	(kt)	1,636	1,662	1,974	1,920	1,797
Gold Grade	(g/t Au)	2.54	2.06	1.89	1.41	2.03
	(koz Au)	133	110	120	87	116
Gold Recovery	(%)	83.1%	86.4%	83.7%	79.5%	81.8%
Doré Produced	(kg)	3,440	3,350	3,179	2,121	2,949
	(koz Au)	111	108	102	68	95
Sales						
Doré	(koz Au)	112	108	102	68	94
Commodity Prices						
Gold	(USD/oz)	1,242	1,257	1,274	1,420	1,761
Sales Revenue						
Gold	(USDm)	138.7	135.1	129.8	96.7	167.1

11.14.4 Operating Expenditure

SRK has reviewed the historical operating expenditures for the past five years, to 31 December 2020. The historical (2016 through 2020 inclusive) operating expenditures are reported in Table 11-27. These numbers exclude capitalised waste stripping (as captured under capital expenditure) and corporate overheads, as not allocated to the Mineral Assets.

SRK notes that costs relating to refining of the saleable products are captured under the site overheads, and not specifically modelled with regards to payability, refining charges per ounce and transportation. Overall for Taparko, this cost amounts to approximately USD5.15/oz.

The Company has noted that for the west African Mineral Assets in general, approximately 25% of the operating costs incurred are denominated in local currency, 55% in USD and 20% in EUR.

Table 11-27: Taparko Historical Operating Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Mining	(USDm)	23.9	35.6	21.2	37.4	37.7
Surface Haulage	(USDm)	-	-	-	-	1.6
Processing	(USDm)	31.4	28.2	30.7	31.3	28.0
Other Production	(USDm)	(7.0)	4.3	1.8	(0.2)	(4.6)
Overheads	(USDm)	19.7	17.9	19.4	18.7	16.6
General Site	(USDm)	16.9	15.1	15.8	15.6	14.4
SG&A	(USDm)	2.8	2.8	3.6	3.1	2.2
Royalties/Other Taxes	(USDm)	8.2	7.6	7.2	5.9	9.0
Other Operating	(USDm)	2.7	1.7	(0.1)	1.3	0.7
Total Cash Cost	(USDm)	**78.9**	**95.3**	**80.3**	**94.4**	**89.1**

11.14.5 Capital Expenditure

Table 11-28 presents a summary of the historical (2016 through 2020) capital expenditures.

The Company has noted that for the west African Mineral Assets, in general, approximately 10% of capital expenditure incurred are denominated in local currency, 65% in USD and 25% in EUR.

Table 11-28: Taparko Historical Capital Expenditure

Statistic	Units	2016	2017	2018	2019	2020
Project	(USDm)	0.1	2.5	7.6	8.8	1.1
Exploration	(USDm)	-	1.1	1.8	2.8	0.5
Dev/New Technology	(USDm)	0.1	-	5.5	5.1	0.2
New Mine Construction	(USDm)	-	1.4	0.3	0.9	0.4
Sustaining	(USDm)	36.7	16.0	52.5	30.8	7.4
Exploration	(USDm)	2.3	1.4	1.1	0.7	0.1
Maintenance	(USDm)	2.6	3.7	3.1	3.4	4.1
Capital Stripping/Dev	(USDm)	27.4	9.0	41.9	21.5	-
PCR	(USDm)	4.2	1.9	6.3	5.2	3.3
Total Capital Expenditure	**(USDm)**	**36.6**	**18.5**	**60.1**	**39.6**	**8.5**

11.14.6 Cash Flow Analysis

Details for two cashflow models are presented for the Mineral Assets:

- Ore Reserve Case, supporting the Ore Reserve statement; and
- Base Case, which includes a proportion of Inferred Mineral Resource material.

The post-tax pre-finance cashflow tables for Taparko, presented on a 100% basis, comprise:

- LoMp summary of both cases (Table 11-29) and unit cost assessments (Table 11-30);
- for the Ore Reserve Case, annual detailed cashflows (Table 11-31) and annual unit cost assessment (Table 11-32); and
- for the Base Case, annual detailed cashflows (Table 11-33) and annual unit cost assessment (Table 11-34).

Both cases present technically feasible and economically viable plans.

Table 11-29: Taparko LoMp Case Summaries

Statistic	Units	Ore Reserve Case	Base Case
Production			
Total Material Mined	(kt)	16,054	40,914
Waste	(kt)	14,208	37,745
Capital Waste	(kt)	118	143
Operating Waste	(kt)	14,091	37,602
Ore	(kt)	1,846	3,169
Gold Grade	(g/t Au)	2.33	2.34
Gold Contained	(koz Au)	138	239
Surface Haulage	(kt)	3,980	6,266
Processing Feed	(kt)	4,443	6,666
Gold Grade	(g/t Au)	1.47	1.54
Gold Contained	(koz Au)	211	330
Gold Recovery	(%)	83.6%	83.9%
Doré Produced	(kg)	5,474	8,623
	(koz Au)	176	277
Sales			
Doré	(koz Au)	176	277
Commodity Prices			
Gold	(USD/oz)	1,814	1,769
Sales Revenue			
Gold	(USDm)	319	490
Operating Expenditure			
Mining	(USDm)	62	129
Surface Haulage	(USDm)	12	19
Processing	(USDm)	76	108
Other Production	(USDm)	4	0
Overheads	(USDm)	40	54
Royalties/Other Taxes	(USDm)	21	30
Other Operating	(USDm)	-	-
Total Cash Cost	**(USDm)**	**215**	**340**
Cashflow			
EBITDA	(USDm)	104	150
CIT	(USDm)	7	7
Working Capital	(USDm)	1	4
Interest/Other	(USDm)	7	11
Operating Cashflow	**(USDm)**	**89**	**128**
Capital Expenditure			
Project	**(USDm)**	**31**	**32**
Exploration	(USDm)	7	7
Development/New Technology	(USDm)	-	-
New Mine Construction	(USDm)	25	25
Sustaining	**(USDm)**	**12**	**14**
Exploration	(USDm)	-	-
Maintenance	(USDm)	5	6
Capital Stripping/Development	(USDm)	2	3
PCR	(USDm)	5	5
Closure/Retrenchment	**(USDm)**	**14**	**13**
Total Capital Expenditure	**(USDm)**	**57**	**59**
Free Cashflow	**(USDm)**	**32**	**69**

Table 11-30: Taparko LoMp Case Summaries (Unit Cost Assessment)

Statistic	Units	Ore Reserve Case	Base Case
Standard Statistics			
Total Cash Cost	(USD/oz)	1,221	1,225
AISC	(USD/oz)	1,367	1,323
AISC (excluding closure)	(USD/oz)	1,287	1,275
Unit Costs			
Mining (excl. capitalised)	(USD/t_{mined})	3.86	3.17
	(USD/t_{ore})	33.33	40.74
Mining Capitalised	(USD/$t_{capitalised}$)	15.95	20.82
Surface Haulage	(USD/$t_{ransported}$)	2.99	2.97
Processing	(USD/t_{feed})	17.10	16.18
Overheads	(USD/t_{feed})	9.06	8.10

Table 11-31: Taparko Ore Reserve Case LoMp

Statistic	Units	Total LoM	2021	2022	2023
Production					
Total Material Mined	(kt)	16,054	6,845	8,848	361
Waste	(kt)	14,208	6,036	8,161	11
Capital Waste	(kt)	118	-	112	6
Operating Waste	(kt)	14,091	6,036	8,050	6
Ore	(kt)	1,846	810	687	349
Gold Grade	(g/t Au)	2.33	2.01	2.31	3.11
Gold Contained	(koz Au)	138	52	51	35
Surface Haulage	(kt)	3,980	1,757	1,731	492
Processing Feed	(kt)	4,443	1,787	1,815	841
Gold Grade	(g/t Au)	1.47	1.44	1.27	1.97
Gold Contained	(koz Au)	211	83	74	53
Gold Recovery	(%)	83.6%	80.9%	85.5%	85.0%
Doré Produced	(kg)	5,474	2,086	1,979	1,409
	(koz Au)	176	67	64	45
Sales					
Doré	(koz Au)	176	67	64	45
Commodity Prices					
Gold	(USD/oz)	1,814	1,905	1,791	1,710
Sales Revenue					
Gold	(USDm)	319	127.6	113.9	77.4
Operating Expenditure					
Mining	(USDm)	62	19.8	26.3	15.4
Surface Haulage	(USDm)	12	3.5	5.9	2.5
Processing	(USDm)	76	29.7	29.2	17.0
Other Production	(USDm)	4	5.4	(0.7)	(0.5)
Overheads	(USDm)	40	14.2	15.3	10.8
Royalties/Other Taxes	(USDm)	21	9.2	7.0	4.7
Other Operating	(USDm)	-	-	-	-
Total Cash Cost	**(USDm)**	**215**	**81.9**	**83.0**	**49.9**
Cashflow					
EBITDA	(USDm)	104	45.8	30.9	27.5
CIT	(USDm)	7	3.7	2.2	0.6
Working Capital	(USDm)	1	1.4	-	-
Interest/Other	(USDm)	7	2.8	2.6	1.8
Operating Cashflow	**(USDm)**	**89**	**37.8**	**26.1**	**25.1**
Capital Expenditure					
Project	**(USDm)**	**31**	**16.1**	**16.6**	**(1.5)**
Exploration	(USDm)	7	1.8	4.7	-
Dev/New Technology	(USDm)	-	-	-	-
New Mine Construction	(USDm)	25	14.2	11.9	(1.5)
Sustaining	**(USDm)**	**12**	**3.0**	**5.2**	**3.6**
Exploration	(USDm)	-	-	-	-
Maintenance	(USDm)	5	1.0	1.3	2.2
Capital Stripping/Dev	(USDm)	2	-	1.6	0.2
PCR	(USDm)	5	2.0	2.2	1.1
Closure/Retrenchment	**(USDm)**	**14**	**3.3**	**3.3**	**7.5**
Total Capital Expenditure	**(USDm)**	**57**	**22.3**	**25.1**	**9.5**
Free Cashflow	**(USDm)**	**32**	**15.6**	**1.0**	**15.6**

Table 11-32: Taparko Ore Reserve Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023
Standard Statistics					
Total Cash Cost	(USD/oz)	1,221	1,221	1,305	1,102
AISC	(USD/oz)	1,367	1,314	1,437	1,345
AISC (excluding closure)	(USD/oz)	1,287	1,266	1,386	1,181
Unit Costs					
Mining (excl. capitalised)	(USD/t_{mined})	3.86	2.90	3.01	43.35
	(USD/t_{ore})	33.33	24.49	38.30	44.05
Mining Capitalised	(USD/$t_{capitalised}$)	15.95	-	14.69	41.13
Surface Haulage	(USD/$t_{ransported}$)	2.99	1.99	3.40	5.09
Processing	(USD/t_{feed})	17.10	16.64	16.08	20.27
Overheads	(USD/t_{feed})	9.06	7.92	8.42	12.82

Table 11-33: Taparko Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024
Production						
Total Material Mined	(kt)	40,914	16,526	19,906	4,330	151
Waste	(kt)	37,745	15,367	19,050	3,328	-
Capital Waste	(kt)	143	-	114	29	-
Operating Waste	(kt)	37,602	15,367	18,936	3,299	-
Ore	(kt)	3,169	1,159	856	1,002	151
Gold Grade	(g/t Au)	2.34	1.88	2.44	2.64	3.34
Gold Contained	(koz Au)	239	70	67	85	16
Surface Haulage	(kt)	6,266	1,968	1,818	1,383	1,097
Processing Feed	(kt)	6,666	1,787	1,815	1,815	1,249
Gold Grade	(g/t Au)	1.54	1.59	1.56	1.83	1.03
Gold Contained	(koz Au)	330	91	91	107	41
Gold Recovery	(%)	83.9%	80.8%	85.6%	86.0%	81.4%
Doré Produced	(kg)	8,623	2,291	2,426	2,862	1,043
	(koz Au)	277	74	78	92	34
Sales						
Doré	(koz Au)	277	74	78	92	34
Commodity Prices						
Gold	(USD/oz)	1,769	1,905	1,791	1,710	1,579
Sales Revenue						
Gold	(USDm)	490	140.2	139.6	157.3	52.9
Operating Expenditure						
Mining	(USDm)	129	40.1	50.8	31.0	7.2
Surface Haulage	(USDm)	19	3.5	5.9	7.1	2.1
Processing	(USDm)	108	29.5	28.8	29.0	20.6
Other Production	(USDm)	0	2.3	(0.8)	(0.9)	(0.3)
Overheads	(USDm)	54	14.7	15.8	14.1	9.5
Royalties/Other Taxes	(USDm)	30	9.6	8.0	9.0	3.2
Other Operating	(USDm)	-	-	-	-	-
Total Cash Cost	**(USDm)**	**340**	**99.6**	**108.4**	**89.3**	**42.3**
Cashflow						
EBITDA	(USDm)	150	40.6	31.2	68.0	10.7
CIT	(USDm)	7	3.7	2.3	0.7	0.2
Working Capital	(USDm)	4	4.4	-	-	-
Interest/Other	(USDm)	11	3.0	3.1	3.4	1.3
Operating Cashflow	**(USDm)**	**128**	**29.5**	**25.9**	**63.8**	**9.1**
Capital Expenditure						
Project	**(USDm)**	**32**	**16.1**	**16.4**	**1.3**	**(1.8)**
Exploration	(USDm)	7	1.8	4.7	-	-
Dev/New Technology	(USDm)	-	-	-	-	-
New Mine Construction	(USDm)	25	14.2	11.7	1.3	(1.8)
Sustaining	**(USDm)**	**14**	**3.0**	**5.4**	**4.9**	**0.6**
Exploration	(USDm)	-	-	-	-	-
Maintenance	(USDm)	6	1.0	1.4	2.7	0.6
Capital Stripping/Dev	(USDm)	3	-	1.9	1.1	-
PCR	(USDm)	5	2.0	2.2	1.1	0.0
Closure/Retrenchment	**(USDm)**	**13**	**2.6**	**2.6**	**2.6**	**5.6**
Total Capital Expenditure	**(USDm)**	**59**	**21.6**	**24.4**	**8.9**	**4.4**
Free Cashflow	**(USDm)**	**69**	**7.8**	**1.4**	**55.0**	**4.8**

Table 11-34: Taparko Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024
Standard Statistics						
Total Cash Cost	(USD/oz)	1,225	1,353	1,390	970	1,260
AISC	(USD/oz)	1,323	1,428	1,492	1,052	1,445
AISC (excluding closure)	(USD/oz)	1,275	1,393	1,459	1,024	1,279
Unit Costs						
Mining (excl. capitalised)	(USD/t_{mined})	3.17	2.43	2.57	7.21	47.45
	(USD/t_{ore})	40.74	34.60	59.34	30.96	47.45
Mining Capitalised	(USD/$t_{capitalised}$)	20.82	-	16.38	38.33	-
Surface Haulage	(USD/$t_{ransported}$)	2.97	1.76	3.26	5.13	1.92
Processing	(USD/t_{feed})	16.18	16.49	15.85	15.99	16.51
Overheads	(USD/t_{feed})	8.10	8.22	8.69	7.77	7.58

11.15 Future Projects – Pit 35 Underground Project

11.15.1 Introduction

Nordgold has undertaken to investigate an underground mining study to assess the extension of the LoMp after the completion of the Taparko open pits.

11.15.2 Scope of Work

SRK was requested to assess the potential of this underground mining study developing Ore Reserve Case and Base Case scenarios. Following a stope optimisation process, the development was designed and scheduled after which the overall LoMp was created, including financial models for each case.

11.15.3 Study Results

The mining study resulted in positive underground project for the evaluated cases as outlined in section 11.7.6.

For both cases, the mine schedule begins on 1 April 2022 achieving a production rate of 36 ktpm. The Ore Reserve Case defines Ore Reserves for the underground material as stated in Table 11-19.

11.15.4 Conclusions and Recommendations for Next Stage of Assessment

Based on the geological model and cost parameters as provided by Nordgold and the design and schedule as created by SRK, the underground exploitation of the Taparko mineralisation is economically feasible. The economic viability of the underground Reserves depends on the simultaneous processing of other, stockpile material at Taparko.

Further work will be required to improve the confidence on the economics of the underground project. A series of recommendations have been made by SRK to achieve this.

12 TOKKO GOLD PROJECT

12.1 Introduction

12.1.1 Location

The Tokko project is located within the Olyokminsky District of the far south-west of the Republic of Sakha (Yakutia), approximately 5 km west of the operating Taborny mine.

The Tokko project comprises two deposits: Tokkinskoe and Roman, which are included in the Tokko licence area. This licence area also contains the Vrezanny deposit, which is not part of the Tokko project but is included in the Taborny project and is discussed in Section 5.

The location of the Tokko licence area is shown in Figure 3-8 (Section 3.3) and Figure 12-1.

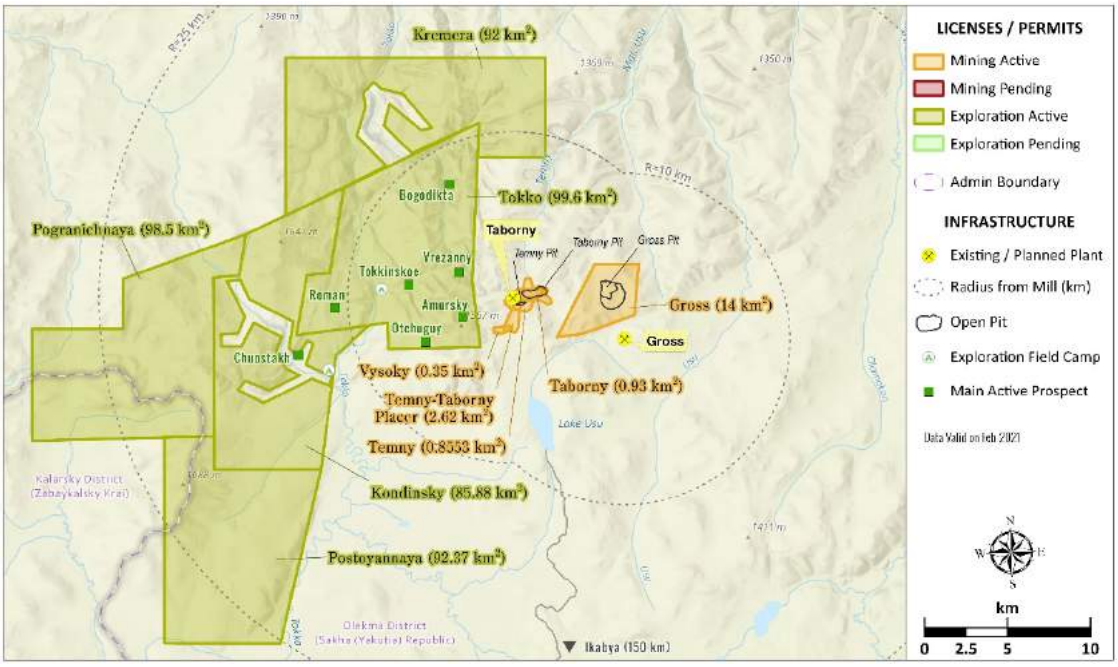


Figure 12-1: Tokko Licence Area and the Neighboring Licences and Operating Mines (Taborny, Gross) (Nordgold)

12.1.2 Access

The access to the Taborny mine is described on the Section 5.1.2. Access to the Tokko project area is from Taborny mine.

12.1.3 Climate

The climate features are described in Section 5.1.3 in respect of Taborny Mine.

12.1.4 Mineral Resource Estimate and Preliminary Economic Assessment

A Mineral Resource Estimate for the Tokkinskoe and Roman deposits, and accompanying Technical Report in the format of NI 43-101, was prepared by CSA Global in the UK in December 2020 (“CSA MRE”). In addition to the MRE, a Preliminary Economic Assessment (“PEA”) Technical Report was prepared on the Project in February 2021 by JDS Mining & Energy Inc (“JDS”), which describes the Company’s current plans for development of the Project, based on the MRE and a Scoping Study level technical assessment (“JDS PEA”). Nordgold has prepared a Base Case financial model which reflects the outcomes of the JDS PEA work. SRK has reviewed the CSA MRE, the JDS PEA and the Base Case financial model and has prepared a summary in the following sections.

12.2 Mineral Rights and Primary Approvals

12.2.1 Mineral Rights Held

The description of the Tokko licence area is presented in Section 5.2.1. The boundaries of the Tokko licence area are shown in Figure 12-1.

12.2.2 Land Tenure

The land plots leased by the “Rudnik Taborny” LLC, including for the exploration of the Tokko licence, are described in Section 5.2.2.

12.2.3 Environmental Approvals

Currently, there are no environmental permits required.

12.3 Geology

12.3.1 Geology of the Tokko Deposits

The Tokkinskoe and Roman deposits are situated in the western part of the Aldan shield, in Archaean and Early Proterozoic metamorphosed rock at the intersection of two major regional structures: 1) the N-S striking Tokko Fault Zone (along the western margin of the Uguskiy Graben), and 2) WSW-ENE striking faults of the Kondinsky Fault System, which cut across the Tokko Fault Zone (Figure 12-2).

The gold mineralization at Tokkinskoe and Roman is veinlet-disseminated, hosted within Late Archaean strata of the Khaninsky Complex (mainly plagiogneisses with interlayers of amphibolites) and the Choruodakan Complex (alkaline granites and gneisses). Faults within the deposits belong to the two main systems, Tokko and Kondinsky, described above. The Tokko faults dip moderately to steeply northeast, and the Kondinsky faults dip shallowly to moderately southeast (Figure 12-3).

Mineralised bodies are up to 100 m in thickness, often branching, with frequent bulges and constrictions, and usually dip moderately to the southeast (so broadly align with the Kondinsky faults).

Overall, the Tokko deposit types are interpreted as hydrothermal-metasomatic, low-temperature, gold-quartz low-sulphide, paragenetically associated with the introduction of alkaline intrusions in the Late Jurassic – Early Cretaceous. Primary mineralisation has since been modified by oxidation processes: decomposition and leaching of sulphides, partial redeposition and coarsening of gold, and removal of silver, copper and chalcophylic elements.

Quaternary cover sediments are typically several metres thick over the Tokko deposits.

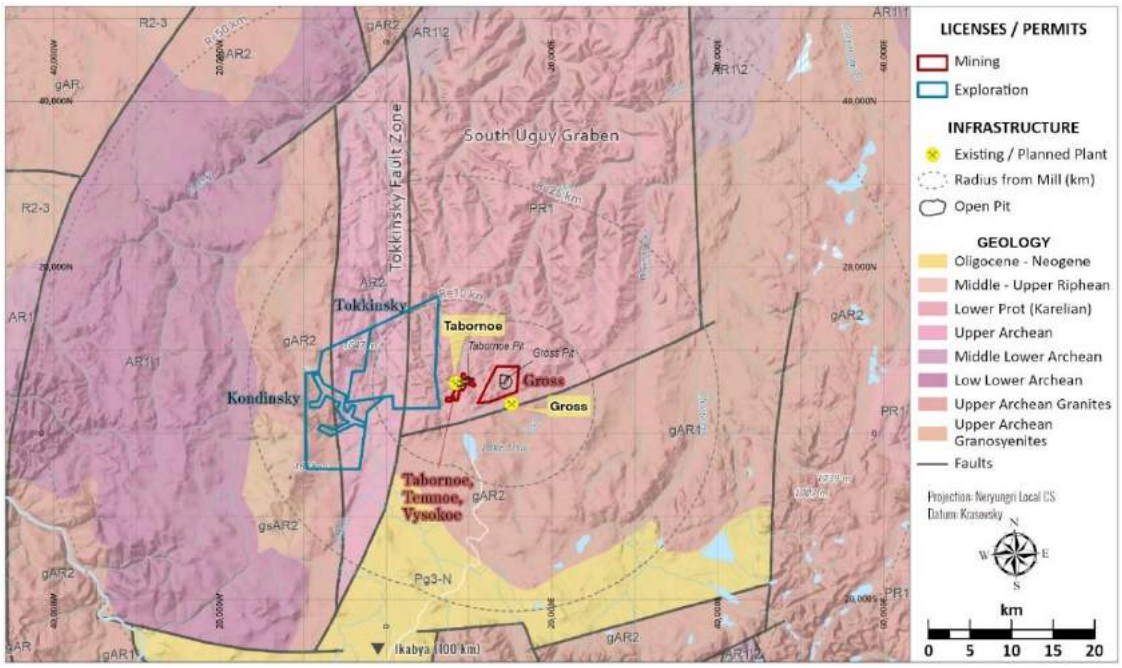


Figure 12-2: Tokko Project Regional Geology

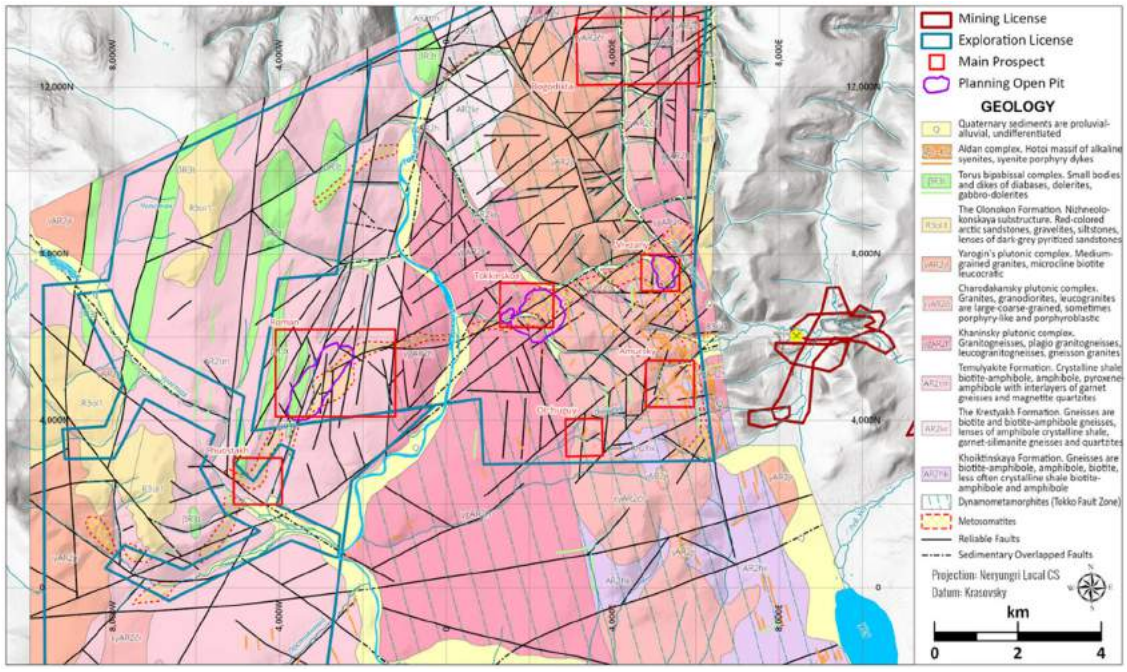


Figure 12-3: Tokko Project Deposit Geology

12.3.2 Exploration History

Exploration activities within the licence area began in 1960. These activities were initially secondary to the exploration occurring to the east, on the adjacent area that includes the Taborny and Gross deposits. After those deposits were well defined, a 2016-2017 campaign of prospecting (mapping traverses, geochemical sampling, magnetic survey and gamma spectrometry) revealed occurrences of mineralisation at Anomaly-13 (later renamed as Tokkinskoe) and Roman. Trenching at Tokkinskoe, late in the 2017 season, found gold grades significant enough to justify further exploration. Trenching and drilling of both deposits, from 2018 to 2020, delineated the prospects and provided sufficient information for Mineral Resource estimation.

Sampling

For some areas of Tokkinskoe and Roman, the Quaternary cover sediments are thin enough for trenching to be viable. Trenches were cut with bulldozers, and then geologically mapped and channel sampled on nominal 1m lengths.

The drilling pattern covering Tokkinskoe consists mainly of vertical drillholes, spaced 100 m (southwest-northeast) by 80m (northwest-southeast). The database for Tokkinskoe includes four trenches (974 m), 157 RC holes (3,976 m) and 229 core holes (46,441 m: mostly vertical holes, 50 x 80 m grid, infilled to 40 x 50 m in northeast; mostly HQ diameter).

The drilling pattern covering Roman consists mainly of drillholes dipping 60° to the northwest, spaced 100m (southwest-northeast) x 85m (northwest-southeast). The database for Roman includes 12 trenches (3,126 m); 110 RC holes (3,330 m), and 207 core holes (46,986 m: holes dip 60° to northwest, mostly covered at 100 m line spacing, and 85 m hole spacing; mostly HQ diameter).

Both the RC drilling and diamond core sampling is of the entire hole length, at generally 1m intervals. Core is mostly HQ diameter, and half-core samples are taken. RC samples are a 1/8 split (approximately 4 kg). Sample preparation is done on site for Roman, and at the Taborny mine for Tokkinskoe. Samples are crushed to -2 mm, reduced to 1 kg, then pulverized to -0.075 mm. Analytical pulps weighing 250 g are then transported to an external laboratory.

Assays

The two main laboratories used are SGS Vostok Limited JSC, and ALS Chita-Laboratory LLC, both in Chita.

Gold is analysed by fire Assay for gold, with ICP finish. Silver is analysed by aqua regia digestion with atomic absorption finish.

QA/QC

The quality control samples used include certified reference materials, duplicates resubmitted to the original laboratory, duplicates submitted to an umpire laboratory, and blanks. The types of quality control samples in use, the frequency of insertion and the results returned, have established acceptable levels of accuracy and precision for Mineral Resource estimation

12.4 Mineral Resources

12.4.1 Mineral Resource Estimation

The block models and wireframes for Tokkinskoe and Roman were prepared by Nordgold geologists, using Leapfrog software. The Nordgold work was reviewed by consultants CSA Global Pty Ltd. From the Nordgold models, qualified persons from CSA prepared and signed off on the Mineral Resource statement and report for the Tokko Project, in NI 43-101F1 format. The CSA Mineral Resource statement is dated December 1, 2020. No significant additional exploration has been carried out since then, and the deposits have not yet been mined.

Geological model and wireframes

Grade estimation for both Tokkinskoe and Roman was constrained by 0.2 g/t Au grade shells. The Tokkinskoe grade shells were modelled using the Leapfrog vein modelling tools, whereas the Roman grade shells were modelled using the intrusion modelling tools.

Other features modelled were the base of Quaternary surfaces, and contacts between fresh, transitional and oxidised zones.

Structural model

Five faults were modelled for Tokkinskoe, dividing the geological model into six fault blocks. One fault and two fault blocks were modelled for Roman.

Block models

Block size for Tokkinskoe is 20 x 20 x 5 m, with sub-blocking to 5 x 5 x 5 m.

Block size for Roman is 25 x 25 x 5 m, with sub-blocking to 5 x 5 x 1 m.

Assay data

A composite length of 1 m was used for both deposits. Separate capping thresholds were applied to the mineralised domain in each Tokkinskoe fault block, ranging from 3.5 to 15 g/t Au for gold. A capping grade of 7 g/t Au was applied to all Roman mineralisation.

Interpolation and estimation

Block gold grades were estimated by Ordinary Kriging, with dynamic anisotropy to control local rotations of the variogram model and search ellipsoid anisotropy.

Bulk Density

A constant density factor of 2.40 was used to convert Tokkinskoe block model volumes to tonnes. For Roman, the factors were 2.51 for oxide, and 2.64 for primary.

Classification

The portion of Tokkinskoe relatively closer-spaced holes (50 x 40 m) was classified as Indicated. The remainder of Tokkinskoe, and all of Roman were classified as Inferred.

12.4.2 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Tokko (Table 12-1) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 12-1, SRK notes the following:

1. The long-term commodity price assumption relied on for ensuring that the Mineral Resources are potentially economic is USD1,750/oz for gold;
2. All open pit Mineral Resources are reported based on an optimised pit shell at a gold price of USD1,750/oz;
3. The open pit cut-off grades are 0.20 g/t Au;
4. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.
5. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
6. Mineral Resources are presented on a 100% basis.

Table 12-1: Tokko Gold Project Mineral Resource Statement as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Tonnage (kt)	Au (g/t)	Au (koz)	Tonnage (kt)	Au (g/t)	Au (koz)	Tonnage (kt)	Au (g/t)	Au (koz)	Tonnage (kt)	Au (g/t)	Au (koz)	Tonnage (kt)	Au (g/t)	Au (koz)
Tokko	Tokkinskoe	0.20	-	-	-	15,100	1.08	524	15,100	1.08	524	33,900	0.72	781	49,000	0.83	1,305
	Roman	0.20	-	-	-	-	-	-	-	-	-	123,600	0.58	2,305	123,600	0.58	2,305
	Total		**-**	**-**	**-**	**15,100**	**1.08**	**524**	**15,100**	**1.08**	**524**	**157,500**	**0.61**	**3,086**	**172,600**	**0.65**	**3,611**

12.4.3 Exploration Potential

The along-strike extents of both Tokkinskoe and Roman appear to be reasonably well established by the current drilling coverage. The potential to extend the deposits down dip is limited by the overall low grades of the deposits, which are unlikely to be economically viable for underground mining.

12.4.4 SRK Comments

SRK accepts the resource model and classification prepared by Nordgold and reported by CSA, and the Mineral Resource statement above is reported from this model without adjustment.

12.5 Mining and Ore Reserves

The data presented here has been sourced from the 2021JDS PEA. There are currently no Ore Reserves stated for the Tokko Project at this early stage of development.

12.5.1 Planned Mining Operations and Mining Method

The Tokkinskoe and Roman deposits are planned to be mined independently of each other using a conventional open pit truck/shovel operation, with each deposit having its own dedicated heap leach pad for resource processing. The planned process rate at the Tokkinskoe deposit is 5.0 Mtpa, while the larger Roman deposit process rate is 9.0 Mtpa.

A traditional drill and blast, and load and haul operation is anticipated. Front shovels with a 15 m^3 bucket will primarily undertake the mining of heap leach feed and waste material, while the 12 m^3 front-end loaders and smaller excavator will complement the main shovel fleet. The truck fleet for the project was selected to match the selected loading fleet and resulted in the final selection of trucks with a payload of 91 t.

The parameters used to quantify the mined resources are shown in Table 12-2. The resulting selected pit shell for Tokkinskoe contains 44 Mt of heap leach feed, 1,020 koz of gold at a stripping ratio of 2.3:1. The Roman deposit contains 119 Mt of heap leach feed, 2,030 koz of gold at a stripping ratio of 1.8. Mining was scheduled over 15 years including a short pre-production period and reached a peak combined total mine production rate of 120 ktpd which is similar to nearby existing operations. The combined annual tonnes and contained gold reporting to the heap leach pads is shown in Figure 12-4.

Table 12-2: Tokko Mine Planning Optimisation Input Parameters

Parameter		Tokkinskoe	Roman
Revenue, Smelting & Refining			
Gold price	USD/oz	1,400	
Payable metal	%	99.9	
TC/RC/Transport	USD/oz	3	
Royalty (State Mining Tax)	% of recovered value	6	
Net gold value per ounce	CAD/oz	1312	
Mining			
Base OP Mining Cost	USD/t mined	0.95	
Incremental OP Mining Cost (below destination elevation)	USD/t mined /m	0.002	
Mining Sustaining Capital	USD/t mined	0.2	
Processing			
Upper Oxide (2-stage crushing)	USD/t leached	3.3	2.68
Lower Oxide (3-stage crushing)	USD/t leached	3.72	3.05
Transition (3-stage crushing)	USD/t leached	3.72	3.05
G&A	USD/t leached	1.37	
Recovery and Dilution			
External Mining Dilution	%	15	10
Mining Recovery	%	94	
Upper Oxide Process Recovery	%	86	
Lower Oxide Process Recovery	%	75	
Transition Process Recovery	%	50	
Cut-off Grades			
Upper Oxide	g/t	0.15	0.12
Lower Oxide	g/t	0.19	0.15
Transition	g/t	0.28	0.23

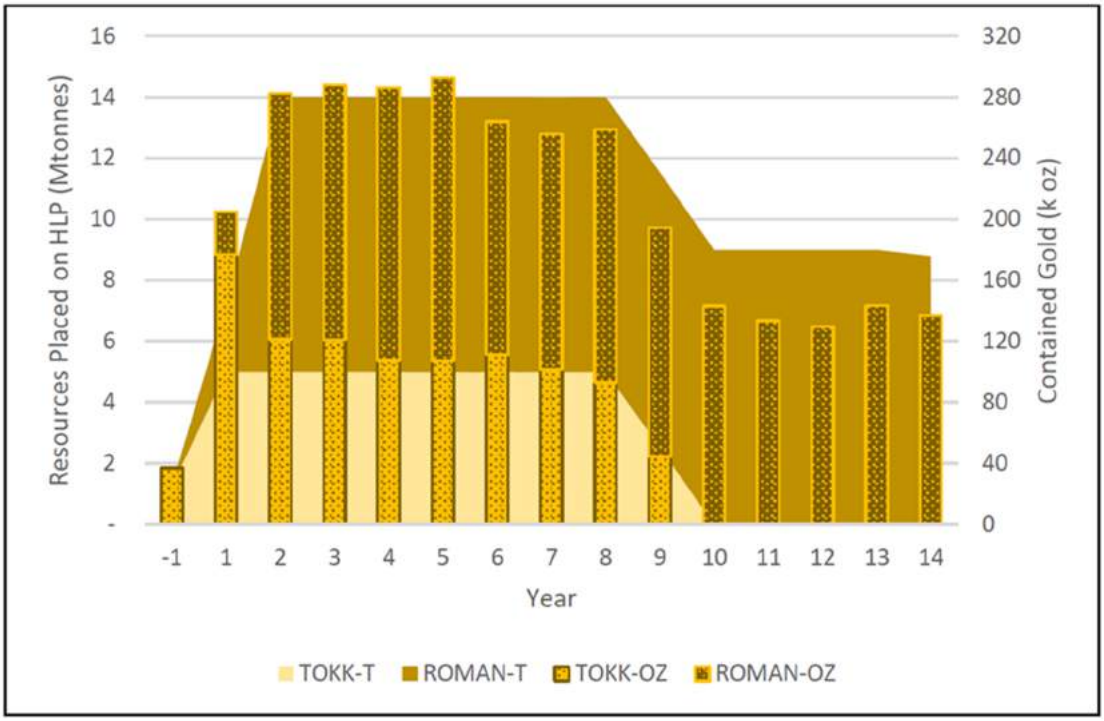


Figure 12-4: Tokko RoM Tonnages and Contained Au Ounces

12.5.2 Geotechnical Considerations

Geotechnical field investigations have been conducted by “Ingeoproekt” LLC for Tokkinskoe in 2019 and Roman in 2020. A total of four inclined geotechnical core holes were drilled and logged at Tokkinskoe with five holes at Roman. Core was oriented for all nine holes. The Roman geotechnical investigation is still in progress and, as such, field logging data was available for only one of the five geotechnical drillholes.

Rock mass quality at both deposits is highly variable due to the frequency of structural intersections and increased fracturing and oxidization of rock around the structures. These zones of poorer rock quality are likely caused by groundwater seepage from above and subsequent oxidation of minerals. Rock in these zones is typically highly to completely weathered with weak intact strength and low RQD values. A total of nine main joint sets were identified by Ingeoproekt (2019 & 2020) at Tokkinskoe with 7 sets indicated at Roman.

Overall, the rock quality within the proposed pit shells is typically of Poor to Fair due to more extensive zones of fracturing and oxidization around the structures. Rock mass quality outside the pit shell is typically better and considered Fair to Good with occasional zones of weak, broken material. The rock mass anticipated to comprise the final pit walls is anticipated to be of Fair to Good quality according to the Bieniawski (1989) rock mass rating (“RMR”) system with localized zones of Poor quality associated with surface weathering and fault intersections.

Limit equilibrium slope stability modelling conducted by Ingeoproekt (2019) indicated that an overall slope angle of 45° achieved an acceptable 1.3 FOS for static loading conditions for the Tokkinskoe deposit. Preliminary analyses conducted by Ingeoproekt (2020) suggested that overall slope angles of 36° to 50° yield 1.3 safety factors for Roman.

Based on the anticipated rock mass quality and the Ingeoproekt (2019 & 2020) preliminary slope stability analyses, inter-ramp slope angles of 45° and 47° were recommended for the Tokkinskoe and Roman pit shells, respectively. The inter-ramp slope angles were subsequently reduced where necessary to produce overall slope angles that account for anticipated ramp systems.

12.5.3 Hydrogeology and Hydrology

The hydrogeological conditions of the Tokko project are characterised as simple. Water inflows into the Tokkinskoe open pit will be from atmospheric precipitation and discharge of the aquifer connecting to the Roman creek. The development of the Tokko project will be impacted on by permafrost and snow. Additional studies are required to define the permafrost depth and thawing, water volumes, flows and drainage and the density and moisture content of the soil.

The hydrological studies to cover all surface water features will be developed during appropriate stage of project implementation.

12.5.4 Ore Reserve Statement

No Ore Reserves are currently prepared for the Tokko project, which is currently at Scoping Study level with completion of the MRE only.

12.6 Mineral Processing and Metallurgical Testing

The data presented here have been sourced from the 2021 JDS PEA.

Metallurgical Testing

In evaluating the metallurgical response of the Tokkinskoe material to cyanidation, two testing programs were conducted to evaluate heap leach amenability. The initial evaluation was conducted by Irgiredmet Laboratory in Irkutsk Oblast in 2018 on a single composite sample of oxide material. The second more comprehensive program was conducted by SGS Vostok in Chita, Zabaykalsky Krai, in 2019.

The SGS test program which forms the main basis of this assessment was conducted on seven composite samples of half HQ drill core. Leach testing included column leach tests at crush sizes of P_{100} of 63 mm and 20 mm for oxide and transition samples and P_{100} of 20 mm for the fresh sample. No agglomeration was required for the composites based on permeability testing at 20 mm prior to setting up the columns.

The Tokkinskoe oxide materials are considered “free milling” and leach very well under heap leach conditions, with gold extractions ranging from 68% to 94% in column leach tests, with the lowest oxide recovery from the South Block at deeper than 100 m. Predicted recoveries for the Tokkinskoe oxide material are in the 70-90% range.

The SGS test program for the Roman material involved half HQ drill core samples supplied by Nordgold which were selected to form four master composites based on logging and CNsolAu analyses. Combined sample weights ranged from 655 to 767 kg (total weight 2,862.5 kg) selected from a total of some 2,428 m of core drilling to a maximum depth of 300 m downhole.

Leach testing included intermittent bottle roll tests at crush sizes of P_{100} of 63 mm and 20 mm for the intermediate composites of oxide, transition and fresh material as well as ground leach tests on the master composites. Column tests on master composites at 63 mm and 20 mm topsizes have been completed.

Coarse bottle roll testing was conducted at the two main crush topsizes of 63 and 20 mm on the intermediate composites. Gold extraction from shallow oxide (<100 m depth) samples averaged 84% at 63 mm and 89% at 20 mm. Deep oxide composite samples achieved an average gold extraction of 74% at 63 mm and 80% at 20 mm, In many cases, leaching was continuing at the end of the 10-day leach period for the majority of the oxide and transition samples.

IBRT and available column extraction data from oxide material are good to excellent, with lower but still very good extractions from the Deep Oxides. Predicted recoveries for the Roman oxide material are in the 72-80% range.

Processing

The Tokkinskoe deposit will be developed first. Each deposit will have its own crushing circuit, conveyor stacking system, heap leach pad with ponds, and carbon-in-column (“CIC”) circuit with cyanide mixing equipment; however, there will be only one metal recovery plant, by adsorption-desorption-recovery (“ADR”), to process carbon from both the Tokkinskoe and Roman CIC circuits, to be located at Tokkinskoe. The loaded carbon from the Roman CIC circuit will be trucked, on a periodic basis, to the ADR plant at Tokkinskoe and regenerated barren carbon from the ADR plant will be returned to the Roman CIC circuit using the same truck.

The mineralized material will be mined by standard open pit mining methods, fine crushed using a system incorporating a jaw crusher, secondary and tertiary cone crushers, and then conveyor stacked onto the leach pad in 10 m lifts. No agglomeration of the ore is required prior to leaching. For the Tokkinskoe deposit, the tertiary cone crusher will be installed at a future date after start-up of the initial jaw and secondary cone crushers.

Two heap leach pads ("HLP") have been evaluated at a conceptual level in the JDS PEA. The Roman HLP is located west of the Tokko River and is designed to hold approximately 119 Mt of mineralised material from the Roman pit. The Tokkinskoe HLP is located east of the Tokko River and was sized to hold approximately 45 Mt of mineralized material from the Tokkinskoe pit.

Material take-offs for major cost items for the HLP were provided as input into a preliminary cost estimate. Each facility has been designed with a starter embankment, a geomembrane lined pad area overlain with a solution collection system, an in-heap pond for solution collection, perimeter diversion channels and access roads. Furthering these designs will require a site investigation, stacking plan, and hydrological and geotechnical analyses.

Mineralized material will be leached with a dilute cyanide solution, and the leached gold will be recovered from the solution using a carbon adsorption circuit. The gold will be periodically stripped from the carbon using a desorption process. The gold will be plated on stainless steel cathodes, removed by washing, filtered, dried, and then smelted.

12.7 Planned Infrastructure

The main infrastructure currently on site includes two base camps, at Taborny and Roman, with core storage facilities and sample preparation. They are year-round camps with interrupted access during May and November as a result of spring floods and autumn freeze of the Tokko River. During the rest of the year, the crossing across the river is available for heavy, and in winter, for off-road light vehicles.

The project envisions the upgrading and/or construction of the following key infrastructure items:

- construction of access roads, service roads and haul roads, including construction of a bridge with load-bearing capacity of 60 t crossing the Tokko river;
- process facilities;
- generator powerhouse;
- heap leach facility and waste rock storage facilities;
- permanent camp;
- truck shop and warehouse;
- mine dry and office complex;
- explosive facilities;
- on-site fuel oil storage and distribution;
- industrial waste management facilities;
- site sewage treatment facilities;

- site storm water management facilities; and
- telecommunication facilities.

12.8 Environmental and Social Matters

12.8.1 Environmental Approvals

Currently, there are no environmental permits required.

12.8.2 Environmental and Social Setting

Environmental and social settings are described in Section 5.11.1 for Taborny mine.

12.8.3 Approach to Environmental and Social Management

Management systems for health and safety and environmental and social management have not been developed yet.

The stakeholder engagement process for the Tokko project has not yet been started. Nordgold does however have established relationships with local and regional stakeholders based on existing stakeholder engagement for the Gross and Taborny mines.

12.8.4 Key Issues

Plans for compensatory reforestation need prioritisation in the planning of the Tokko project as it is on State Forestry Fund lands. Nordgold is aware of this.

12.8.5 Closure

There is no comprehensive mine closure plan for Tokko project. The 2021 JDS PEA includes a provision of USD10m, which has been included in the economic assessment.

12.8.6 Recommendations

Based on the assessment of environmental and social aspects, SRK makes the main following recommendations:

- Start with the development of an environmental management system and its elements.
- Implement a proactive constructive and continuous stakeholder engagement process.
- Supplement the monitoring program with ARDML studies and ensure the stability of the waste dump slopes to avoid the contamination of the Tokko River during the operational stage.
- Develop a closure and rehabilitation plan taking account of good international industry practice and refining the cost estimates.
- Consider options for phased land allocation. This will reduce the annual reforestation obligations and risks of non-fulfilment in the required extent of compensatory reforestation.

12.9 Economic Assessment

12.9.1 Introduction

The economic assessment presented herein for the Base Case is based on the 2021 JDS PEA. The preliminary cashflows estimated are speculative in nature due to the early stage of study, and are based on the Mineral Resources, including the Inferred material. Nordgold owns 100% of the Tokko gold project.

12.9.2 Financial Model Assumptions

For generic comments on macro-economic, and gold price assumptions, refer to Section 4.12.1.

SRK notes that the JDS PEA considered two scenarios regarding power supply, one based on diesel generators, the other based on connection to the regional power grid. For the Base Case LoMp presented herein, Nordgold has selected the grid connection scenario, which has a higher upfront capital requirement, but significantly reduces operating costs over the life of mine.

The start-up mine construction capital expenditure has been estimated at approximately USD340m. The key cost drivers are the mining, crushing and handling, heap leach pad area, infrastructure, including construction of the high voltage power line to Khani, and indirect costs. A contingency of approximately 20% has been included. The additional development capital expenditure of USD76m is required to finish construction at Roman and reach 14 Mtpa total throughput in 2024.

SRK notes the following assumptions included for the Tokko cashflow analysis:

- a payability of 99.9% and refining/transport charge of USD3.0/oz;
- mining royalty is calculated based on the value of all recovered metal, starting at 0% and increasing to 6% by year 8 and is constant thereafter;
- property tax is calculated as 2.2% of the of the opening book value, taking appropriate annual allowances into account;
- income tax has an initial rate of 10% and increases to 20% by year 8 and is constant thereafter; this is in line with current tax legislation applicable to development projects at Far East Russia; and
- closure cost allowance of USD10.0m all in has been included in the assessment.

12.9.3 Cash Flow Analysis

The post-tax pre-finance cashflow tables for the Tokko project, presented on a 100% basis, comprise:

- For the Base Case, annual detailed cashflows (Table 12-3) and annual unit cost assessment (Table 12-4).

The Base Case presents a technically feasible and economically viable plan, albeit at an early stage of assessment, which will require further studies before being implemented.

Table 12-3: Tokko Base Case LoMp

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Production									
Total Material Mined	(kt)	476,293	-	-	7,537	26,828	45,140	42,519	43,372
Waste	(kt)	313,466	-	-	6,284	19,579	31,137	28,517	29,373
Capital Waste	(kt)	-	-	-	-	-	-	-	-
Operating Waste	(kt)	313,466	-	-	6,284	19,579	31,137	28,517	29,373
Ore	(kt)	162,826	-	-	1,253	7,249	14,004	14,003	13,999
Gold Grade	(g/t Au)	0.58	-	-	0.92	0.88	0.63	0.64	0.64
Gold Contained	(koz Au)	3,052	-	-	37	205	282	288	286
Surface Haulage	(kt)	-	-	-	-	-	-	-	-
Processing Feed	(kt)	162,826	-	-	1,253	7,249	14,004	14,003	13,999
Gold Grade	(g/t Au)	0.58	-	-	0.92	0.88	0.63	0.64	0.64
Gold Contained	(koz Au)	3,052	-	-	37	205	282	288	286
Gold Recovery	(%)	77.9%	-	-	-	74.2%	82.6%	81.2%	80.2%
Doré Produced	(kg)	73,849	-	-	-	4,533	7,313	7,235	7,149
	(koz Au)	2,374	-	-	-	146	235	233	230
Sales									
Doré	(koz Au)	2,374	-	-	-	146	235	233	230
Commodity Prices									
Gold	(USD/oz)	1,421	-	-	-	1,579	1,500	1,400	1,400
Sales Revenue									
Gold	(USDm)	3,374	-	-	-	230.1	352.7	325.6	321.8
Operating Expenditure									
Mining	(USDm)	508	-	-	-	29.7	45.6	43.5	45.4
Surface Haulage	(USDm)	-	-	-	-	-	-	-	-
Processing	(USDm)	364	-	-	-	16.4	31.3	31.7	31.8
Other Production	(USDm)	-	-	-	-	-	-	-	-
Overheads	(USDm)	171	-	-	-	13.6	13.6	13.6	13.6
Royalties/Other Taxes	(USDm)	192	-	-	-	4.2	9.4	13.0	12.4
Other Operating	(USDm)	-	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	1,234	**-**	**-**	**-**	**63.9**	**99.8**	**101.8**	**103.2**
Cashflow									
EBITDA	(USDm)	2,139	-	-	-	166.2	252.8	223.8	218.5
CIT	(USDm)	197	-	-	-	13.2	21.0	18.0	17.8
Working Capital	(USDm)	-	-	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	1,942	**-**	**-**	**-**	**153.0**	**231.8**	**205.8**	**200.8**
Capital Expenditure									
Project	**(USDm)**	**511**	**22.1**	**142.9**	**200.3**	**111.3**	**29.7**	**2.2**	**-**
Exploration	(USDm)	13	10.1	3.4	-	-	-	-	-
Dev/New Technology	(USDm)	81	12.0	-	-	35.3	29.7	2.2	-
New Mine Construction	(USDm)	416	-	139.6	200.3	76.0	-	-	-
Sustaining	**(USDm)**	**156**	**-**	**-**	**-**	**5.8**	**18.2**	**14.3**	**17.0**
Exploration	(USDm)	5	-	-	-	0.3	0.3	0.6	0.6
Maintenance	(USDm)	150	-	-	-	5.5	17.9	13.7	16.4
Capital Stripping/Dev	(USDm)	-	-	-	-	-	-	-	-
PCR	(USDm)	-	-	-	-	-	-	-	-
Closure/Retrenchment	**(USDm)**	**10**	-	-	-	-	-	-	-
Total Capital Expenditure	**(USDm)**	**676**	**22.1**	**142.9**	**200.3**	**117.2**	**47.8**	**16.4**	**17.0**
Free Cashflow	**(USDm)**	**1,266**	**(22.1)**	**(142.9)**	**(200.3)**	**35.9**	**184.0**	**189.3**	**183.8**

Table 12-3: Tokko Base Case LoMp continued

Statistic	Units	Total LoM	2028	2029	2030	2031	2032	2033
Production								
Total Material Mined	(kt)	476,293	41,343	41,736	39,905	36,784	33,380	28,482
Waste	(kt)	313,466	27,349	27,731	25,909	22,779	21,846	19,480
Capital Waste	(kt)	-	-	-	-	-	-	-
Operating Waste	(kt)	313,466	27,349	27,731	25,909	22,779	21,846	19,480
Ore	(kt)	162,826	13,994	14,006	13,997	14,004	11,534	9,002
Gold Grade	(g/t Au)	0.58	0.65	0.59	0.57	0.57	0.52	0.50
Gold Contained	(koz Au)	3,052	293	264	256	259	195	143
Surface Haulage	(kt)	-	-	-	-	-	-	-
Processing Feed	(kt)	162,826	13,994	14,006	13,997	14,004	11,534	9,002
Gold Grade	(g/t Au)	0.58	0.65	0.59	0.57	0.57	0.52	0.50
	(koz Au)	3,052	293	264	256	259	195	143
Gold Recovery	(%)	77.9%	78.2%	77.5%	78.5%	74.9%	72.6%	76.7%
Doré Produced	(kg)	73,849	7,078	6,528	6,290	6,007	4,726	3,667
	(koz Au)	2,374	228	210	202	193	152	118
Sales								
Doré	(koz Au)	2,374	228	210	202	193	152	118
Commodity Prices								
Gold	(USD/oz)	1,421	1,400	1,400	1,400	1,400	1,400	1,400
Sales Revenue								
Gold	(USDm)	3,374	318.6	293.9	283.1	270.4	212.7	165.1
Operating Expenditure								
Mining	(USDm)	508	44.5	46.2	43.4	41.8	36.3	30.2
Surface Haulage	(USDm)	-	-	-	-	-	-	-
Processing	(USDm)	364	32.1	31.8	31.5	32.2	26.3	19.8
Other Production	(USDm)	-	-	-	-	-	-	-
Overheads	(USDm)	171	13.6	13.6	13.6	13.6	13.6	10.2
Royalties/Other Taxes	(USDm)	192	15.7	14.6	17.3	22.9	18.8	15.1
Other Operating	(USDm)	-	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	1,234	**105.9**	**106.2**	**105.9**	**110.5**	**94.9**	**75.3**
Cashflow								
EBITDA	(USDm)	2,139	212.7	187.6	177.2	159.9	117.8	89.7
CIT	(USDm)	197	17.4	20.5	19.3	23.7	14.7	9.1
Working Capital	(USDm)	-	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	1,942	**195.3**	**167.2**	**157.9**	**136.2**	**103.0**	**80.7**
Capital Expenditure								
Project	**(USDm)**	**511**	**2.2**	**-**	**-**	**-**	**-**	**-**
Exploration	(USDm)	13	-	-	-	-	-	-
Dev/New Technology	(USDm)	81	2.2	-	-	-	-	-
New Mine Construction	(USDm)	416	-	-	-	-	-	-
Sustaining	**(USDm)**	**156**	**13.3**	**16.8**	**13.1**	**16.2**	**10.2**	**8.2**
Exploration	(USDm)	5	0.6	0.6	0.6	0.6	0.6	0.3
Maintenance	(USDm)	150	12.7	16.2	12.5	15.6	9.6	7.9
Capital Stripping/Dev	(USDm)	-	-	-	-	-	-	-
PCR	(USDm)	-	-	-	-	-	-	-
Closure/Retrenchment	**(USDm)**	**10**	-	-	-	-	-	-
Total Capital Expenditure	**(USDm)**	**676**	**15.5**	**16.8**	**13.1**	**16.2**	**10.2**	**8.2**
Free Cashflow	**(USDm)**	**1,266**	**179.8**	**150.4**	**144.8**	**120.0**	**92.8**	**72.5**

Table 12-3: Tokko Base Case LoMp continued

Statistic	Units	Total LoM	2034	2035	2036	2037	2038
Production							
Total Material Mined	(kt)	476,293	25,199	25,910	25,588	12,569	-
Waste	(kt)	313,466	16,200	16,911	16,589	3,785	-
Capital Waste	(kt)	-	-	-	-	-	-
Operating Waste	(kt)	313,466	16,200	16,911	16,589	3,785	-
Ore	(kt)	162,826	8,999	9,000	9,000	8,784	-
Gold Grade	(g/t Au)	0.58	0.46	0.45	0.50	0.48	-
Gold Contained	(koz Au)	3,052	133	130	144	137	-
Surface Haulage	(kt)	-	-	-	-	-	-
Processing Feed	(kt)	162,826	8,999	9,000	9,000	8,784	-
Gold Grade	(g/t Au)	0.58	0.46	0.45	0.50	0.48	-
	(koz Au)	3,052	133	130	144	137	-
Gold Recovery	(%)	77.9%	75.7%	74.8%	73.6%	72.3%	-
Doré Produced	(kg)	73,849	3,199	3,036	3,207	3,116	766
	(koz Au)	2,374	103	98	103	100	25
Sales							
Doré	(koz Au)	2,374	103	98	103	100	25
Commodity Prices							
Gold	(USD/oz)	1,421	1,400	1,400	1,400	1,400	1,400
Sales Revenue							
Gold	(USDm)	3,374	144.0	136.6	144.3	140.3	34.5
Operating Expenditure							
Mining	(USDm)	508	26.7	27.5	30.1	16.7	-
Surface Haulage	(USDm)	-	-	-	-	-	-
Processing	(USDm)	364	19.8	19.8	19.8	15.5	3.9
Other Production	(USDm)	-	-	-	-	-	-
Overheads	(USDm)	171	10.2	10.2	10.2	5.1	2.5
Royalties/Other Taxes	(USDm)	192	13.0	11.7	11.3	10.0	2.6
Other Operating	(USDm)	-	-	-	-	-	-
Total Cash Cost	**(USDm)**	1,234	**69.8**	**69.2**	**71.4**	**47.3**	**9.0**
Cashflow							
EBITDA	(USDm)	2,139	74.2	67.4	73.0	93.0	25.5
CIT	(USDm)	197	5.7	4.1	4.7	8.1	-
Working Capital	(USDm)	-	-	-	-	-	-
Interest/Other	(USDm)	-	-	-	-	-	-
Operating Cashflow	**(USDm)**	1,942	**68.5**	**63.4**	**68.3**	**84.9**	**25.5**
Capital Expenditure							
Project	**(USDm)**	**511**	**-**	**-**	**-**	**-**	**-**
Exploration	(USDm)	13	-	-	-	-	-
Dev/New Technology	(USDm)	81	-	-	-	-	-
New Mine Construction	(USDm)	416	-	-	-	-	-
Sustaining	**(USDm)**	**156**	**7.4**	**7.5**	**6.9**	**0.8**	**-**
Exploration	(USDm)	5	0.1	0.1	0.1	-	-
Maintenance	(USDm)	150	7.3	7.4	6.8	0.8	-
Capital Stripping/Dev	(USDm)	-	-	-	-	-	-
PCR	(USDm)	-	-	-	-	-	-
Closure/Retrenchment	**(USDm)**	**10**					**10.0**
Total Capital Expenditure	**(USDm)**	**676**	**7.4**	**7.5**	**6.9**	**0.8**	**10.0**
Free Cashflow	**(USDm)**	**1,266**	**61.1**	**55.8**	**61.4**	**84.1**	**15.5**

Table 12-4: Tokko Base Case (Unit Cost Assessment)

Statistic	Units	Total LoM	2021	2022	2023	2024	2025	2026	2027
Standard Statistics									
Total Cash Cost	(USD/oz)	520	-	-	-	438	425	438	449
AISC	(USD/oz)	590	-	-	-	478	502	499	523
AISC (excluding closure)	(USD/oz)	585	-	-	-	478	502	499	523
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})	1.07	-	-	-	1.11	1.01	1.02	1.05
	(USD/t_{ore})	3.12	-	-	-	4.09	3.25	3.11	3.25
Mining Capitalised	(USD/$t_{capitalised}$)	-	-	-	-	-	-	-	-
Surface Haulage	(USD/$t_{transported}$)	-	-	-	-	-	-	-	-
Processing	(USD/t_{feed})	2.23	-	-	-	2.63	1.93	2.26	2.27
Overheads	(USD/t_{feed})	1.05	-	-	-	2.18	0.84	0.97	0.97
Statistic	**Units**		**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Standard Statistics									
Total Cash Cost	(USD/oz)		465	506	524	572	625	639	679
AISC	(USD/oz)		524	586	588	656	692	709	750
AISC (excluding closure)	(USD/oz)		524	586	588	656	692	709	750
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})		1.08	1.11	1.09	1.14	1.09	1.06	1.06
	(USD/t_{ore})		3.18	3.30	3.10	2.99	3.15	3.35	2.97
Mining Capitalised	(USD/$t_{capitalised}$)		-	-	-	-	-	-	-
Surface Haulage	(USD/$t_{transported}$)		-	-	-	-	-	-	-
Processing	(USD/t_{feed})		2.30	2.27	2.25	2.30	2.28	2.20	2.20
Overheads	(USD/t_{feed})		0.97	0.97	0.97	0.97	1.18	1.13	1.13
Statistic	**Units**		**2035**	**2036**	**2037**	**2038**			
Standard Statistics									
Total Cash Cost	(USD/oz)		709	692	472	365			
AISC	(USD/oz)		786	759	480	771			
AISC (excluding closure)	(USD/oz)		786	759	480	365			
Unit Costs									
Mining (excl capitalised)	(USD/t_{mined})		1.06	1.18	1.33	-			
	(USD/t_{ore})		3.05	3.34	1.90	-			
Mining Capitalised	(USD/$t_{capitalised}$)		-	-	-	-			
Surface Haulage	(USD/$t_{transported}$)		-	-	-	-			
Processing	(USD/t_{feed})		2.20	2.20	1.76	-			
Overheads	(USD/t_{feed})		1.13	1.13	0.58	-			

12.9.4 Mineral Asset Conclusions and Recommendations

Mineral Resources have been declared in accordance with the CIM definition standards. The studies are yet at an early stage where Mineral/Ore Reserves are not declared due to the early level of study.

The 2021 JDS PEA on the Tokko project demonstrated a project that is technically sound with economic merit. SRK finds that the study has been carried out to a good standard of work. On this basis, SRK's opinion is that the project warrants being advanced to the next stage of study.

13 URYAKH GOLD PROJECT

13.1 Introduction

13.1.1 Location

The Uryakh project is in the south-eastern part of the Bodaybinsky District of the Irkutsk region of the Russian Federation. It is close to the borders with the Republic of Buryatia and Transbaikal region. The project site is remote and is on forestry lands. There are no settlements within 60 km of the site. The location of the Uryakh site and adjacent licence areas is shown in Figure 3-10 (Section 3.3) and Figure 13-1.

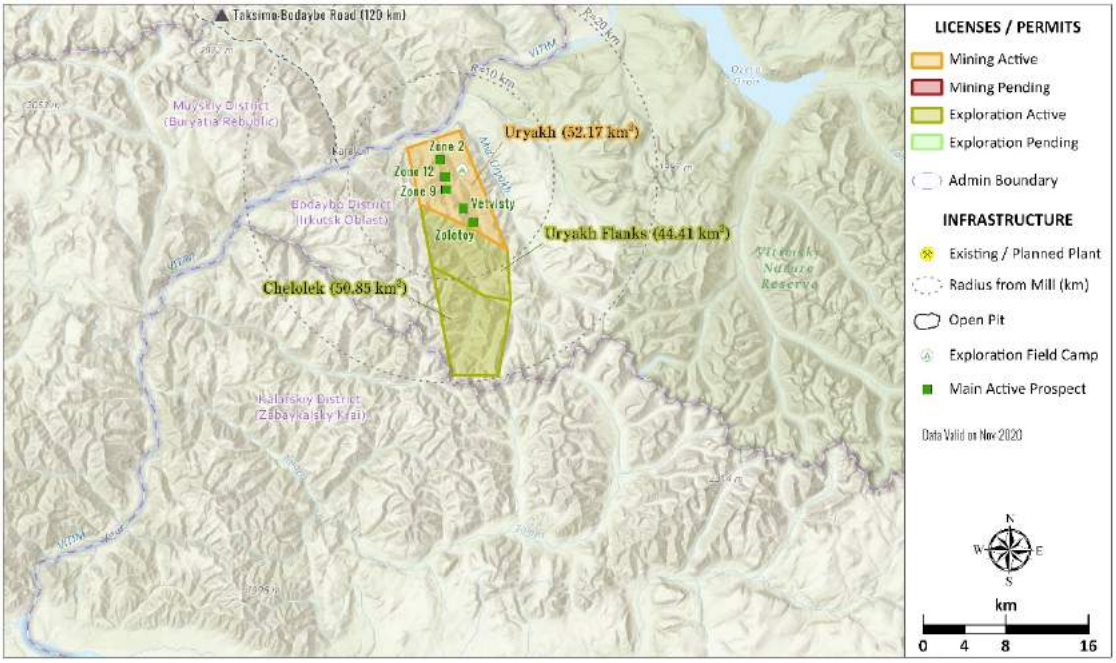


Figure 13-1: Uryakh Mining and Exploration Licences (Nordgold)

The Uryakh project involves exploration of three main areas of vein mineralization within the Uryakh licence; no mining activities have yet commenced. Additional exploration activities are planned for the adjacent licences to the south, Uryakh Flanks and Chelolek (Figure 13-1). Any potential liabilities existing currently in the study area are related exploration activities and previous placer gold mining in the Upper Uryakh River valley.

13.1.2 Access

The site can be reached by air and by rail on the BAM railway at Taksimo, approximately 100 km to the southwest in the Kalarsky District of Transbaikal Region. From Taksimo, there is an all-weather road for approximately 50 km to the northwest, thereafter access is on dirt roads. There is also seasonal/all-weather road access from the town of Bodaybo, approximately 150 km to the northwest, where there is also an airport.

The current infrastructure in relation to the property is shown in Figure 13-2.

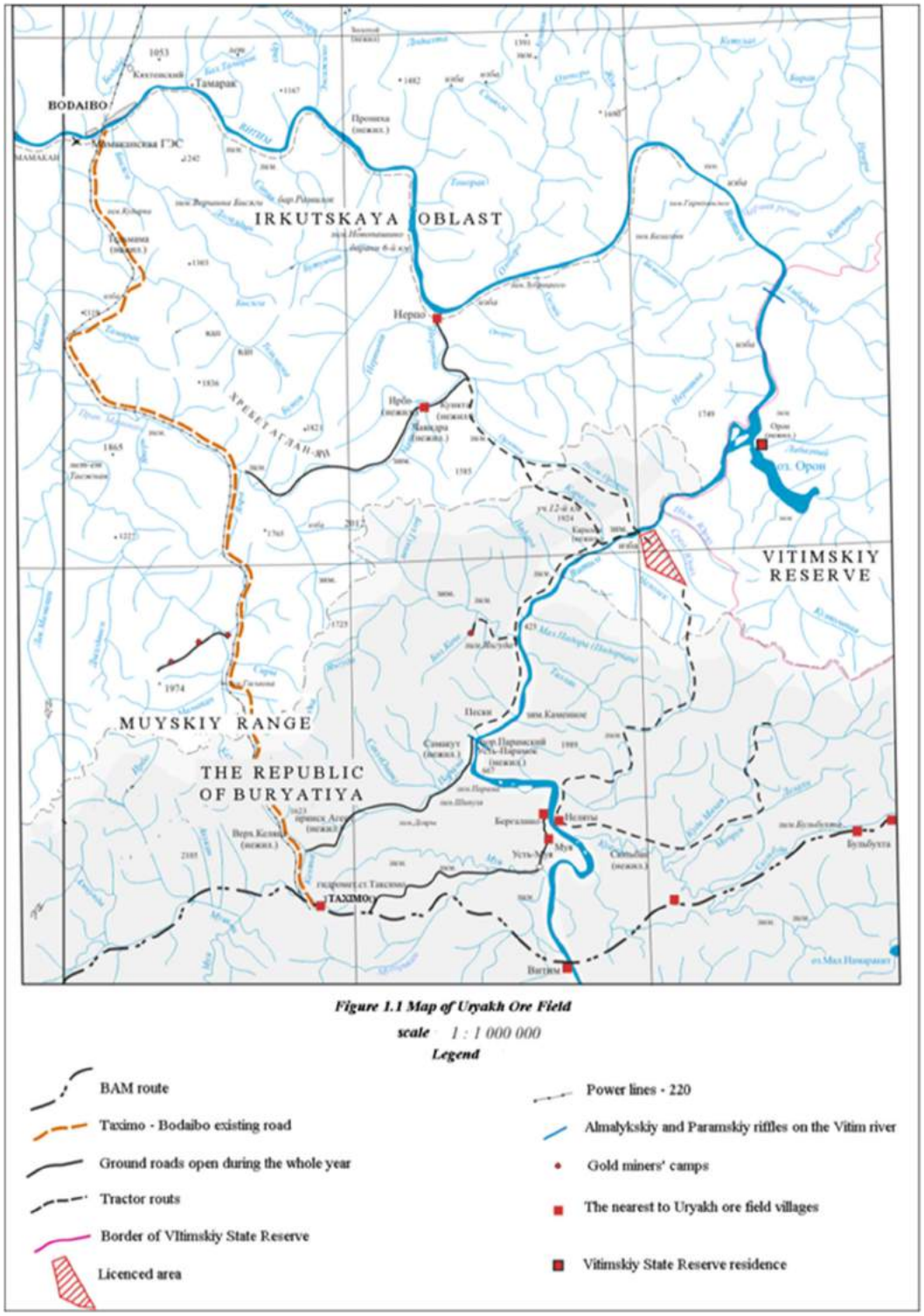


Figure 13-2: Uryakh Property Local Infrastructure (WAI 2013, SRK PFS 2019)

13.1.3 Climate

The climate at Uryakh is sharply continental with long cold winters and short summers. Snow cover lasts around seven months (October to May). The average annual temperature is -6.1°C. The winter temperature ranges from -32°C to -36°C in January (the coldest month) with absolute minimum at -58°C. The summer temperatures reaches +35°C as absolute maximum. Average annual precipitation is around 375 mm, 82% of which falls during the summer, mostly in August. Permafrost occurs across the mine site to a depth of up to 200 m.

13.2 Mineral Rights and Primary Approvals

13.2.1 Mineral Rights Held

The project is managed by "Uryakh" LLC, which was established on 24 July 2020 and is a 100% subsidiary of "Berezitovy Rudnik" LLC. "Uryakh" LLC is registered in the Amur region in the same location with the Berezitovy mine central office.

The mining and exploration licences held by "Uryakh" LLC are listed in Table 13-1. The mining and exploration licence areas are shown in Figure 13-1.

Table 13-1: "Uryakh" LLC Mining and Exploration Licences

Tenement Name	Licence		Validity	
	Type	Number	From	To
Uryakh	BR	IRK 03766 BR	2007-11-16	2032-11-20
Chelolek	BP	IRK 03768 BP	2018-12-18	2025-12-18
Uryakh (south flanks)	BP	IRK 03767 BP	2018-12-18	2025-12-18

* BP - Exploration Licence; BR - Combined Licence (Mining and Exploration); BE – Production Licence

The licences have no special environmental requirements. The licence agreements include general requirements to comply with the Russian environmental and mineral resource legislation. The licences also promote preferential selection of national contractors.

The Uryakh licence is a mining licence. It requires development of a closure program one year before the planned closure date. The Chelolek and South flanks licences are for exploration only, so no closure program is required.

13.2.2 Land Tenure

All licence areas are located within State Forestry Fund lands (Bodaybo Forestry). All forests have a protective category (anti-erosion forests)[24]. Mining and capital construction in these areas are not allowed by law. Therefore, before the land is leased / ownership registered, the land category needs to be changed from the forest lands (federal level) to the industrial lands (regional level). These issues are described below (Section 13.10.4).

Currently, the Company does not have any leased land plots. Previously, the Company leased a 123 ha forest plot for geological exploration; this agreement expired in December 2020 and is currently under the process of renewal. Logging has not been carried out in recent years, so reforestation activities are not planned.

Currently the designed land allocation is pre-defined only for Uryakh licence area of 645 ha.[25].

13.2.3 Environmental Approvals

"Uryakh" LLC has not yet been registered as a company with negative environmental impact in the Rosprirodnadzor database. Therefore, no temporary permits have been obtained yet. For example, the Company must have in place permissions for the emissions from diesel power plants, well drills and other sources, as well as permission for discharges of utility fluids.

[24] *On the northern boundary of Uryakh license area forests have another protective category – spawning protective band along Vitim River.*
[25] *TEO of permanent conditions for license area IRK 03766 BR ("SGK LLC, 2020)*

13.2.4 Compliance Issues

Environmental authorities tend not inspect exploration companies' sites or impose fines.

The current status of any emissions or discharges is unknown; however, if there is no environmental permit in place and emissions or discharges occur, this may result in fines in the order of RUB80k–120k or suspension of activity for up to 90 days (Art. 8.14, 8.21 CoAP[26]).

13.3 Geology

13.3.1 Geology of the Uryakh Deposit

The Uryakh region belongs to the Olokytsk-Delun-Uran zone, a subdivision of the Baikal-Vitimsky volcano-plutonic belt, which is hosted within the Sayano-Baikal tectonic belt. The region is mainly composed of metamorphosed, volcanic and sedimentary lithologies. These units are assigned to the Uryakhsky Formation. It is subdivided into three massifs. The lowest massif is represented by limestones, occasionally sandy, medium and fine crystalline, with rhythmically alternating layers of thin flysch: fine crystalline limestones and phyllitic black shales (muscovite (±carbonate) - quartz carbonaceous). The middle massif is represented by limestones of medium grain size, which are banded The upper massif is characterized by a phyletic, flysch composed mainly of muscovite (±carbonate) - quartz carbonaceous shale. It also hosts fine crystalline and pelitomorphic limestone, and crystalline limestone. The proportion of black phyllite shale increases up the section. At the top of the section, there are layers of fine-grained dolomites. Igneous rocks in the region are represented by the Ust Kelyanskim volcanics and the Tallainskim gabbro- plagiogranite complexes. These units are interpreted to be part of the upper Riphean, Muya island-magmatic suite (Figure 13-3).

All of the lithologies are metamorphosed under conditions of greenschist facies. The structure of the region is mainly controlled by the Sulban Fault Zone, which is interpreted as a shear-fault. Geological formations flanking the Sulban Fault are impacted to a distance of 0.5 to 1.5 km with cataclastites, mylonites and blastomyonites. The localization of ore bodies is in direct spatial relations with the tectonic structures of the transverse faulting, as well as with the bends and branches of the Sulban Fault Zone.

The predominant local lithologies are light coloured marble, dark coloured phyllitic carbonate, and argillite.

[26] *Russian Code of the administrative offences.*

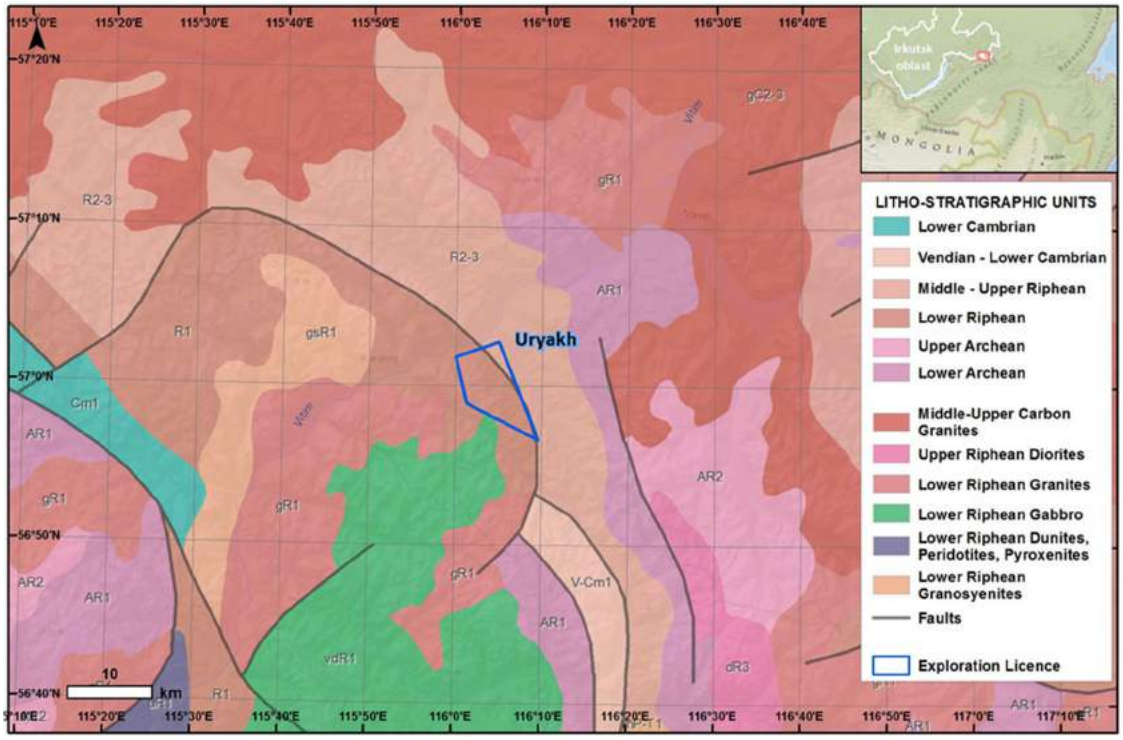


Figure 13-3: Uryakh Project Regional Geology

The Uryakh project is located in the Lenskaya gold-bearing area of the northern Baikal mineralized belt. The gold mineralization at Uryakh is hosted within a series of quartz veins, quartz stock works and quartz-carbonate altered metasomatic lithologies located mainly within carbonaceous shales. The deposits are primarily vein controlled with the development of the veins likely related to extensional dilation associated with movement on the nearby Sulban fault. The gold mineralization is associated with carbonate alteration, sericitization and minor sulphides. There are three areas of vein mineralization addressed in this report which are generally aligned along a north northwest-south southeast strike and all veins dip moderately to the west. The three deposits described from north to south include Vein 2, combined Veins 11 and 12, and Vein 9 (Figure 13-4).

SRK considers that the understanding of the geology and the principal controls on mineralisation of the Uryakh deposit to be adequate to support the current mineral resource estimation.

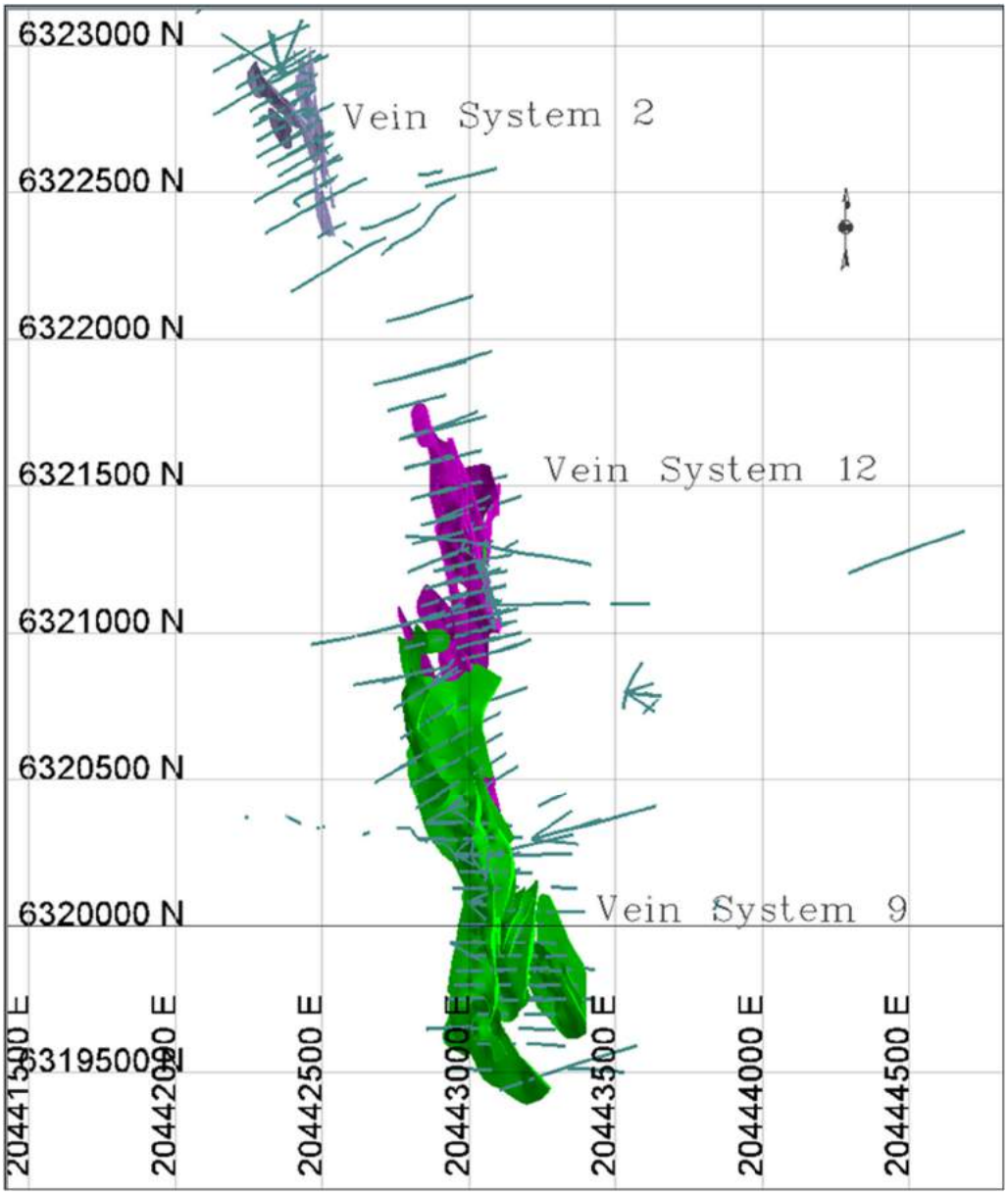


Figure 13-4: Uryakh Deposit Vein Systems

13.3.2 Exploration History

The exploration work at Uryakh was undertaken between 2008 and 2020 and consisted of soil sample geochemistry, stream sediment geochemistry, outcrop mapping and sampling, trenching and channel sampling across vein projections, geophysical surveys and drilling.

The project database includes 440 diamond drillholes which total 108 km in length, and 366 trenches totalling 11 km. The average drillhole depth is 146 m and the exploration by year is presented in Table 13-2. Core recovery is very good, averaging 95%. The core is retrieved from the drilling rig and taken directly to the onsite camp facility. The core is logged, photographed and then marked for sampling. The entire drillhole length is sampled in lengths ranging between 0.5 to 1.3 m intervals with breaks at significant contacts. The core is sawn into halves on site. One half is sent for analysis and the other half is stored onsite in wooden core boxes.

All sample preparation and primary analyses were completed at the SGS laboratory in Chita, Transbaikal Region, Russia. Gold analyses were completed using a 50 g fire assay method with an ICP-AES finish. If the results exceeded the precision tolerance of the ICP-AES finish, the sample was rerun with a 30 g fire assay using a gravimetric finish.

Since 2010, all analyses of exploration samples have been accompanied by a QA/QC program. Nordgold's QA/QC program is designed to follow the Russian National Guidelines OST 41 08 272 04. This is a program of duplicate analyses conducted blindly at the primary laboratory as well as at an outside control laboratory. Upon completion of all analyses for the year, Nordgold staff select a representative number of samples within ten grade ranges. The goal is to have at least 15 samples in each range. No CRMs or blanks are reported to be included. Prior to 2010, there is no information as to any QA/QC procedures which accompanied the limited drilling completed during that time.

Table 13-2: Uryakh Exploration Trenching and Drilling by Year

Year	# of Trenches	Total Metres	% of Total
2008	14	1,374	13
2010	109	3,439	31
2011	61	2,648	24
2012	108	918	8
2013	28	890	8
2018	1	18	0
2019	45	1,677	15
Total **Trenching**	366	10,963	

Year	# of DDHs	Total Metres	% of Total
2008	24	6,116	6
2011	85	17,687	16
2012	101	30,410	28
2013	84	25,956	24
2017	33	7,152	7
2018	47	10,628	10
2019	48	9,984	9
Total **Drilling**	422	107,933	

13.4 Mineral Resources

13.4.1 Introduction

The Uryakh project hosts gold mineralization within three systems: Vein 2, Vein 9, and Vein 11,12. SRK has independently reviewed the Mineral Resource estimate produced internally by Nordgold, for these three vein systems. The Vein 2 system is relatively isolated and was basically estimated as a unique domain. The Vein 9 and Vein 11,12 systems are both located in close proximity to each other and were estimated together.

13.4.2 Geological Modelling

Each individual vein within each vein system was independently wireframed using the Leapfrog® software vein generation tool. For each vein wireframe, specific drill intercepts were flagged by the vein name they are interpreted to represent. The specific intervals were selected in Leapfrog® depending on the location of the interval. The vein wireframe threshold was approximately 0.6 g/t Au. Individual veins average 350 m along strike with a range between 40-750 m; their extents down dip range between 20-350 m and average 250 m, on average the veins are 8 m wide with a thickness range from 3 m to 20 m.

Leapfrog® software was also utilized to construct a detailed lithological model, which is the basis for density assignments.

13.4.3 Mineral Resource Estimation

A single block model is utilized to estimate all the vein systems with a parent block size of 10 x 10 x 10 m and minimum sub-block of 2 m cube (associated to the mineralised blocks).

Density was assigned in the block model using average values for each of the nine lithologies, ranging between 2.75-2.86, and internal to the vein wireframes at 2.69 g/cm^3 based on an average of 818 samples located within this domain. The density data was determined from 1,411 density measurements determined by the simple water immersion method.

Samples were composited to 1 m and capped by domain at levels ranging from 26-125 g/t Au.

The grade estimation was completed using Ordinary Kriging within the vein domains and only utilized samples from the respective domains (hard boundaries applied in all cases).

A dynamic search orientation based on the vein geometry was used with search ranges varying from 20-200 m. A minimum of three samples from two different drillholes were used with no limit on the maximum number of samples.

Nordgold utilised three methods to evaluate the validity of the grade estimation including; visual checks, statistical comparisons of composite versus block grades and swath plots. All validation methods show good confidence in the grade estimation. Figure 13-5 shows a cross section view of the visual validation and a swath plot showing cross section validation results.

The Mineral Resources classification is based predominantly on sample spacing, applied to the various wireframe volumes. To define the Indicated Mineral Resource, Nordgold digitized polygons around the areas where the average drillhole spacing is approximately 50 m or less. These polygons were then triangulated into 3D solids defining all areas of Indicated Mineral Resources. All blocks external to the Indicated wireframes were classified as Inferred Mineral Resources. The resultant Mineral Statement was reported within an optimised pit shell and mineable shape optimiser (“MSO”) for those parts of the deposit where underground mining would be the most likely extraction method. Subsequent to this process the drillhole support for the wireframes classified in the Inferred category was reviewed to ensure material volumes were not included that were supported by individual drillhole intercepts.

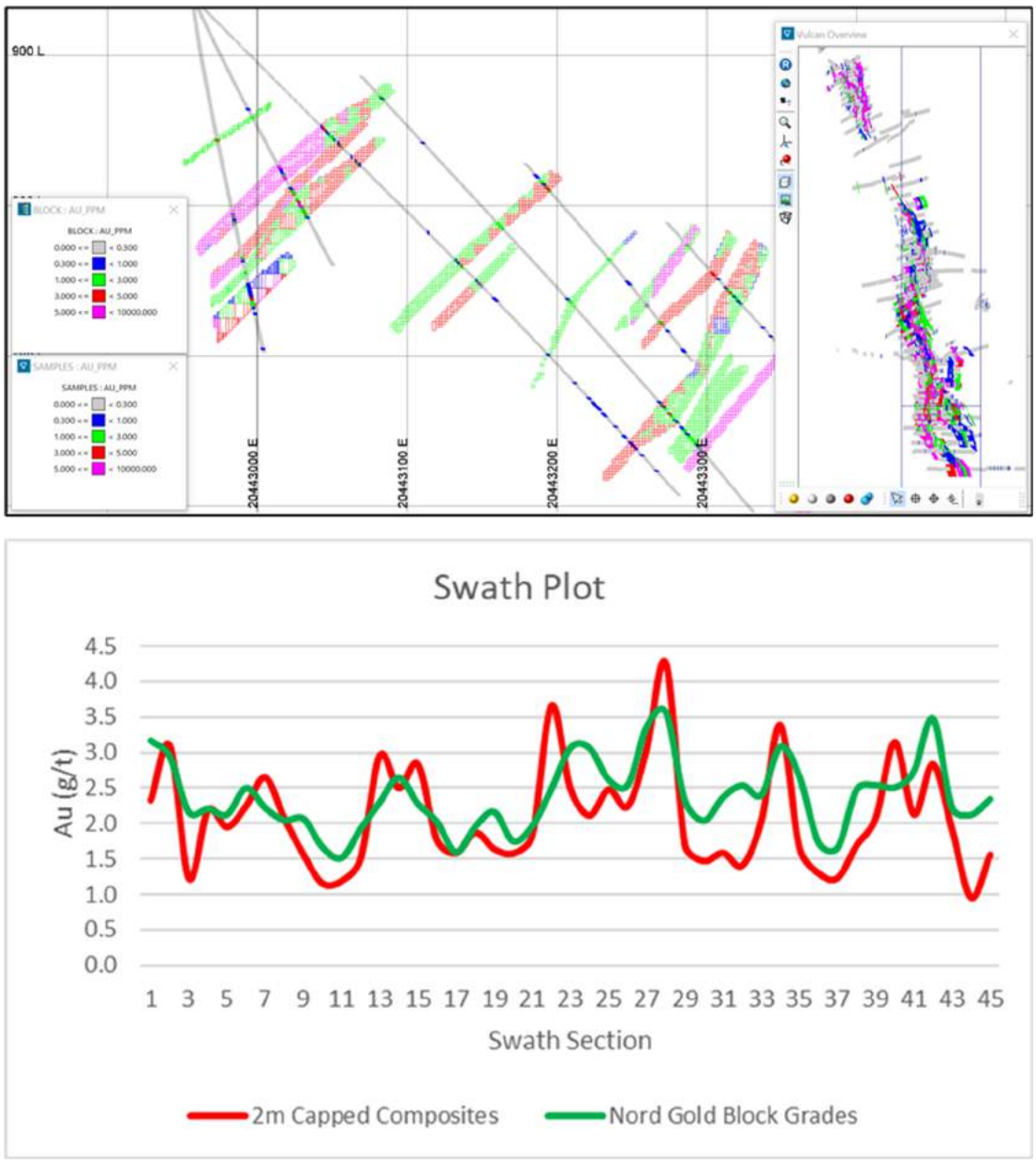


Figure 13-5: Uryakh Block Model Validation Results (Top-Visual, Section 6,319,850N, Bottom-Section Swath Plot)

13.4.4 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Uryakh (Table 13-3) is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 13-3, SRK notes the following:

1. The long-term commodity price assumption relied on for ensuring that the Mineral Resources are potentially economic is USD1,750/oz for gold.
2. All open pit Mineral Resources are reported based on an optimised pit shell at a gold price of USD1,750/oz.
3. The cut-off grades are 0.75 g/t Au (break-even) for the open pit portion and 1.20 g/t Au (break-even) for the underground portion, including the crown pillar below the open pit.

4. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability. There are no Ore Reserves stated for the Uryakh Project.
5. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
6. The resources are reported at two different cut-off grades depending on how the material will potentially be mined. Open pit resources are presented at a 0.75 g/t Au CoG based on an optimistic Au price of USD1,750/oz, open pit mining cost of USD2.50/t, processing cost of USD17.58/t, G&A at USD15.00/t and 92.6% processing recovery. All of the open pit resources are hosted within a Whittle pit shell based on the parameters above. The underground resources are reported at 1.2 g/t Au CoG based on the same parameters as above plus a mining cost of USD20.00/t. The underground resources are external to the Whittle resource pit shell and are reported internal to MSO solids.
7. Mineral Resources are presented on a 100% basis.

Table 13-3: Uryakh Mineral Resource Statement* as at 31 December 2020

Mineral Asset	Deposit	CoG Au (g/t)	Measured			Indicated			Measured + Indicated			Inferred			Total Mineral Resources		
			Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)	Ore (kt)	Au (g/t)	Au (koz)
Uryakh	Open Pit	0.75	-	-	-	11,730	2.59	978	11,730	2.59	978	826	4.76	126	12,556	2.74	1,104
	Crown Pillar	1.20	-	-	-	561	2.60	47	561	2.60	47	41	4.09	5	601	2.70	52
	Underground	1.20	-	-	-	6,705	2.84	612	6,705	2.84	612	1,652	2.97	158	8,357	2.86	770
	Total Uryakh		**-**	**-**	**-**	**18,996**	**2.68**	**1,637**	**18,996**	**2.68**	**1,637**	**2,518**	**3.57**	**289**	**21,515**	**2.78**	**1,926**

13.4.5 Exploration Potential

Nordgold has identified three brownfield drilling program areas where continued exploration is warranted. The first priority is intended to continue to drill step out holes to the south of the current resource area, specifically Vein 9. Further south along the trend of the mineralization, additional drilling is proposed to infill between the previously drilled Vetvisty and Zolotoy areas and south of the southernmost drilling at Zolotoy. A greenfield exploration program has also been prepared to test additional gold and geophysical anomalies located in the southern portion of the claim block, specifically at the Uryakh Flanks and Chelolek areas. This work will be focused on trenching and drilling.

13.4.6 SRK Comments on Exploration Procedures and Mineral Resource Estimation

The exploration methods and procedures employed by Nordgold to evaluate the Uryakh deposit meet current industry standards for the geology and mineralisation styles present. SRK has reviewed the underlying resource data and finds it acceptable, but has not undertaken an exhaustive database validation.

SRK has validated the Mineral Resource estimate performed by Nordgold by reviewing and proof checking the Nordgold Mineral Resource Estimation methods and parameters; and has completed an independent check estimate for the Uryakh Deposit. SRK considers that Nordgold's estimation parameters meet current best practices and that the two estimates produce similar results within reasonable tolerances.

Future exploration drilling should include oriented core and/or down hole televiewer logging of oriented structures. This work would provide better confidence in how the mineralised intervals are interpreted into the vein geometries and ensure that the veins' strikes and dips reflect the true geometry. Specific vein sets should also be reviewed to determine if orientation varies based on the vein's host lithology. This will help to de-risk future mining stope designs.

Future Mineral Resource estimates should consider alternate compositing lengths to provide initial smoothing to the data prior to constructing the vein wireframes. Grade capping should also be reviewed, especially in domain 12. Additionally, alternate estimation algorithms (Inverse Distance) should be tested to evaluate the impacts of variography on the final grade assignment. Minor examples are seen in the block model where a few estimated block grades do not match the local drill intercepts. This anomaly is likely due to no limit on the maximum number of samples used and too many samples from too far away are overly smoothing grades in a few locations.

Nordgold has allocated USD6.0m for further exploration at Uryakh in 2021.

13.5 Mining and Ore Reserves

The following comments are based on the Uryakh PFS 2019. With the new Mineral Resource, Nordgold will update the PFS in the coming months, and thus the base case parameters for the project will change; however, the underlying principles for development of the Uryakh project are still considered appropriate and are discussed briefly in this section. SRK notes that an updated statement of Ore Reserves will not be declared on Uryakh until such time as the PFS has been updated.

13.5.1 Planned Mining Operations and Mining Method

Open Pit

Near surface vein mineralisation was planned to be mined via open pit methods utilising standard drill and blast and truck and shovel methods. The Uryakh pit designs are defined by the orebody geometry and the fact that they are dipping into the sides of mountain slopes. Because the vein system controlling the mineralization outcrops, the vein orientation, topography and resultant pit design are reasonably complicated and are not deemed suitable for bulk mining. There was a significant requirement for the pit design to reduce stripping ratios wherever possible and use the natural terrain as access to the working benches, as opposed to leaving permanent ramp accesses in highwalls. Where it was possible to insert a phase within a pit design, the initial phase contained single access ramps to allow in-pit hauling to complement ex-pit terrain haul roads. Only ramps below the lowest pit intersection on topography had dedicated ramps in the final design. The result of the previous pit design exercise is that there will be significant road access, switchbacks, in-pit ramps and surface pioneering work that will need to be done in challenging conditions and will need to be designed on a short-term basis as opposed to being designed for long term use. These constraints will continue to guide the open pit design process in the next stages of the project, depending on the specific configuration of pits.

Waste dumps were designed with 10m high lifts and 7m wide berms to reduce the velocity of water running along the dump faces and thus reduce problems of dump face erosion from the rainfall, improve overall geotechnical stability, and allow for easy dump rehabilitation at mine closure.

Underground

Underground longhole stoping was selected as the mining method, with two distinct types of stopes, narrow (approximately 2 m in width) and wide (up to 20 m in width). A spacing of 20 m between levels was planned in the narrow stoping areas, with lengths varying depending on mineralisation continuity and width. A spacing of 15 m between levels was planned in the wide stoping areas. Waste rock backfill is used in all mining areas.

Stope optimisation was undertaken within Vulcan software. Stope walls were angled to 60° and wall dilution of 0.25 m on each side of the stope was applied.

The mine design covered three areas (North, Central and South) and ranges in depth from surface to approximately 250 m in depth. In areas where underground mining was planned in close proximity to a planned open pit, the underground mining is planned to be completed first and the stopes backfilled prior to the commencement of open pit mining.

Mining areas were all accessed via declines from surface, with some portals located in mined pits and others located outside of the pit areas.

Stopes farthest from the level access were to be mined first and backfilled before mining of the next stope commenced (i.e. the progression of mining would retreat towards the level access). Backfilling was planned as an integral part of the mining cycle.

Design, planning and scheduling took into account productivity rates for the development and activity types, the scheduling parameters, material characteristics, drill and blast operations, scaling, bolting/meshing/shotcreting, stoping (mining), ventilation, installing ground support, backfilling and other related auxiliary activities.

RoM would be loaded by 7 m^3 load-haul-dumpers and transported to stockpile bays. From there it would be loaded into 45 t trucks and hauled to a centralised crusher.

13.5.2 Geotechnical Considerations

The Uryakh PFS 2019 identified three main geotechnical domains, determined based on their relation to the fault system, the footwall and hanging wall. The footwall consists of weak to medium strong jointed rock. Mineralised rock consists primarily of medium strong jointed rock. The hanging wall consists of hard competent rock.

Open Pit

Design parameters were defined for the open pit. The overall slope angle was designed at 50 degrees, with face angles of 70°, a bench height of 20 m (bench increments of 10 m), and a berm width of 9.5 m. These were applied to all three domains.

Four stability analysis cross sections were analysed and the minimum factor of safety exceeded 1.3, meeting industry standard guidelines for open pit slope stability.

Underground

Empirical methods of stope design were employed to evaluate stability conditions for the underground mine design. The stability number was calculated based on the rock mass quality (Q' system), geologic structure and induced stress conditions. The hanging wall was assessed to be stable for the sensitivity case parameters without support for the planned mining dimensions. The stability of the stope walls was checked so that remote loading equipment could safely operate without stopes requiring ground support.

Ground support for stope access would consist of systematic bolting with swellex bolts as a function of the ore width. Development support through the footwall would consist of systematic bolting and meshing with 2 m long swellex bolts holding a welded wire mesh. An allowance for shotcrete application for poor ground was assumed for 20% of the access. The size of required sill, crown and rib pillars was defined as a function of stope and mineralisation thicknesses.

13.5.3 Mine Water Management

A hydrogeologic study was not completed for the Uryakh project area and hydrogeological conditions are currently unknown. Further studies are required in order to understand the impact of water on both the open pit and underground mining operations, the dewatering requirements and impacts on geotechnical factors.

Open Pit

The potential sources of inflow to the proposed pits included recharge from precipitation; seasonal inflow from the active layer above the permafrost; and groundwater inflow if the water table elevation exceeds an ultimate pit bottom elevation.

Underground

Groundwater inflow to the underground mine was expected to be relatively low due to the presence of a limited catchment area and low annual precipitation; sporadic permafrost limiting recharge from precipitation; a limited area of distribution of fractured zones able to transmit significant amounts of groundwater; a limited groundwater storage within the bedrock; and the shallow depth of the bottom of underground mine relative to the Uryakh Creek.

Dewatering

Due to the absence of the site-specific hydrogeological studies to support the Uryakh PFS 2019, it was assumed that groundwater inflow to the underground mine would not exceed 3 to 38 L/s and be removed passively (no active dewatering system required, via dewatering boreholes or depressurising holes). For the open pit, it was assumed that the operations would require two pumps to handle water from precipitation or groundwater sources (based on the climate report).

Surface Water Management

A network of diversion channels were included in the mine design to address storm water management at the site. Channels were developed to intercept run-on from as much of the natural ground uphill of the mine facilities and divert it around to discharge in natural drainages below the site. The diversions would limit the inflow of storm water into the active and inactive pits and on to the waste rock dumps. Additional controls were included to control runoff from the waste rock dumps and limit the migration of sediment off-site. The steepness of the hillsides around the facilities necessitated robust channels with riprap erosion control to withstand the 100-year, 24-h storm event. A limited number of culverts were anticipated to route surface water flows under the project roads. It was assumed that dewatering flows from the open pits and underground workings will be of a suitable quality that they can be discharged to the natural drainages with best management practices for removing sediments and oil and grease.

13.5.4 Ore Reserve Estimate

No Ore Reserves are currently prepared for the Uryakh Project, given the recent completion of the updated MRE.

13.6 Mineral Processing and Metallurgical Testing

13.6.1 General Description and Testwork Completed

The process plant flowsheet is relatively simple and proven in the gold mining industry. It consists of crushing, milling, gravity concentration, carbon-in-leach, electro winning, and smelting to produce a doré.

Testwork

An extensive metallurgical program was conducted for the Uryakh Project during 2012 by the Chita branch of SGS Mineral Services. The metallurgical testwork included: chemical, mineralogical and petrographic analysis; comminution studies; gold deportment study (diagnostic leaching); whole-ore cyanidation studies; preg-robbing tests; gravity concentration testwork; cyanidation studies on gravity tailings; flotation optimization tests on the gravity tailings; and cyanidation of gravity and flotation concentrates

The metallurgical program was conducted on four metallurgical composites identified as UT-1, UT-2, UT-3 and UT-4, each prepared from intervals in 3 drillholes to represent Vein 12, Vein 2 east zone, Vein 2 west zone, and Vein 9.

The Uryakh mineralisation contains significant gravity recoverable gold. Gold recovery to the gravity concentrate ranged from 50% to 80%. Overall gold recovery from the gravity concentration and CIL cyanidation process route, including a 2% deduction for plant inefficiencies, averaged 92.6%. Silver recovery averaged 73.4%

Process Plant

Lycopodium Minerals Canada Ltd ("Lycopodium") was responsible for the design of the plant, tailings delivery pipelines and return water infrastructure for the waste facilities.

The plant was designed to treat 700 ktpa from both the underground and open pits. The Uryakh mineralization is predominantly hosted in quartz-carbonate veins with sulphide mineralization. Pyrite is the dominant sulphide mineral with secondary sulphide including chalcopyrite, galena, sphalerite and tetrahedrites. The Uryakh deposits were considered "free milling" with more than 90% gold recovery achievable through conventional cyanidation; however, two of the four composite samples used in the testwork program exhibited significant preg-robbing which would classify these samples as complex ores.

In consideration of this, Lycopodium designed the proposed process facility to consist of the following process areas:

- Single stage primary crushing with a jaw crusher to produce a crushed product size of P80 of 125 mm.
- A crushed ore stockpile with a live capacity of 1,600 t to provide 18 hours of surge capacity based on the nominal mill feed rate.
- A milling circuit, comprising an open circuit 1.1 MW semi-autogenous mill followed by a 1.35 MW closed-circuit ball mill.
- A gravity concentration circuit fed from the classifying cyclone underflow to recover coarse gold.
- Hydrocyclones close out the secondary milling circuit. The overflow stream passes through a trash screen to remove foreign materials prior to downstream processing.
- A pre-leach thickener to increase slurry density to the leach circuit to minimize leach tank volume requirements and reduce overall reagent consumption.
- A leach circuit with one pre-aeration tank and six CIL tanks sized to achieve the required 24- hours of leach residence time at nominal plant throughput and slurry density. A pre-oxidation step is included ahead of leaching to reduce cyanide consumption and improve downstream leach kinetics.
- A split elution circuit with gold electrowinning and smelting to doré. The circuit includes an acid wash column to remove inorganic foulants from the carbon with hydrochloric acid, followed by an elution column.
- Carbon regeneration kiln to remove organic foulants from the carbon and reactivate the adsorption sites on the activated carbon.

- Water recovery using a tailings thickener prior to disposal of the densified tailings in a tailings storage facility.

The resulting plant production schedule included:

- a plant designed for 700 ktpa, operating for 11 Years;
- treating a total of 8.52 Mt RoM having an average head grade of 2.94 g/t;
- with a metallurgical recovery of 92.6% producing 745 koz Au during the LoM (averaging 59.8 kozpa).

The above plant production schedule and recoveries will be re-evaluated in future technical studies, based on the updated MRE and any additional testwork to be completed.

13.6.2 SRK Comments and Further Work

The metallurgical programme was deemed suitable for a PFS, which SRK supports. Further works were outlined in relation to leach tailing thickening; detoxification of leach residues; and carbon loading and CIL cyanidation circuit modelling.

13.7 Tailings Storage Facility

Lycopodium undertook a tailings storage facility ("TSF") site selection study, considering a valley TSF constructed by the downstream method with slurry of 35% solids (w/w); requirement of a clarification pond; requirement of a liner; and location of the impoundment at or below plant elevation. A preferred option with a capacity of 6.63 Mm^3 tailings to accommodate the 13 year Uryakh LoM (with 6.55 Mm^3) was planned.

The initial dam height was designed at 18 m, with four further raises resulting in a final height of 63 m. A 2 m freeboard was allowed for.

The tailings thickener would recover as much process water as possible the reduce the required pumping power, the water accumulation on the TSF, and the risk of excessive ice formation.

A floating barge housing two water reclaim pumps was to be used to reclaim water from the TSF during the warmer months. The TSF will be designed to store the substantial volume of water expected during the spring thaw.

The TSF will be re-evaluated as necessary in future technical studies, based on updated tailings volumes expected and any other technical requirements.

13.8 Infrastructure/Services

The main off-site infrastructure would consist of access to site and power. The last 50 to 60 km of access require upgrading to an all-weather road, including the construction of a number of river crossings. Power supply to the project was not studies within the Uryakh PFS 2019. The installed plant power was 7.3 MW.

The main on-site infrastructure would consist of site accommodation, the mine service area, and the site water management. The mine service area would include a fuel facility, explosives storage, process plant buildings, raw water supply, and power distribution.

13.9 Future Projects

Nordgold has allocated USD6.0m for further exploration at Uryakh in 2021. The PFS is planned to be updated following any updates to the Mineral Resource estimate following this work.

13.10 Environmental and Social Matters

13.10.1 Environmental Approvals

The Environmental approvals details are given in Section 13.2.3.

13.10.2 Environmental and Social Setting

The deposit is in the zone of mountainous taiga and tundra. Based on relief, vegetation, and exposure the depth of the thawing layer is 0.15-4.5 m with a high variety of soils types.

The Uryakh deposit is in the Upper Uryakh River valley between Chelolek and Middle Uryakh Rivers. All these rivers are right tributaries of the Vitim River, which is 0.5-1.5 km from the north border of the licence. Vitim is one the largest rivers in Eastern Siberia, the right tributary of the Lena River. It is typically frozen from November until sometime in May. Water use downstream of the Uryakh site is not known.

The widths of water protection zones are 100 m for Chelolek River and Middle Uryakh River[27], and 50 m for their tributaries. The widths of fishery protective zones are the same.

The vegetation cover alters with elevation due to mountainous relief. Upper ranges and steep slopes are covered with rocks or dwarf Siberian pine. The lower parts and Upper Uryakh River valley are covered with predominantly larch trees with shrubage of dwarf Siberian pine, ledum, blueberry and mountain cranberry. The studies carried to date have identified several plant species of conservation importance.

There are no specially protected natural territories within the limits of licence sites. The Vitim Federal Nature Reserve is about 4 km to the north-east, and the regional nature monuments (hot mineral springs) are about 3 km to the east and 5 km to the west.

The mine is in a seismically active region with maximum earthquake probability up to 8 on the GEOFIAN scale, which will be taken into account during the design phase.

The project site is in a remote and unpopulated area and there are no settlements closer than 60 km from the site. Even though the deposit is in the Bodaybinsky District (17,065 people as of 01 January 2020) of the Irkutsk region the access road will pass through the Kalarsky District (about 8,000 inhabitants) of the Transbaikal Region to the Kuanda settlement (about 1,500 inhabitants) and railway station (served by the Baikal-Amur Main Line railway).

About 5% of the Kalarsky district's population is represented by the ethnic minority of indigenous peoples of the North (Evenks). The nearest ethnic settlement, Nelyaty, is located 62 km southwest of the deposit.

[27] *Determined by the Water Code of Russian Federation, depending on the length of water stream.*

Information on land use in the immediate vicinity of the project is not available. It is possible that the project area and access road route are used by Evenks and identification of existing land use is required to develop measures to mitigate the potential impacts.

The Irkutsk region has a rich history, so there are architectural and historical monuments in many locations. For instance, the Vitim River played an important role in the settlement of the population and groups of archaeological sites of the Stone Age are found near Bodaybo (but this is far from the site).

13.10.3 Approach to Environmental and Social Management

The environmental and social baseline studies in the project area were carried out by the Federal State Establishment Natural Reserve “Vitimsky” in 2010 (Baseline Assessment). Additional monitoring is documented in two monitoring reports produced in 2012 and 2013. The studies and monitoring were required by a former mining licence; this required baseline assessment of the conditions of the project area before mine development. The surface water quality monitoring has identified:

- Elevated Fe: the concentration of Fe was near to but below the maximum acceptable concentration (MAC) limit for Fe in several points during the baseline studies.
- Exceedance of the MAC for Cu (1-3 times) and Mn (1-22 times) in several points with the highest in the estuary of Upper Uryakh River.
- Near-MAC concentrations of sulphates in several points in the periods of elevated concentration of suspended solids.
- Average pH in water streams equal to 7.7 with the highest in the estuary of Upper Uryakh.
- Presence of petrochemicals in the estuary of Upper Uryakh River and exceedance of benzopyrene MACs in Upper Uryakh and Vetvisty Stream.
- Dominance of Ba, Sr and V proportions in water sediments in all samples.

Several gaps were identified to be addressed during further project development:

- seismic conditions;
- Acid Rock Drainage Metals Leaching (“ARDML”) potential of the waste rock, low-grade ore and tailings;
- aquatic flora and fauna study; and
- critical habitat assessment.

The environmental and economic part of the Russian-style PFS (Technical-Economic studies of conditions (TEO) Book 3) was prepared in 2020.

Management System

Management systems for health, safety, environmental (“HSE”) and social management at the Uryakh site have not been developed yet. There are no people on site responsible for the HSE and social issues. The project is the responsibility of the HSE Department of Berezitovy mine.

Stakeholder Engagement

"Uryakh" LLC has not yet started the stakeholder engagement process. Furthermore, SRK is not aware of any socio-economic agreement with the regional authorities.

13.10.4 Key Issues

Studies carried out to date provide the basis for subsequent baseline programs. Further works that need to be prioritised are:

- Studies of the ARDML potential of the waste rock and tailings and assessment of the quality of runoff and seepage from these facilities to understand the potential impacts on downstream water bodies and the Vitimsky Natural Reserve located in immediate proximity to the project site.
- Archaeological surveys, as these are legally required and there is a possibility of disturbance of archaeological monuments, cultural heritage landmarks and/or sacred sites in the process of construction.

All licence areas are in the State Forestry Fund lands (Bodaybo Forestry) and have a protective category (mainly anti-erosion of forests). Mining and construction in these areas are not allowed by law. Therefore, before the land is leased / ownership is registered, the land category needs to be changed from "forest lands" (federal level) to "industrial lands" (regional level). This may require lengthy administrative procedures with the Federal Forestry Agency taking several months or more. There is therefore a risk of extending the time required for project development.

If the land category is successfully changed, the Company will be obliged to carry out compensatory reforestation of an equal area within one year. In practice, this procedure is highly dependent on many regional factors (such as limited quotas of permitted plantations and their accessibility, availability of seedings, contractors). The cost of reforestation is approximately USD2,000 to 3,000/ha. Currently the land allocation is pre-defined only for the Uryakh licence area of 645 ha.[28] In the case of simultaneous deforestation of large areas, the Company's obligations, as well as the above-described risks, will increase proportionally.

13.10.5 Closure

The legal requirements for the current licence holder on rehabilitation of former placer mining areas, as well as their potential size, are unknown. There are currently no legislative requirements in the Russian Federation to create post-performance or reclamation bonds.

The TEO-conditions states that the potential area of rehabilitation is 392 ha and the cost of rehabilitation will be equal to RUB8.5m (USD0.11m). The PFS report explains that this closure cost estimate is too low. It adds that a conceptual closure cost estimate prepared by SRK for a similar project in 2017 was USD6.4m, excluding long-term monitoring and maintenance post-closure costs.

13.10.6 Recommendations

Based on the assessment of environmental and social aspects, SRK makes the following main recommendations:

[28] *TEO of permanent conditions for license area IRK 03766 BR (LLC SGK, 2020)*

- Provide sufficient time in the project for the land allocation and the approval of the Federal Forestry Agency.
- Consider options for phased land allocation. This will reduce the annual reforestation obligations, as well as the risks of its non-fulfilment in the required volume.
- Start with the development of an environmental management system and its elements;
- Conduct ARDML studies which are essential due to proximity of Natural Reserve.
- Commence with a stakeholder engagement process (identification, analysis and planning) required to support proactive engagement (including indigenous people).
- Continue environmental monitoring near the site to obtain more recent data.
- Ensure that surface runoff from exploration sites is collected and treated.
- Develop a closure and rehabilitation plan taking account of good international industry practice and refining the cost estimates.

13.11 Economic Assessment

No updated economic modelling work has been prepared by SRK or Nordgold, other than to demonstrate RPEEE. This will be undertaken as part of an updated PFS following further exploration and Mineral Resource Estimation updates.

14 MONTAGNE D'OR PROJECT

14.1 Introduction, Project Structure and Project Location

14.1.1 Location

The Montagne d'Or project is in western central French Guiana, approximately 200 km west of Cayenne, the capital city, and approximately 125 km south of the port town Saint-Laurent-du-Maroni. It is in the municipality of Saint Laurent du Maroni. The location of the Montagne d'Or Project and associated licence areas is shown in Figure 3-14 (Section 3.3) and Figure 14-1.

The project is a greenfields gold project within the historical mining district of Paul Isnard. The deposit itself is on the north-facing slope of the Montagne d'Or (the local name given to the project by Guyanor Resources in the 1990s). The flat area immediately downslope of the deposit is known as 'Bœuf Mort' and forms the piedmont of the Dékou-Dékou massif.

The project is located adjacent to a nature reserve, the Integral Biological Réserve Lucifer Dékou-Dékou, managed by the French National Forestry Board (Office National des Forêts). The management plan for the reserve is yet to be developed, so there is little guidance regarding the use of land and allowable activities within and around the reserve. There has been continued exploration and mining activity in the area for over 100 years, so mining is theoretically allowable in certain zones. The Montagne d'Or deposit is in a zone called "Zone 2" and classified as "open to prospecting, underground and open pit mining authorised subject to conditions". This zone is defined in legislation complementary to the Mining Code that was adopted in 2012, this is the Schéma Départemental d'Orientation Minière ("SDOM") legislation adopted in 2012.

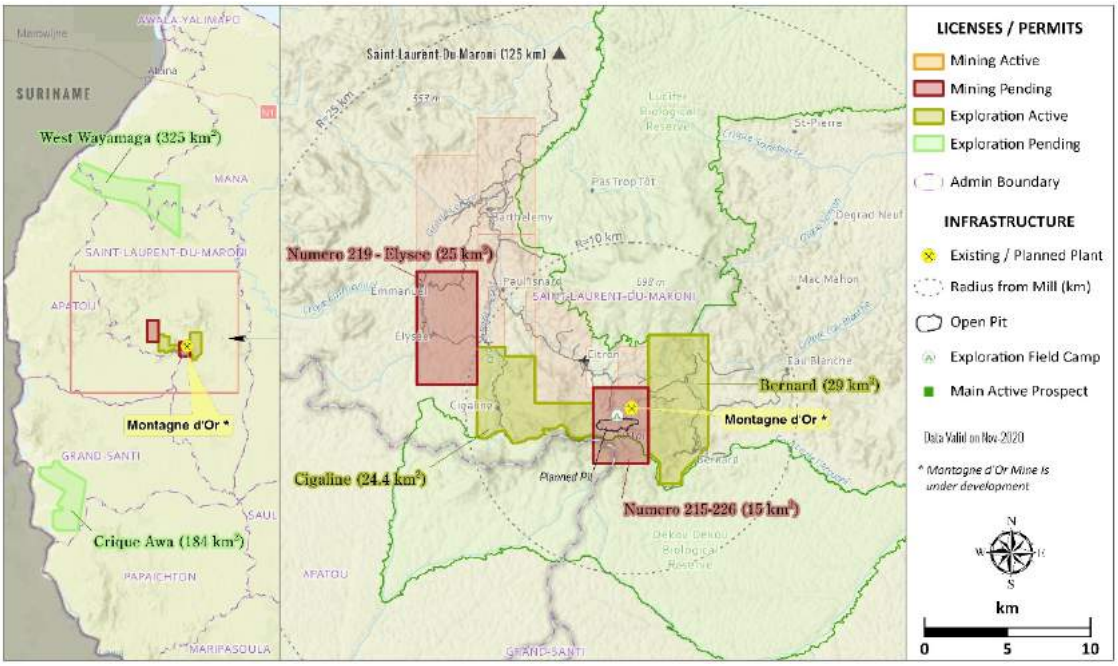


Figure 14-1: Montagne d'Or Project and Licences Location (Nordgold)

14.1.2 Access

The site is accessed by road from the port of Saint-Laurent-du-Maroni, using the Paul Isnard forest track to the Apatou Crossroads and then a private track to Camp Citron (120 km in total, Figure 14-2). The private track is infrequently used and is in poor condition and poorly maintained.

The site also has a landing strip for small planes and helicopters at the Citron exploration camp. This is managed and operated by Nordgold.

A key feature of the early works programme for the project will be upgrading of the site access road including resurfacing the road, new bridges at river crossings, and general drainage and water management infrastructure.

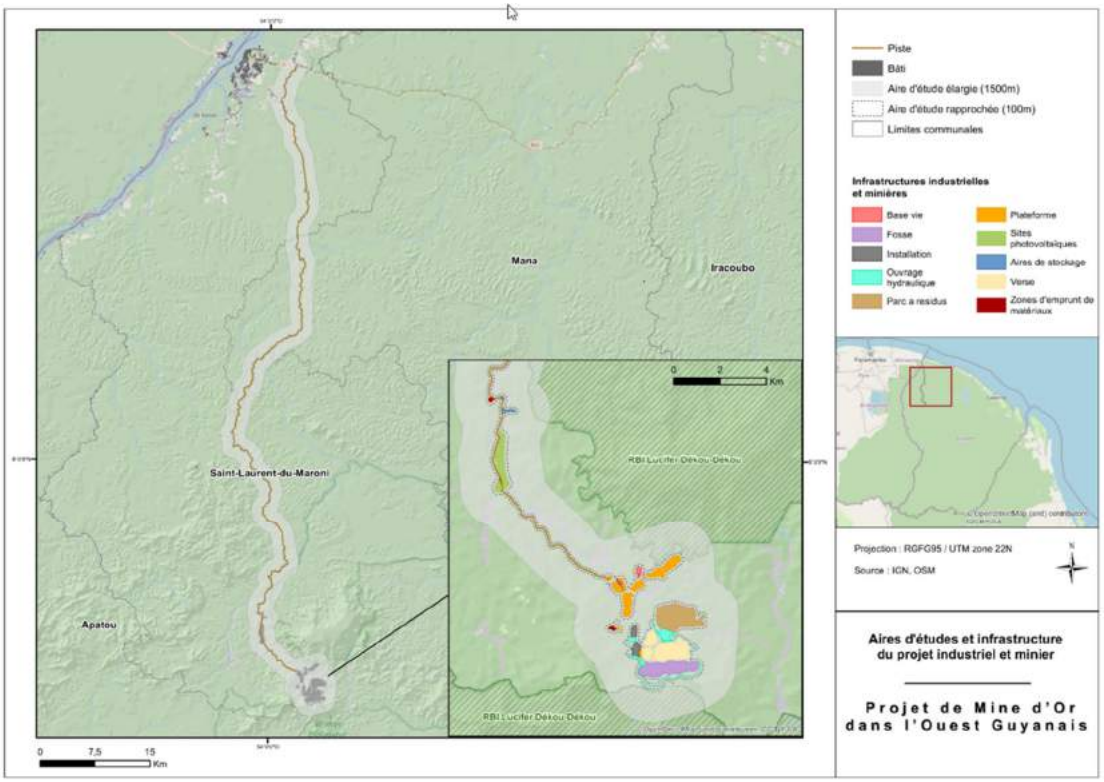


Figure 14-2: Montagne d'Or Access Road and Key Project Infrastructure

14.1.3 Climate

The climate is equatorial, with daytime temperatures between 29°C and 33°C, decreasing to 19°C to 23°C at night. There are two wet seasons; the main period is typically from April to the end of August, and the lesser period lasts from mid-November to mid-March. The average annual rainfall exceeds 2,000 mm and the minimum monthly rainfall is 50 mm. Humidity is constantly high and typically ranges between 78% and 92%. Winds are dominantly north-easterly.

14.1.4 SRK 2017 Feasibility Study

SRK Consulting (U.S.) Inc. prepared an NI 43-101 Technical Report "Bankable Feasibility Study" on the Montagne d'Or gold project in April 2017 ("the 2017 SRK FS", effective date 06 March 2017). SRK has summarised the key findings of that study in this CPR. SRK notes that the Mineral Resource and Ore Reserve statements have not changed since the publication of this FS and were reported using lower gold prices (USD1,300 for Mineral Resources and USD1200 for Mineral Reserves) than those currently being used for this CPR, and it has not been considered necessary to update them as these are considered conservative cases relative to the current forecast of USD1,750/oz and USD1,400/oz for Mineral Resources and Ore Reserves respectively. In addition, the base case for the financial analysis used a long-term gold price of USD1,250/oz, which again is considered a conservative case relative to current long-term forecasts, as presented in Section 4.12.1.

14.2 Mineral Rights and Primary Approvals

14.2.1 Mineral Rights Held

Current situation

The Montagne d'Or project is being developed by Montagne d'Or joint-venture. This is a joint venture between Nordgold SE (55.01%) and Orea Mining Corp., formerly Columbus Gold Corp., a Canada-based gold exploration and development company (44.99%).

The Montagne d'Or deposit is located within the Numero 215-226 concession, which covers an area of 15 km^2, as shown in Figure 14-1. The concession has expired (Table 14-1). Two exploration permits identified as Cigaline and Bernard were obtained in 2016 to explore the eastern and western extensions of the Montagne d'Or deposit. The exploration permits were granted in July 2016 for an initial 5-year period and all conditions have been satisfied to submit renewal applications for an additional 5-year period.

Table 14-1: Montagne d'Or Mineral Rights

Tenement (name and type)		Application	Granted	Expiry	Operator	Holder
Bernard	PER	12/8/2014	7/13/2016	7/12/2021	Montagne d'Or SAS	SOTRAPMAG
Cigaline	PER	12/8/2014	7/13/2016	7/12/2021		
Crique Awa	PER	10/26/2016			Nord Gold Guiana SAS	Nord Gold Guiana SAS
West Wayamaga	PER	5/23/2017				
Numero 215-226	Concession	12/2016	5/21/1946	12/31/2018	Montagne d'Or SAS	SOTRAPMAG
Numero 219 - Elysee	Concession	12/2016	6/14/1948	12/31/2018		

PER = Exploration permit
SOTRAPMAG = Société de Travaux Publics et de Mines Aurifères in Guyana

The Montagne d'Or joint-venture submitted applications to renew the Numero 215-226 and Numero 219-Elysee concessions (Figure 14-1) for a 25-year period in December 2016. The applications were submitted to the French Ministry of the Economy and Finance and the General Directorate of Territories and the Sea. No decision was taken on these applications and so they expired in 2018.

The Montagne d'Or joint-venture filed proceedings in February and March 2019 in the Administrative Court of Cayenne in French Guiana to invalidate any implicit refusal of the applications. On 24 December 2020, the court decided that the implicit refusals were cancelled and ordered the state to extend the mining concessions and to set the duration of these extensions within a period of six months from the notification of the court judgment. Appeals against the decision could be made within two months of the decision.

The French Government issued a press release on 3 February 2021 announcing that it had filed an appeal against the above-mentioned court ruling with the Administrative Court of Appeal in Bordeaux on 25 January 2021. Reportedly, this appeal is based on the view that the project, as it has been presented to the French government, is not compatible with the government's environmental ambitions.

Relevant historical background

The Montagne d'Or joint-venture title to the Montagne d'Or gold project was initially held in eight mining concessions plus two exclusive exploration permits covering a total area of 190 km^2. Historically, the concessions were granted to the original applicant and all subsequent title holders in perpetuity, in accordance with a French Imperial Law of the year 1810. As such, when the Concessions were first granted, they had the benefit of never expiring.

In 1994, the French Mining Code was amended to provide that all mining concessions granted under the Imperial Law of 1810 would expire on 31 December 2018 but can be subject to successive extensions not exceeding 25 years.

In response to this and based on exploration results, the Montagne d'Or joint-venture submitted renewal applications the two core project concessions, two years prior to the expiration date. Exploration results did not justify renewal applications for the other six concessions.

14.2.2 Environmental Approvals

As outlined in the preceding section, an application was made to renew the Numero 215-226 Concession in 2016. A public consultation process was organized by the French National Commission of Public Debate and included 13 meetings held in various locations around French Guiana. It was concluded in July 2018.

A new environmental body was created by the French government on April 25, 2019, named the "Conseil de défense écologique" (the "Counsel"), chaired by the President of France, with its first meeting held in May 2019. With respect to the mining sector, the French Prime Minister communicated the new environmental standards which mining projects will have to be in conformity with and will be defined in a new mining code. The Counsel considered the Montagne d'Or project was not compatible with these new standards.

Based on the public consultation and the Counsel's views, the Montagne d'Or joint-venture committed to several project modifications in order to move forward with the development of the Montagne d'Or gold mine.

Considering the above situation and the available information, SRK has not been able to determine the details of the environmental approvals required for the project to proceed.

14.2.3 Further Work Undertaken in Response to Public Consultations

Further work in response to public consultations in 2018 was launched in early 2019. This addressed mine design, access road layout, hybrid on-site power generation and quarry development for construction material. They also include additional fauna and flora inventories, geotechnical drilling, ground geophysical surveys, geochemical analysis and laboratory test work. These studies involved international, French and French Guiana consulting firms. The principal components of the studies include:

- Tailings storage facility redesign, lowering the height of retainment dams and dam break study.
- On-site hybrid solar power generation, eliminating the environmental impacts of connecting the mine to the local power grid, which involved the construction of a 106 km aerial power line, reducing the overall carbon emissions of the project by 80%.
- Waste management plan and waste rock storage redesign to avoid acid drainage.
- Hydrogeological modelling, detailed water management, water balance and contact water pond design.
- Quarry development for construction material and multi-criterion comparative analysis of the studied quarry site alternatives.
- Detailed redesign of the 125 km access road from Saint-Laurent du Maroni, stormwater and safety devices, bridges, watercourse crossings, retaining walls and rehabilitation of abandoned sections.
- Hazardous material transport study and supply, transport and storage of explosives.
- Overall project mass balance and site closure plan.
- Natural Compensation Site development.

The studies were to be completed in 2020, but certain studies have been delayed due to the Covid-19 pandemic.

14.3 Geology

14.3.1 Geology of the Montagne d'Or Mine

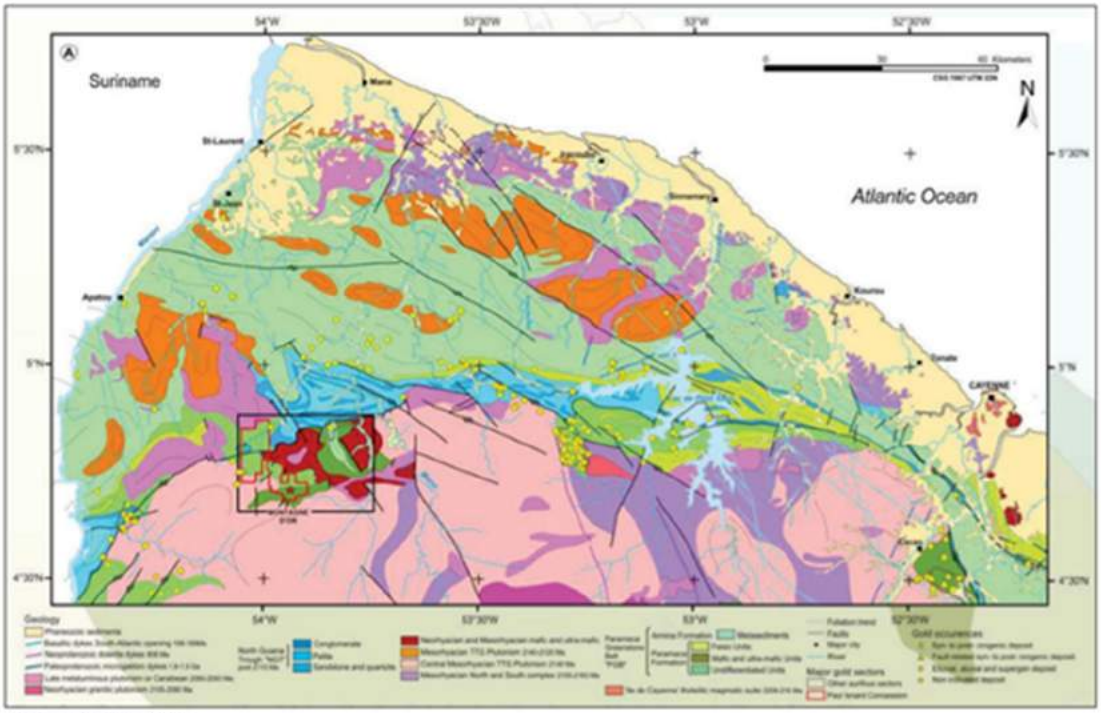
The Montagne d'Or deposit is located within the northern greenstone belt of the Guiana Shield in French Guiana. The Guiana Shield is a large segment of the Amazonian Craton of South America and composed of low-grade, volcano-sedimentary greenstone belts and affiliated granite intrusives, formed during Proterozoic periods of intense magmatism, metamorphism and deformation that culminated in the Transamazonian tectonothermal event of 2.1 to 1.9 Ga.

The greenstone belts of French Guiana are divided into two major groups. The northern group includes the Lower Proterozoic Paramaca Greenstone Belt ("PGB"), a formation consisting of volcanic, volcaniclastic and sedimentary units. This PGB occurs extensively across northern French Guiana, striking N110°E and hosting a number of gold deposits including Paul Isnard, Camp Caiman, St. Elie, Koolhoven and Rosebel in Surinam. The southern group extends from Surinam through French Guiana and includes sedimentary and volcano-sedimentary units which unconformably overlie the volcanic units of the PGB. This southern group hosts gold mineralisation at Benzdorp in Surinam, Yaou and Dorlin in French Guiana, and numerous other smaller workings. The Montagne d'Or Project lies within the northern PGB (Figure 14-3),

interpreted as a probable equivalent of the Birimian sedimentary sequences of the West African Shield.

The deposit is hosted within a bimodal felsic-mafic series of Proterozoic volcanic rocks, cut by slightly younger felsic to intermediate composition intrusive rocks. The gold mineralisation is associated with a 400 m thick, tightly to isoclinally folded sequence of predominantly felsic and lesser mafic volcanic rocks. Gold mineralisation occur as elongated lenses within tabular mineralised bodies that form closely spaced sub-parallel east-northeast (084°) striking and steeply (72°) south-dipping mineralised zones. The orebodies have a strike length of more than 2,500 m and to a vertical depth of at least 200 m. The mineralisation is accompanied by pervasive alteration of the host rocks which includes sericite, secondary biotite (generally retrograded to chlorite) and secondary K-feldspar with locally associated quartz.

The current model of gold mineralisation is interpreted as a high sulphidisation, stratiform / stratabound volcanogenic deposit-type. Significant portions are thought to have been emplaced as replacement-style mineralisation that were subsequently deformed and partly remobilised. Gold mineralisation is associated with primary sulphide minerals pyrite, pyrrhotite and chalcopyrite with minor sphalerite, magnetite and arsenopyrite. Distinct phases are reported as stratiform disseminated sulphides, stockwork sulphide veinlets and layers of semi-massive sulphides that are tectonically transposed. In addition, evidence is found for tectonic remobilisation with sulphides concentrated within fold hinges and pressure shadows, and cross-cutting sulphide-bearing veins.



Source: Coffey, 2014

Figure 14-3: Montagne d'Or Project Regional Geology

14.3.2 Exploration History

The 1 July 2016 database contains information from 349 diamond core and rotary circulation (RC) drillholes and 87 channel samples. The drilling was completed in two main campaigns. A previous owner drilled 56 holes between 1996 and 1998. Columbus completed an additional

293 holes from 2011 to March 2016. The channel samples were all collected from surface between 1995 and 1997 and the majority are outside of the resource area.

The database includes four Excel® files containing information on collar locations, downhole surveys, lithology and gold assays. There are 59,862 valid entries in the assay file with an average sample length of 1.04 m.

Density testing was performed on the drill core during 2007 and from 2011 to 2016, a total of 3,607 density measurements were taken from all lithic varieties by onsite personnel. These densities were assigned in the block model based on the lithology of the block.

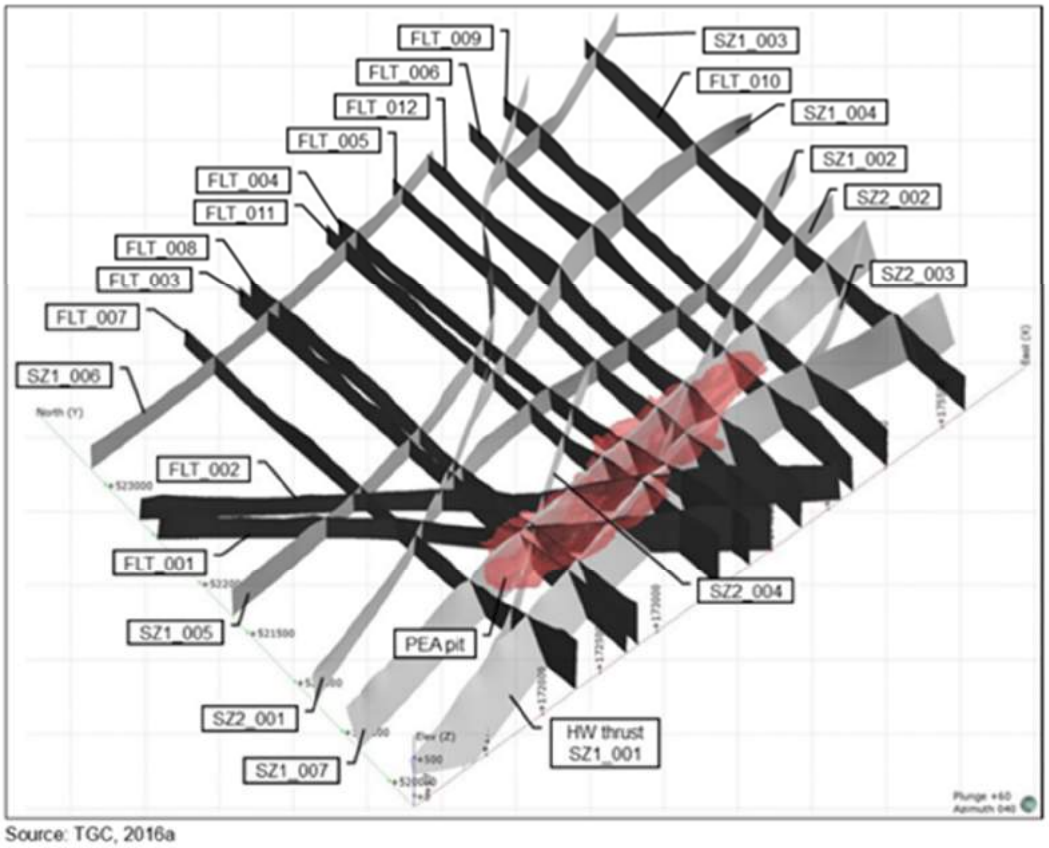
14.4 Mineral Resources

14.4.1 Introduction

The Montagne d'Or deposits comprises several 3 to 10 m -wide, elongated planar lenses of highly variable higher-grade mineralisation separated by 10 to 30 m -wide barren or lower grade zones. The steeply dipping mineralised zones strike E-W and are controlled by structural fabric and lithology.

A structural model was prepared in Leapfrog Geo® and consists of twenty-three structures that were generated as twenty-five Leapfrog Geo® solids using the fault system functionality (Figure 14-4). Shear zones are grouped into two sets and they are labelled accordingly.

Numerous grade shells were constructed using a variety of sensitivities. The Leapfrog Geo® generated wireframe solids encloses gold mineralisation at a 0.3 g/t Au threshold (Figure 14-5).



Source: TGC, 2016a

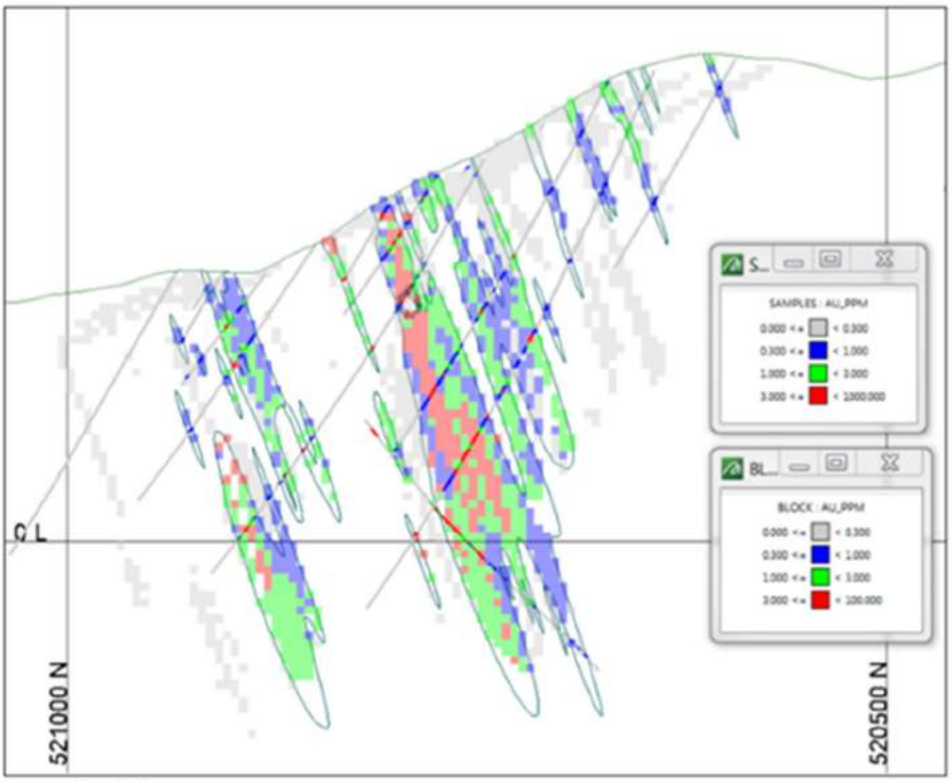
Figure 14-4: Montagne d'Or Structural Model

14.4.2 Mineral Resource Estimation

The most recent Mineral Resource estimate for Montagne d'Or was completed in 2017 by SRK. The resource estimation is based on the drillhole database and sampling current to 1 July 2016, interpreted lithologies, geologic controls and topographic data. The estimation of Mineral Resources was completed using Vulcan™ modelling software.

The key aspects of the Mineral Resource estimate are summarised below.

- Compositing was completed in 3 m downhole lengths with no breaks at lithologic contacts. This length includes three original assay intervals so that it provides some smoothing of the data while still preserving the recurrent nature of the gold mineralisation. The 3 m composite length also results in approximately two composites being included within the diagonal intersection of the 5 m, Y direction block size.
- Block dimensions of 10 x 5 x 5 m were used and are based on a compromise between the average drillhole spacing, typical open pit selective mining unit, the variability of the mineralisation and computational efficiency of keeping the model under ten million blocks. There are 7,086,240 blocks in the model.
- The original drillhole gold values were assessed for statistical outliers using a lognormal cumulative distribution plot and decile analysis. The capping level was chosen at 40 g/t Au mainly because this is the point where the cumulative distribution trends lose continuity and the data values above, show irregular distribution.
- Grade estimation was conducted in six domains. Three rock types / groups were used and each rock type / group was estimated independently both internal and external to the grade shell using only samples from the same domain. A single E-W directed search orientation, parallel to the controlling structures was used for all bedrock lithologies.
- An Inverse Distance Weighting Squared (IDW^2) algorithm was used for the grade estimations since the Au variograms have very high nugget values and short ranges.
- The grade estimations for all metals in all domains within the Au grade shell, utilise a four-pass sample search strategy with each pass searching longer distances than the previous. Outside of the grade shell, a three-pass sample search strategy was used. In all domains, only blocks located within 75 m to the closest sample were included as the final estimation.
- Six techniques were used to evaluate the validity of the block model including; visual checks (Figure 14-5), overall model performance parameters, statistical comparison between composite and block grades, nearest neighbour comparisons, dilution sensitivity and swath plots.



Source: SRK, 2016

Figure 14-5: Montagne d'Or Representative Cross Section 173,000 E with Estimated Au Grades (looking East)

Mineral Resources are classified under the categories of Measured, Indicated and Inferred according to Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") guidelines. Classification of the Mineral Resources reflects the relative confidence of the grade estimates and the continuity of the mineralisation. This classification is based on several factors including sample spacing relative to geological and geo-statistical observations regarding the continuity of mineralisation, data verification to original sources, specific gravity determinations, accuracy of drill collar locations, accuracy of topographic data, quality of the assay data and many other factors which influence the confidence of the mineral estimation. No single factor controls the Mineral Resource classification, rather each factor influences the end result.

The Mineral Resources reported for the Montagne d'Or deposit are classified as Measured, Indicated and Inferred Mineral Resources, based primarily on drillhole spacing since all other supporting data is considered of good quality. A wire frame solid was constructed around the area where the average drillhole spacing is approximately 35 m or less and these were used to assign the Measured Mineral Resource classification. This is a focused area of drilling completed in 2015 and 2016. The measured wire frame solid is flanked by a second wireframe constructed around the areas where the average drillhole spacing is approximately 65 m or less and these were used to assign the Indicated Mineral Resource classification. All blocks outside of these wireframes were classified as Inferred Mineral Resources. Mineral Resource Statement

SRK's audited Mineral Resource Statement for Montagne d'Or (Table 14-2) is reported inclusive of those Mineral Resources modified to generate Ore Reserves and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 14-2, SRK notes the following:

1. All Mineral Resources are reported on an inclusive basis and therefore include all Mineral Resources modified to generate Ore Reserves.
2. The Mineral Resources are reported on a 100% basis (Nordgold owns 55.01%).
3. All open pit Mineral Resources are reported based on an optimised pit shell at a gold price of USD1,300/oz (a lower price than Nordgold's current benchmark gold price for Mineral Resources as explained in Section 14.1.4).
4. The Mineral Resources were originally reported as at 01 July 2016, and have not changed since that time (see note 3 above).
5. The Mineral Resources are reported based on a 0.4 g/t Au CoG, inside the conceptual pit shell based on appropriate mining and processing costs and metal recoveries for oxide and sulphide material. CoG are based on a mining cost of USD2.00/t, milling cost of USD15/t, administration cost of USD1/t, a gold price of USD1,300/oz, 95% gold recovery, gold refining cost of USD8.00/oz, and 5% NSR royalty.
6. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.
7. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.

Table 14-2: Montagne d'Or Mineral Resource Statement* as at 31 December 2020

Classification	Tonnage (kt)	Grade (g/t Au)	Content (koz Au)
Measured	10,328	1.80	599
Indicated	74,818	1.35	3,247
Measured + Indicated	85,146	1.41	3,846
Inferred	20,202	1.48	964
Total Mineral Resources	105,348	1.42	4,810

14.5 Mining and Ore Reserves

The data presented here has been sourced from the 2017 SRK FS.

14.5.1 Planned Mining Operations and Mining Method

The project is located on the side of a moderately sized hill, surrounded by dense tropical rainforest in a remote location that has been disturbed by historical illegal mining. Mining will be via an open pit, approximately 2.5 km long by 500 m wide, and of varying depth from surface, with a stripping ratio of 4.5 t waste:t ore. The open pit is located on the side of a hill. The average pit north wall is approximately 125 m deep from original ground surface, and the average pit south wall is approximately 225 m in height. The pit centroid depth from original ground surface is 185 m.

The mine production schedule is based on feeding the processing facility operating at a rate of 4.6 Mtpa of mill feed.

A low grade stockpile has been designed to ensure that the highest grade ore is processed first, ahead of lower grade ore which will be processed at the end of the mine life. The maximum low grade stockpile size is approximately 8 Mt. Mining rates have been adjusted by up to 30%

to account for the wet and dry seasons that will be encountered during operations.

The open pit mining methods will use front-end loaders and hydraulic excavators to load haul trucks for waste and ore haulage. Mining activities will include site clearing, removal of growth medium (topsoil), free-digging, drilling, blasting, loading, hauling and mining support activities. Material within the pit will be generally blasted on a 5 m high bench. Most of the saprolite material (approximately 18% of the total material to be mined) can be loaded directly with hydraulic excavators without the need for blasting. Most ore will be sent directly to the primary crusher. The stripped waste material will be placed in dumps to the north of the pit, and low grade ore placed in a stockpile, near the primary crusher location.

Because of the large amount of rainfall, hilly terrain, and amount of saprolite, a mixed mining fleet will be employed. The first fleet comprises of 6.7 m^3 capacity excavators that load 40 t articulated dump trucks. This first fleet will be used for pioneering excavation, most of the saprolite mining and can also assist with selective ore mining. As the majority of saprolite is removed and drainage improved, the second larger mining fleet of 12.0 m^3 capacity excavators and 91 t capacity rear dump trucks will perform the majority of the bulk production.

The mine equipment requirements and costing were based on the purchase of new equipment. It was planned that all mine mobile equipment would be diesel-powered, to avoid the requirement to provide electrical power into the pit working areas. The mine operations schedule is proposed to include two 12-hour shifts per day, seven days per week for 355 days per year This includes an annual allowance of 10 days downtime for weather delays for most of the mine operations, and 15 days downtime for weather delays for the drilling operations.

A blasting contractor will carry out blasting activities and be responsible for explosives storage facilities at the mine site. Commencing at the same time as the mill production (Year 1) the blasting contractor will start production of bulk emulsion on site, which will be capable of sufficient bulk emulsion production over the life of the planned mining operations.

Pit waste quantities of saprolite and rock will be used in construction of the TSF embankments in particular years. The waste haulage costs for these have been included in the mining costs. A separate construction equipment fleet will be used for project construction work.

14.5.2 Geotechnical Considerations

Two major geotechnical domains have been identified. A hard rock slope composed of strong foliated metamorphic rock and a near surface saprolite soil domain that controls the stability of the upper 30 to 40 m of the ground. The saprolite is a deeply and intensely weathered residual rock that behaves like a soil. It is weak, nearly saturated, and easily deformable.

Slide limit equilibrium program (RockScience, 2014) was used to assess the static slope stability for the pit slopes. The critical overall stability section is located on the south wall of the pit with a slope height of 308 m from the top of the pit slope to the pit bottom. Due to uncertainties in ground conditions, various assumptions have been made. The critical stability surface has a minimum Factor of Safety (“FoS”) of 1.80 under these conditions and the potential failure surface would daylight at the toe of the pit slope. The critical surface runs predominantly through the felsic tuff and diabase dyke units.

The saprolite slopes, being the weakest units, have the minimum FoS exceeding 1.3 on all sections analysed. The saprolite slopes will be drained, subject to the completion of a drainage

design and placement of vegetative cover on all saprolite slopes following excavation. If undrained conditions exist or have not been covered with vegetation, the saprolite slopes are predicted to fail by mechanisms of either erosion, flow, or creep.

Monitoring of slopes will be required due to the uncertainties in conditions.

Several geotechnical risks have been identified, including existing natural landslide hazards, potential for slope creep under sustained wet conditions, flow and erosion of the saprolite, potential for high groundwater levels in the rock slopes; and rockfall and multi-bench failures in the pit slopes. Mitigation of these risks have been addressed as a part of the slope design and stability criteria in the study, and the recommended slope monitoring program. As mining commences additional risk reduction may be accomplished by conducting geologic and geotechnical mapping and analysis.

The design criteria used to develop the LoM pit design are summarised in Table 14-3.

Table 14-3: Montagne d'Or Slope Design Criteria for the 2017 FS LoM Pit

	Units	Saprolite	Fresh High Wall	Fresh Foot Wall	Dumps and Stockpiles
Overall Slope Angle	deg	30	49	54	23
Batter Angle	deg	85	64	70	37
Berm Placement Height	m	5	30	30	10
Flitch (Mining Face) Height	m	5	5	5	10
Berm Width	m	8.22	10.5	10.5	10
Berm Width	m	8.22	10.5	10.5	10

14.5.3 Mine Water Management

The project is located in an area of high rainfall, therefore it is anticipated that the system will consistently experience high intensity short duration stormwater. Additionally, low intensity contact water inflows will result in a steady inflow of water to the mine facilities.

During operation, there will be significant volumes of surface run-off and shallow groundwater from exposed saprock. This will be captured in a diversion ditch upgradient of the pit, waste rock dumps, stockpiles, and TSF, to minimize the volume of water entering the open pit. The diversion water will be routed to sediment control ponds and then to undisturbed creeks; however, groundwater in bedrock and in faults and joints within the bedrock will report to low points in the open pit and require pumping to a contact water pond.

Because the intact bedrock is of low hydraulic conductivity, the relative contribution of groundwater reaching the open pit will be less than that from surface water run-off. Consequently, it is unlikely that active dewatering of the bedrock or saprock with dewatering wells around the pit perimeter will reduce costs or significantly improve long term mining conditions in the open pit. Groundwater reporting to the open pit will mix with run-off and direct precipitation and collect in sumps in the low areas of the pit; this water will be pumped out of the pit with a set of sump pumps, and directed to managed ponds and creeks.

Non-contact stormwater will be monitored for sediment loading and discharged when meeting applicable water quality standards. Water that cannot be diverted will come into contact with active mining facilities and becomes contact water, which is managed separately from non-contact water to avoid release to the environment. All contact water will be isolated and routed to the contact water pond. Excess contact water will be discharged to the environment which may require treatment to meet applicable standards.

Water balance modelling indicates that after the early stages of the mine life, there will be a net accumulation of process water within the circuit, requiring that excess process water be removed from the circuit on a regular basis, utilizing a treat and discharge approach.

14.5.4 Open Pit Mine Design and Planning

Cut-off Strategy Applied

Three cut-off grades representing a high grade (USD1,200/oz), mid-grade (USD800/oz) and low grade (USD400/oz) gold price for calculating reserves in the Montagne d'Or mine plan. A breakeven CoG was used rather than the internal CoG and estimates were made before the final economic model was created. The processing recoveries ranged from 90.3% to 96.4% dependent on rock types (felsics, granodiorite, mafics), for the purpose of the CoG calculations.

Table 14-4: Montagne d'Or Cut-off Grade Parameters (2017 SRK FS)

Description	Units	LG 1200 CoG	MG 800 CoG	HG 400 CoG
Common Assumptions				
Gold Price	USD/oz	1,200	800	400
Smelting & Refining	USD/oz	8.00	8.00	8.00
Royalty (NSR)	%	5	5	5
Costs				
Smelting & Refining	USD/t milled	0.149	0.224	0.453
Royalty	USD/t milled	1.025	1.029	1.040
Mining	USD/t mined	2.25	2.25	2.25
Other Costs (e.g. Reclamation)	USD/t milled	0.2	0.2	0.2
G&A	USD/t milled	5.78	5.78	5.78
Variables and Cut-off				
Felsics				
Au Recovery	%	93.8	93.8	93.8
Processing	USD/t milled	12.93	12.93	12.93
CoG – Head Grade	g/t	0.617	0.929	1.878
CoG – Recovered Grade	g/t	0.579	0.871	1.761
Granodiorite				
Au Recovery	%	95.2	95.2	95.2
Processing	USD/t milled	13.4	13.4	13.4
CoG – Head Grade	g/t	0.622	0.936	1.891
CoG – Recovered Grade	g/t	0.592	0.891	1.801
Mafics				
Au Recovery	%	91.3	91.3	91.3
Processing	USD/t milled	13.97	13.97	13.97
CoG – Head Grade	g/t	0.665	1.001	2.023
CoG – Recovered Grade	g/t	0.607	0.914	1.848
Saprolite/Saprock				
Other Costs (e.g. Reclamation)	USD/t milled	0.1	0.1	0.1
Au Recovery	%	96.4	96.4	96.4
Processing	USD/t milled	11.32	11.32	11.32
CoG – Head Grade	g/t	0.552	0.831	1.680
CoG – Recovered Grade	g/t	0.532	0.801	1.619

Modifying Factors for Mine Design

Resources were based on the resource block model, constructed using a 10 x 5 x 5 m block dimension. To make it suitable for mine planning, the block model was re- estimated using a 5 x 5 x 5 m block dimension that corresponds to the selective mining unit of the operation. The block model was then estimated inside and outside the grade shell model and the partial gold from each estimation averaged. This created a boundary of blocks along the edge of the grade shell that the CoG are applied to. This resulted in a diluted block model.

No additional dilution or mining recovery modifiers were applied. It is noted that Inferred blocks within the pit design shape were given zero grade and treated as waste.

FS Life of Mine Design and Mine Plan

The ultimate pit design has been separated into eight mine phases for sequenced extraction in the production schedule. This split the ultimate pit into smaller and more manageable pits, while still ensuring each bench within each phase has ramp access.

The mine production schedule utilized the CPLEX optimization tool within the Maptek™ Chronos scheduling package. Benches within each phase have a precedence relationship assigned to ensure top down mining in an orderly sequence. The objective function of the optimization was to maximize a simplified NPV calculation in each period, but still maintain a reasonable mining fleet. Optimizations were conducted on a monthly basis for 24 months after pre-production, followed by quarterly periods through the end of the mine life.

The production schedule was modified to accommodate the wet and dry seasons.

The pits were designed based on the geotechnical parameters presented in the previous section. The ramps were designed at a gradient of 10% at 14 m and 23 m width (for 1 and 2-way ramps). The mining benches are 15 m for single bench design and 30 m for double bench designs. Saprolite slopes will be critical for stability and should be excavated at a maximum 30° inter-ramp angle; bench height should be 5 m maximum.

Figure 14-6 and Table 14-5 show the 2017 SRK FS LoMp forecast for the Montagne d'Or project.

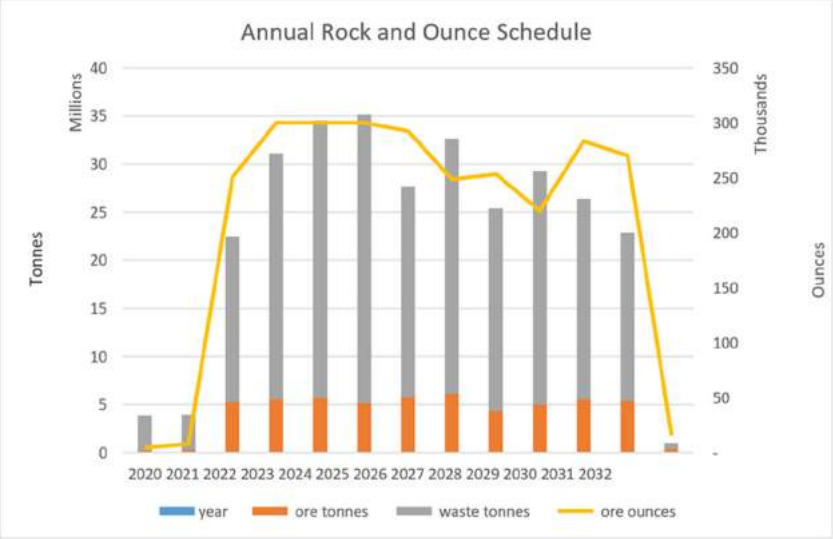


Figure 14-6: Montagne d'Or Mining Production Schedule (2017 SRK FS)

Table 14-5: Montagne d'Or Forecast LoM Mining Production Statistics (2017 SRK FS)

Statistics	Units	LoM Total
Open pit		
Mined	(kt)	295,867
Waste	(kt)	241,753
Ore	(kt)	54,114
	(g/t Au)	1.58
	(koz Au)	2,745
Stripping ratio	(t_{waste}:t_{ore})	4.5

Waste Rock Dumps

The total storage and volumetric capacity of the waste rock dumps are detailed in Table 14-6. As they are staggered, progressively rehabilitation of the waste slopes will be possible for the West Dump after Year 5. Only rehabilitation of partial slopes for the Central Dump will be possible prior to the end of mining.

Table 14-6: Montagne d'Or Overburden Storage Areas (2017 SRK FS)

Dump	Tonnage (Mt)	Volume (Mm^3)	Year Started	Year Complete
West Waste Rock Dump	54.3	27.1	2020	2025
Central Starter Waste Rock Dump	31.8	15.9	2020	2024
Central Waste Rock Dump	156.6	78.3	2024	2031
Total	**242.7**	**121.4**	**2020**	**2031**

14.5.5 Ore Reserve Statement

In reporting the 2017 SRK FS Ore Reserves as stated in Table 14-7, SRK notes the following:

1. Ore Reserves are based a cut-off grade of dependent on lithological rock types, economics and estimated metallurgical recovery. The following cut-off grades apply: Felsic Tuffs 0.617 g/t Au, Granodiorites 0.622 g/t Au, Mafics 0.665 g/t Au, and Saprolite and Saprock 0.552 g/t Au.
2. A gold price of USD 1,200/oz has been applied (a lower price than Nordgold's current benchmark gold price for Ore Reserves as explained in Section 14.1.4).
3. The Ore Reserves were originally reported as at 01 September 2016, and have not changed since that time (see note 2 above).
4. The Ore Reserves include a dilution through generating a mining model with blocks 5 x5 x5 m, from the resource model with blocks 10 x 5 x 5 m. The CoG were then applied to the boundary blocks. No further loss and dilution was applied.
5. The Ore Reserves are reported on a 100% basis (Nordgold owns 55.01%).

Table 14-7: Montagne d'Or Ore Reserve Statement as at 1 September 2016

Category	Quantity (kt)	Grade (g/t Au)	Contained (koz Au)
Proved	8,245	1.99	527
Probable	45,868	1.50	2,218
Proved and Probable	**54,113**	**1.58**	**2,745**

14.5.6 SRK Comments

SRK has summarised the key findings the 2017 SRK FS in this CPR. SRK notes that the Mineral Resources and Ore Reserves statements have not changed in this time and were reported using lower gold prices that those currently being used for this CPR, and it has not been considered necessary to update them. The Ore Reserve will require updating prior to progressing to a project development stage, to assess the impact of up to date capital and operating costs and the gold price.

14.6 Mineral Processing and Metallurgical Testing

14.6.1 Metallurgical Testwork

The 2017 FS metallurgical program was based on earlier metallurgical studies that were conducted as part of a Preliminary Economic Assessment of the project during 2014 and 2015 by Bureau Veritas Commodities Ltd. Based on the results, the 2017 SRK FS metallurgical program focused on the development of a process flowsheet that included gravity concentration followed by cyanidation of the gravity tailings and intensive cyanide leaching of the gravity concentrate. This program was conducted by several different commercial laboratories including BV, Pocock Industrial, ALS Metallurgy North America, SGS Canada, and FLSmidth.

The metallurgical program was conducted on three master composites, 15 variability composites representing different ore lithologies and grade ranges, and seven variability composites representing seven mining phases that were identified at the start of the program.

The following significant factors are identified based on the metallurgical studies conducted for the 2017 SRK FS:

- The 2017 SRK FS metallurgical program focused on the development of a process flowsheet that included gravity concentration followed by cyanidation of the gravity tailings and intensive cyanide leaching of the gravity concentrate.
- Montagne d'Or ore can be readily processed to recover the contained gold and silver values using unit operations considered standard to the industry.
- Adjusted gold and silver recoveries based on the contribution from each ore lithology during each phase of mining were estimated. During the first six mining phases gold recovery is estimated at 94% to 95% and silver recovery is estimated at about 54% to 56%. These recovery projections include a 2% deduction from reported laboratory test results to account for inherent plant inefficiencies.
- Detoxification of the cyanide leach residues was accomplished with the industry-standard sulphur dioxide (SO_2)/air process. It was demonstrated that cyanide in the leach residue could readily be detoxified to less than 1 ppm. SO_2 consumption in the range of about 5 to 6 g SO_2/g were reported, which is typical of industry practice.

14.6.2 Process Description and Flowsheet

The process engineering works were undertaken by Lycopodium. The process plant design, derived from the interpretation of the test work results, reflected a robust metallurgical flowsheet designed for optimum recovery with minimum operating costs and utilising unit operations that are well proven in industry. The key criteria for equipment selection were suitability for duty, reliability and ease of maintenance. The plant layout provides ease of access to all equipment for operating and maintenance requirements whilst maintaining a compact footprint that would minimize construction costs.

The plant was designed to treat 4.575 Mtpa of blended ore consisting of 89% felsic tuff, 7% granodiorite and 4% mafic ores. A mechanical availability of 91.3% was assumed. The treatment plant design incorporates the following unit process operations:

- primary jaw crushing and crushed ore surge bin with bin overflow conveyed to a dead stockpile;
- a single stage semi-autogenous mill in closed circuit with a pebble crusher and hydrocyclones to produce an 80% passing 75 micron grind size;
- gravity concentration with intensive cyanidation and electrowinning of recovered gold;
- pre-leach thickening;
- leach and carbon in leach circuit incorporating a leach tank and six carbon in leach tanks, followed by a 10 t split elution circuit; and
- tailings thickener, and SO_2 and cyanide destruction circuit to reduce the tailings cyanide concentration to below 10 ppm.

The plant was located on the edge of and above the floor of the valley running south from Camp Citron. The plant site is located below two sediment ponds used to control discharges from the pit and haul road areas. Outlets from the ponds have been sized to accommodate the 100-year flood without impacting the plant area.

14.6.3 Forecast Production

The Life of Mine plan considers processing of the Ore Reserves over a 12 year period at a steady processing throughput rate of 12,330 ktpd (4.6 Mtpa).

The feed grade ranges between 1.44 g/t and 1.95 g/t Au during the first 10 years, and decreasing to 0.83 g/t and 0.73 g/t Au in the final two years.

Annual gold production is planned to range between 200 and 270 koz during the first 10 years, and 115 and 90 koz during the final two years. Total LoM gold production amounts to 2.57 Moz Au in doré.

Table 14-8 summarises the LoM plant production as set out in the 2017 SRK FS.

Table 14-8: Montagne d'Or Gold Production Forecast Statistics for 2017 FS LoMp

Statistics	Units	Total LoMp
Tonnage	(kt)	54.1
Feed Grade	(g/t)	1.58
MRF	(%)	93.8
Production (recovered metal)	(koz Au)	2,574

14.6.4 Discussion

The metallurgical testing undertaken has been sufficient to support the process plant design and costing.

14.7 Tailings Storage Facility

The TSF at Montagne d'Or was designed to store 56 Mt for the LoM period of 12 years. The TSF has been designed to protect the regional groundwater and surface waters during operations and closure, provide secure storage, provide a development plan that utilizes four construction phases to minimize initial capital expenditures, and meet closure objectives.

The TSF will consist of two embankments separated by north-south trending ridges. The embankments will be raised in phases using the downstream construction method. Whereas this method requires the largest embankment fill volume, it provides the most stable embankment configuration.

The embankments will be constructed with 2.5H:1V upstream and downstream slopes, with a 17 m crest. In order to meet the minimum stability criteria, up to 5 m of the foundation soils will need to be removed beneath each of the embankments, including part of the South Embankment abutment. The tailings embankment will be constructed over four phases.

An assessment of the geochemistry of the tailings indicates they will have a strong acid generating potential ("AGP"). Based on this determination and residual presence of reagents in the tailings effluent, the TSF will need to be lined. The liner will consist of a single 2.0 mm Linear Low Density Polyethylene ("LLDPE") geomembrane over a prepared subgrade surface within the entire TSF impoundment.

An underdrain system will be installed to protect groundwater and minimize any uplift pressures on the geomembrane liner system. Water captured by the underdrain will flow via gravity to a sump north of the TSF footprint. A leak detection system was studies though not considered necessary. It is assumed that the proposed underdrain system will intercept any leaked supernatant and direct it to the underdrain sump which will either be discharged to the environment or pumped back into the TSF.

Slurried tailings deposition will occur sub-aerially and will initially be performed mainly from embankment deposition points to push tailings and entrained water away from the embankment and simultaneously establish deposition cycles that optimize the creation and maintenance of a well-drained beach, draining away from the embankments.

Diversion channels have been designed on the south side of the TSF impoundment to intercept and divert surface water. A closure spillway has been included in the embankment's ultimate elevation design.

14.8 Planned Infrastructure

Existing infrastructure at site is minimal to non-existent. The project is accessible via a 120 km seasonal forest road from the town of Saint Laurent du Maroni, where the port of St. Laurent is located, or by helicopter/light aircraft to the project's base camp at Camp Citron.

The current condition of the public section of the road between Saint Laurent du Maroni and Apatou Crossing road is fair to poor and will need repair and maintenance during the project construction and on-going operation phase.

Infrastructure to be provided to support construction and operation includes:

- rehabilitation of the existing 54 km of road between the project site and Apatou Crossing;
- site roads and earthworks pads for the construction of site infrastructure;
- stormwater management and sediment control structures;
- Contact Water Pond to store all potentially contaminated site water for use in the process plant and/or for treatment prior to discharge;
- construction of a 120 km 90 kV overhead power line to connect the project to the national power grid;
- expansion of the existing Camp Citron to provide pioneer accommodation for early project construction activities;
- construction of a 482 room permanent camp to support construction and operations including potable water and sewage treatment plant, waste disposal facilities and temporary power;
- site communications including an external voice/data link and internal local area network and radio network as well as site mobile phone coverage;
- administration infrastructure such as offices, clinic, emergency response, warehouses, site laboratory etc.;
- mine support services including offices, ablutions, workshops, fuel depot, explosives facility, etc;
- plant support services including security and access control, offices, ablutions, control room etc;
- a lined TSF capable of being progressively expanded to contain the LoM tailings from the process plant;
- water treatment plants to raise the quality of surplus site contact water and TSF decant water to a level where it is suitable for discharge into the local watercourses;
- temporary topsoil dumps for use for site rehabilitation during and after the mine life; and
- waste rock dumps for the permanent management of mine waste.

14.9 Environmental and Social Matters

14.9.1 Environmental Approvals

See Section 14.2.2.

14.9.2 Environmental Studies Completed

A number of technical environmental studies have been conducted as part of project development, many of which were documented in a 2015 environmental scoping study report by WSP.

SRK has been shown a detailed compilation of documents being prepared as part of the planned application for the full mine authorisation *(l'Autorisation relative à l'Ouverture de Travaux Miniers*). This set of documents is still in draft as of January 2021 but gives a clear indication of the detailed environmental and social work being carried out as part of the project development.

14.9.3 Environmental and Social Setting

The Montagne d'Or project is located between two sections of the Integral Biological Reserve of Lucifer Dékou-Dékou (Figure 14-7). The reserve was created in 2012 and is the first such reserve in French Guiana and the largest in French jurisdiction. The project is in a space designated as a "managed biological reserve" where human interventions that could modify the functioning of the ecosystem are controlled but not prohibited. This exception was established recognising historical exploration and exploitation of gold resources in the area, as well as the presence of potentially significant mineral deposits at the foot of the Dékou-Dékou massif.

The Lucifer and Dékou-Dékou massifs are home to two floral assemblages rare in French Guiana. These are the sub-montaneous forest on lateritic bauxite hardpan, and the forest on 400 to 500 m slopes. They shelter some fifty floral heritage species and three nationally-protected species.

Most of the region is covered by a thick canopy of primary and secondary tropical forest. The larger valleys have been extensively worked by alluvial miners in the past and are generally covered by thinner secondary forest or grassy-scrub and bamboo. There are numerous broad valleys, many of which have been exploited for their alluvial gold deposits. These are separated by areas of moderately rugged to more rounded hilly relief and often deeply incised valleys.

Figure 14-7: Montagne d'Or Project Site

The fauna and flora field inventories conducted from 2014 to 2016 in the study area found 1,558 species of plants and 505 species of terrestrial vertebrates (299 birds, 35 mammals, 63 bats, 58 amphibians, 50 reptiles). The aquatic fauna surveyed comprised 52 families of macro invertebrates and 41 species of fish. The highest diversities of plants and birds were found in the steep slope old-growth and dense evergreen forests. The richest community of amphibians, almost half the number of species observed, was found in the alluvial mining areas and their interfaces with the second-growth forest.

On the basis of the principle 'avoid-reduce-offset', optimisation measures of the project have been developed in order to avoid impacts on biodiversity, including the elimination of the waste dump to the northeast of the pit in order to preserve the wildlife migration corridor.

The closest village to the project area, Village de Cambrouze, is approximate 12 km from the site. The Village de Bonne Entente is over 40 km from the site. The closest tourist site is associated with the Voltaire Waterfalls approximately 45 km from the project area.

Illegal mining in French Guiana has become a serious issue. The country is estimated to have 400-500 illegal mining sites extracting nearly 10 t of gold annually. The geographical conditions and vastness of the country play an important role in the illegal mining activity. SRK understands the project area has been the site of artisanal mining that has led to the degradation of some habitats in the immediate vicinity of the project.

14.9.4 Approach to Environmental and Social Management

The project will be expected to develop social and environmental management systems drawing on the Nordgold corporate policies and commitments of the Nordgold parent company. There are no Montagne d'Or specific environmental or social policy documents that have been shared with SRK, however the detailed set of documents currently being drafted for the mining authorisation application will form the basis for the development of a comprehensive management system.

14.9.5 Key Issues

Social and cultural issues

There is one village that may be affected by the upgrades to the access road.

The principal cultural issue for the project is the existence of 47 archaeological sites attributed to the pre-Columbian period, and fifteen 'crowned mountains' including 10 sites that are spread over an area of about 40 km² around the future Montagne d'Or Project. To the extent practicable, these locations have been avoided by the mine plan. One small cemetery will require relocation.

Biodiversity

The project is in an area of high biodiversity with the main open pit located less than 500 m from a strict reserve where no mining is permitted. The fact that mining can be considered in this area is linked to the long exploration history of the area and the potential economic benefits. The project has attracted attention at the presidential level in France and is regularly reported on in the French press.

The area is home to threatened and endangered plants and fauna species. Baseline inventories have recorded a total of 110 nationally protected species of which 100 are bird species including three species with protected habitat, seven mammals and three plants. The site also hosts five plant species new to French Guiana and 7 other plants of interest (rare or endemic), as well as two fish species rare and endemic to French Guiana, found in the mountain streams.

Water balance, erosion, and water quality

The project is in an area of high rainfall and will consistently experience high intensity short duration stormwater. Additionally, low intensity contact water inflows will result in a steady inflow of water to the mine facilities. Stormwater management and diversion will be critical to the success of the project, and excess waters will necessarily require treatment and discharge to maintain an appropriate site-wide water balance. The volumes are substantial, potentially reaching 140 L/s.

The mine water management plan addresses stormwater and mitigates much of contact water inflows by diverting as much clean, non-contact water from adjacent hillsides around the project facilities. Where mine sequencing and the topography allows, diversion ditches have been designed upgradient of the pit, waste rock dumps, stockpiles and TSF to minimize the amount of water that runs on to the facilities.

The feasibility study has recommendations for further work on the management of surface water and water volumes. The study also indicated that water treatment plants will use media and micro filtration and reverse osmosis to produce potable quality water that will meet the anticipated environmental requirements for discharge to the environment.

Management of the TSF supernatant pool is limited to a narrow range during operations, with the intent of maximising the area of exposed beach to enhance consolidation, and to provide a large surge capacity to contain the inflow from extreme storm events. Maintaining such tight control will require diligent monitoring of the TSF pool and establishing of reliable method of predicting inflows.

Foundations for key infrastructure may require extensive excavation or rework of saprolite material. This will prove challenging given the rainfall regimes in the area. Careful consideration will be required to manage erosion and sediment discharge.

Geochemistry

The results of static geochemistry tests suggest that bulk of the waste rock generated during operations (approximately 55%) could be acid generating; however, kinetic geochemistry tests indicate that only some of the waste rock, the Felsic Tuff and the Lapilli Tuff, is potentially acid generating. This is attributed to encapsulation of sulphides in quartz and other silicate phases which renders the sulphide minerals unreactive. The potential for leaching metals remains a concern.

The detoxified tailings solids were predicted to be acid generating. The supernatant will initially be alkaline when first discharged to the TSF and should aid in buffering the overall system.

SRK understands further work will be required to determine the range of management measures required for the tailings and waste rock dump (“WRD”) both for the operational and closure phases.

14.9.6 Closure

In the 2017 SRK FS, the closure costs were calculated using the Standardised Reclamation Cost Estimator model. This produced an estimated cost of EUR51m (USD56.1m), based on an exchange rate of USD1.10 : EUR1.00. With a contingency of 15%, the total was estimated at EUR58.7m (USD64.6m).

The draft environmental permitting documentation (Volume 3 – Chapter 8) has a more detailed cost estimate that is almost double this earlier estimate. The status of this estimate is unknown.

14.10 Economic Assessment

14.10.1 Introduction

The data and results presented here have been reproduced from the 2017 SRK FS.

14.10.2 Summary Production Schedules

The duration of mining production is 11 years, whereas the process plant has 12 year of operations. The LoM summaries are presented in Table 14-9.

Table 14-9: Montagne d'Or: LoM Production Summary (2017 SRK FS)

Parameter	Total LoM
Ore Mined (Mt)	54.1
Waste Mined (Mt)	241.8
Total Material Mined (Mt)	295.9
Strip Ratio	4.5
Mining Rate (Mtpa)	35.1
RoM Grade (g/t)	1.58
Contained Gold (koz)	2,745
Total Ore Processed (Mt)	54.1
Processing Rate (Mtpa)	4.575
Processed Grade (g/t)	1.58
Contained Gold (koz)	2,745
Gold Recovery (%)	93.8%
Recovered Gold (koz)	2,574

14.10.3 Summary Operating Expenditure

The LoM operating cost had been generated using the mine schedules and costs developed by SRK, the plant feed schedule developed by SRK, the processing costs developed by Lycopodium and the general and administration and water management costs developed by SRK.

The costs are based on an exchange rate of 1.05 USD/EUR. They include all costs to the point of sale. Royalties have been calculated based on 5% of the net-smelter-return.

The unit operating cost amounts to USD28.8/t processed as presented in

Table 14-10. These costs have not been revised to reflect 2021 costs, considering inflation of unitary changes since 2017.

Table 14-10: Montagne d'Or: Operating Unit Costs (2017 SRK FS)

Operating Unit Costs	
	USD/t Mined Ex-Pit (incl waste)
Mining	2.44
	USD/t Processed
Mining	13.01
Process	11.49
Site G&A	4.15
Water Management	0.12
Total Operating Costs	**28.76**

14.10.4 Summary Capital Expenditure

The project capital costs were developed by Lycopodium, SRK and Nordgold. The estimate was based on an implementation strategy using a combination of Owner (self-perform) for the mining and earthworks for the treatment plant, infrastructure, roads, camp, TSF and water management dams, in addition to EPCM for all other plant, infrastructure, camp, TSF and water management scope.

The costs are based on an exchange rate of 1.05 USD/EUR. The total LoM capital costs amount to USD827m, including contingency and closure costs, as summarised in Table 14-9. Approximately 9.5% overall contingency has been applied to capital items, which is appropriate for a BFS level of analysis in SRK's opinion.

Capital cost estimates for major mining equipment (drills, loading equipment, haul trucks, dozers, graders, etc.) were based on quotes from equipment manufacturers (such as Atlas Copco, Komatsu and Caterpillar). Capital cost estimates for mining support equipment were based on quotes from Scania or from the November 2016 Infomine mining cost reference guide.

The start-up capital to construct the project was estimated to be USD535m. This included USD52m of preproduction costs which start in year -2.

Table 14-11: Montagne d'Or: Capital Costs (2017 SRK FS)

Initial Capital Costs	Units	Value
Preproduction Costs	(USDm)	52
Mining	(USDm)	69
TSF, Process, Infrastructure	(USDm)	404
Water Management	(USDm)	10
Total	**(USDm)**	535
Sustaining Capital Costs		
Mining	(USDm)	61
Process	(USDm)	-
Infrastructure	(USDm)	13
TSF	(USDm)	151
Water Management	(USDm)	5
Total	**(USDm)**	231
LoM Capital Costs		
Preproduction Costs	(USDm)	52
Mining	(USDm)	130
TSF, Process, Infrastructure	(USDm)	404
Infrastructure (Sustaining)	(USDm)	13
TSF (Sustaining)	(USDm)	151
Water Management	(USDm)	15
Subtotal	(USDm)	766
Closure, Reclamation	(USDm)	61
Total	**(USDm)**	827

14.10.5 Cash Flow Analysis

Royalties

Applicable taxes at the date of the Montagne d'Or BFS were calculated under the guidance of FIDAL, being KPMG's in-country affiliate. Royalties due to the State have been considered, along those due to Euro Resources (ranging between 1.8% and 0.9% above 2 Moz), and Sandstorm Resources (1% NSR). The overall effective NSR royalty rate was estimated to be 5.0% up to 2 Moz and 4.1% afterwards until the end of production.

Taxes

A taxation model was prepared by FIDAL and takes into account the potential tax advantages that can be granted within the framework of the concession/specific agreement concluded by the State with the operator.

This includes applicable Overseas Department tax credits, which are significant to the profitability of the project. At the extreme, there is a 45% decrease in Project IRR from the base case with full utilization compared to a scenario when they are not used.

Economic Assessment

The results of the economic assessment from the 2017 SRK FS are presented in Table 14-12. No adjustments have been to these figures. A gold price of USD1,250/oz was applied for the base case economic assessment, as explained in Section 14.1.4.

Table 14-12: Montagne d'Or: NPV Summary (2017 SRK FS)

	(USDm)
Pre-tax Free Cash Flow	861
Post-tax Free Cash Flow	660
Post-tax NPV @ 5%	**370**
Post-tax IRR	**18.7%**

Cash Cost

The LoM all-in sustaining cash cost, presented in Table 14-13, amounts to USD779/payable oz over the 12-year life of the project. The LoM all-in sustaining cash cost before closure and reclamation costs at the end of the LoM is USD756/payable oz.

Table 14-13: Montagne d'Or: All-In Sustaining Cost (AISC) Contribution (2017 SRK FS)

Description	(USD/oz)
Mining	274
Processing	242
Site G&A	87
Water Management	2
Selling/Refining	1
Direct Cash Costs	**606**
Royalties	60
Indirect Cash Costs	**60**
Adjusted Operating Costs/Total Cash Costs	**666**
Sustaining Capital	90
Closure/Reclamation Operating/Capital	24
Corporate G&A	-
Off-Mine Exploration	-
Sustaining Costs	**113**
Total LoM All-in Sustaining Costs	**779**
Total All-in Sustaining Costs w/o Final Closure	**756**

14.10.6 Summary Opinion

The economics of the project presented here are those reported in the 2017 SRK FS. This demonstrated a positive economic outcome.

No adjustments have been made to the gold price as it was applied in the 2017 SRK FS; or the operating and capital costs, by applying inflation, a revised exchange rate, unitary changes to for example diesel and reagent prices, or new equipment quotations. These may have materially changed. The mining code, tax regulations and the concession agreement, including benefits accorded to the project, may also have been updated. The project will likely be sensitive to the combined impact of these aspects of the project, and as such an update to the 2017 SRK FS is recommended prior to basing any decisions on the 2017 SRK FS economic assessment.

15 PISTOL BAY EXPLORATION PROJECT

15.1 Introduction, Project Structure and Project Location

15.1.1 Location

The Pistol Bay advanced exploration property is in northern Canada in the Territory of Nunavut. The property is approximately 400 km north of the town of Churchill, 74 km south-west of Rankin Inlet and 22 km west of the hamlet of Whale Cove on the western shore of Hudson Bay. The property extends approximately 80 km west of Whale Cove and is at approximately 62.42° latitude north and 93.00° longitude west. The location is shown in Figure 3-15, Section 3.3, and in Figure 15-1.

Figure 15-1: Pistol Bay Project, Exploration Claims and Key Deposits Location (Nordgold 2020)

15.1.2 Access

Access to the property from southern Canada is via air to Rankin Inlet and Whale Cove. The property is accessed from Whale Cove via an all-weather road. It can also be accessed via helicopter from either Rankin Inlet or Whale Cove. Bulk items such as fuel are transported by barge to Whale Cove during the open water season (July to October) and then via truck or helicopter to the project site.

15.1.3 Climate

The property is located north of the tree line in Canada's arctic. The climate is characterized as a low arctic coastal climate due to its proximity to Hudson Bay which is navigable by ship between July and October. Winters in the region are characterized as long and cold with average temperatures of approximately -30.6°C throughout the month of January. Summers are characterized as cool and wet with average temperatures of 9.8°C through the month of July.

15.1.4 SRK Mineral Resource Estimate

SRK completed a Technical Report and Mineral Resource estimate ("MRE") on the Pistol Bay gold project in February 2020. Since completion of that study, no further work has been carried out on the project and SRK has summarised the key findings of that study in this CPR. SRK notes that the Mineral Resource statement has not changed in this time and was reported using a lower gold price (USD1,550/oz) that that currently being used for this CPR (USD1,750/oz), and it has not been considered necessary to update it, as the existing statement represents a more conservative estimate of the Mineral Resources.

15.2 Mineral Rights and Primary Approvals

15.2.1 Overview of Approvals Required

Mineral Rights

In the Territory of Nunavut claims are secured in accordance with the Territorial Lands Act and the Nunavut Mining Regulations. The right to mine subsurface materials such as gold and other hard rock minerals are administered through the Nunavut Mining Regulations.

The Nunavut Mining Recorder's Office ("MRO") is responsible for the subsurface rights administration of Crown land. The MRO receives applications for prospecting licences and permits, mineral claims and mining leases.

Mineral claims can be renewed for 10 years providing the holder meets all the conditions set out in the Territorial Lands Act and Nunavut Mining Regulations. After this period an application can be submitted to convert the mineral claims into mineral leases.

Environmental and social obligations associated with mineral rights holders are documented in the Owners Environmental Approvals which must be received prior to initiating any mineral activities on the land.

Planning and Environmental Approvals

Planning and environmental approvals must be obtained in accordance with the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada (Nunavut Agreement), the Nunavut Planning and Project Assessment Act and the Territorial Lands Act and the Nunavut Water and Nunavut Surface Rights Tribunal Act.

In the event Nordgold choses to seek regulatory approval to advance this exploration project to an operating mine, regulatory approvals would be required from the Nunavut Planning Commission ("NPC"), the Nunavut Impact Review Board ("NIRB") and the Nunavut Water Board ("NWB"), both of which are governed by the NPC.

Mining projects in all Canadian jurisdictions are regulated through a two-tiered system. Initially the proposed project must successfully complete an Environmental and Social Impact Assessment ("EA"). In the case of the Territory of Nunavut this EA is regulated by the NIRB. Following the successful completion of an NIRB EA and the granting of an Environmental Project Certificate the project requires a Type A Water Licence and Land Use Permits and licences, which outline the monitoring and reporting requirements for the project. These licences and permits are regulated by the Nunavut Water Board and/or the Kivalliq Inuit Association ("KIA"). In addition, additional authorizations may be required through various Territorial and Federal government departments, such as the Department of Fisheries and Oceans Canada and the Workers Safety and Compensation Commission ("WSCC").

15.2.2 Mineral Rights Held

The claims held for the Pistol Bay Project are show in Figure 15-1. There are 89 active claims. These are held by Northquest. They were granted between 2010 and 2015 and their validity expires on dates between October 2021 and August 2028. Only three claims require renewal in October 2021.

15.2.3 Land Tenure and Environmental Approvals

To date activities associated with the Pistol Bay property have been restricted to activities consistent with an exploration project consisting of: the establishment of a camp and access, use of water for drilling and domestic needs, management of domestic wastes, geological mapping, surface sampling programs, trenching and diamond drilling.

Exploration activities in Nunavut require a combination of licences, permits and approvals from Territorial Agencies and Boards (Section 15.2.1). Collectively these approvals allow access to the land and authorize exploration activities on the land.

Currently Nordgold through its 100% owned subsidiary Northquest Ltd. is in possession of all necessary permits and authorizations to conduct exploration activities on the Pistol Bay Properties, with the exception. These consist of:

- Agreement of Permission to Occupy commissioner's land, valid until August 31, 2021.
- Land Use Permit by Indigenous and Northern Affairs Canada (INAC) for exploration on crown land, valid until July 20, 2021.
- Inuit Land Use Licence from the Kivalliq Inuit Association (KIA) for Inuit Surface Only land, valid until August 30, 2021.
- Water Licence from the Nunavut Water Board (NWB), valid until October 31, 2025.
- Workers Safety and Compensation Commission (WSCC) approval for Mine Health and Safety, expires December 31 annually. Application for new approval will be submitted approximately six weeks before planned commencement of on-site activities.

Review of the NWB public registry indicated that Nordgold is in full compliance with all environmental approvals associated with the Pistol Bay Project. SRK did not identify any environmental or social concern which would limit their ability to continue with their regular exploration activities on the Project in accordance with all existing licenses, permits and authorizations.

15.3 Geology

15.3.1 Geology of the Pistol Bay Mine

The Pistol Bay Property lies within the Archean Kaminak Group of the Rankin-Ennadai greenstone belt, in the southeastern portion of the Hearne Province of the Canadian Shield, The Kaminak Group is an isolated supracrustal sequence of the Rankin-Ennadai belt, comprising mafic, intermediate, and felsic volcanic and volcaniclastic, siliciclastic, and iron formation rocks with chemical sedimentary rocks. Synvolcanic to late tectonic mafic to intermediate plutons intrude the Archean supracrustal rocks (Figure 15-2).

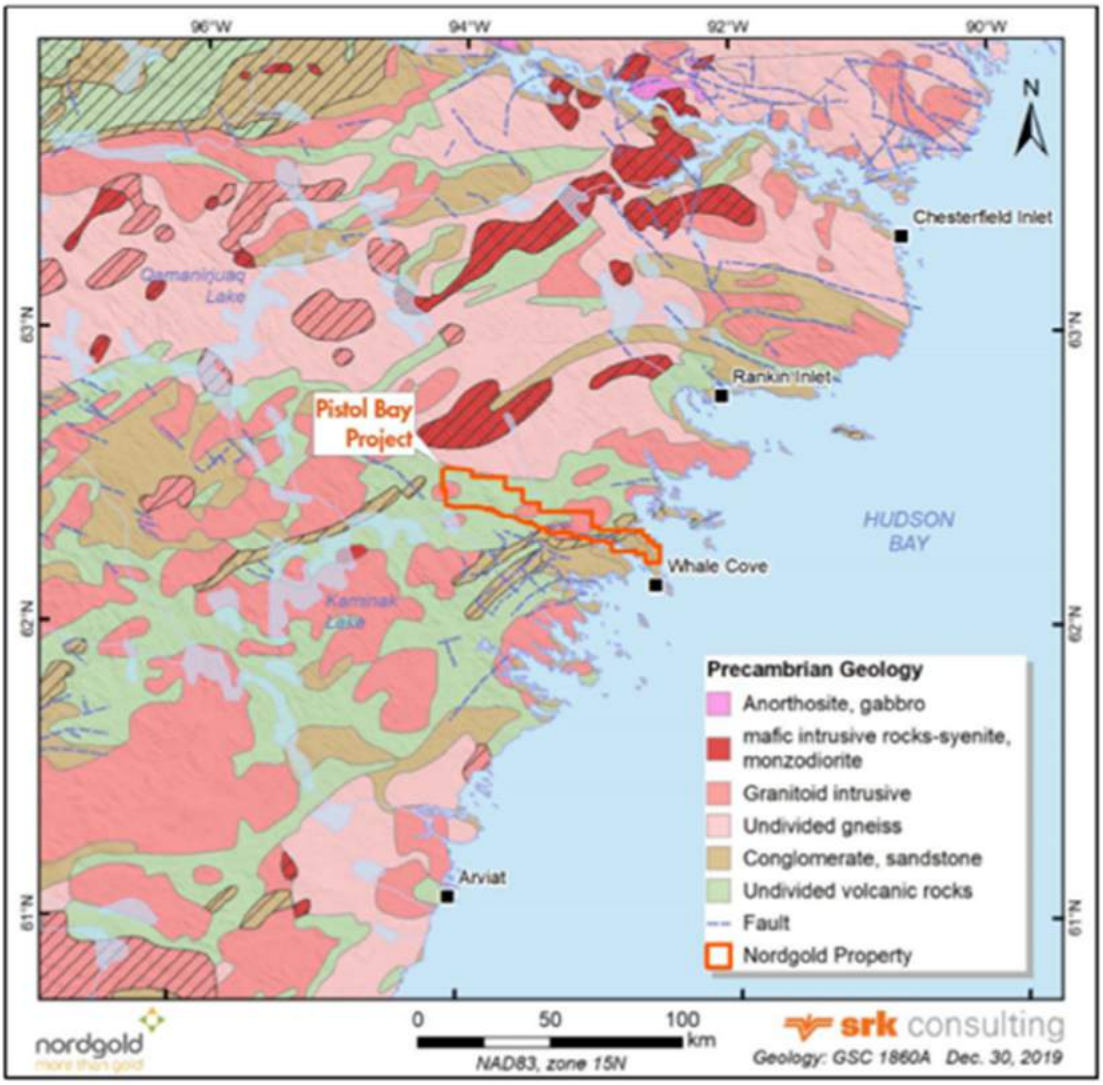


Figure 15-2: Pistol Bay Project Regional Geology

Gold mineralization at the Pistol Bay Gold Project is hosted in a number of settings, including within veins, intrusions and iron formations (Figure 15-3). Vein-hosted gold mineralization occurs as narrow, generally shear-associated quartz veins, hosted in basalt rocks of the westernmost portion of the property. Gold bearing veins typically have a maximum of 10 m length. Iron formation-hosted gold mineralization occurs in the eastern part of the property where iron carbonate is present as an alteration mineral.

Gold mineralization hosted in intermediate intrusions such as those at Vickers or Howitzer form the most important prospects currently known on the property. At Howitzer, gold is spatially associated with arsenopyrite ± pyrite mineralization and sericite ±chlorite alteration. The Vickers deposit consists of three areas of gold mineralization hosted in both the Gereghty intrusion and rhyolitic volcaniclastic host rocks. Mineralization occurs mainly in veinlets and hydrothermal breccia, along zones of high rheological contrast within and surrounding the Gereghty intrusion, and along weakly to strongly brecciated, sheet-like zones at depth.

Overall, the deposits are considered to be representative of orogenic-style gold deposits, although it also exhibits possible features of intrusion-related gold deposits.

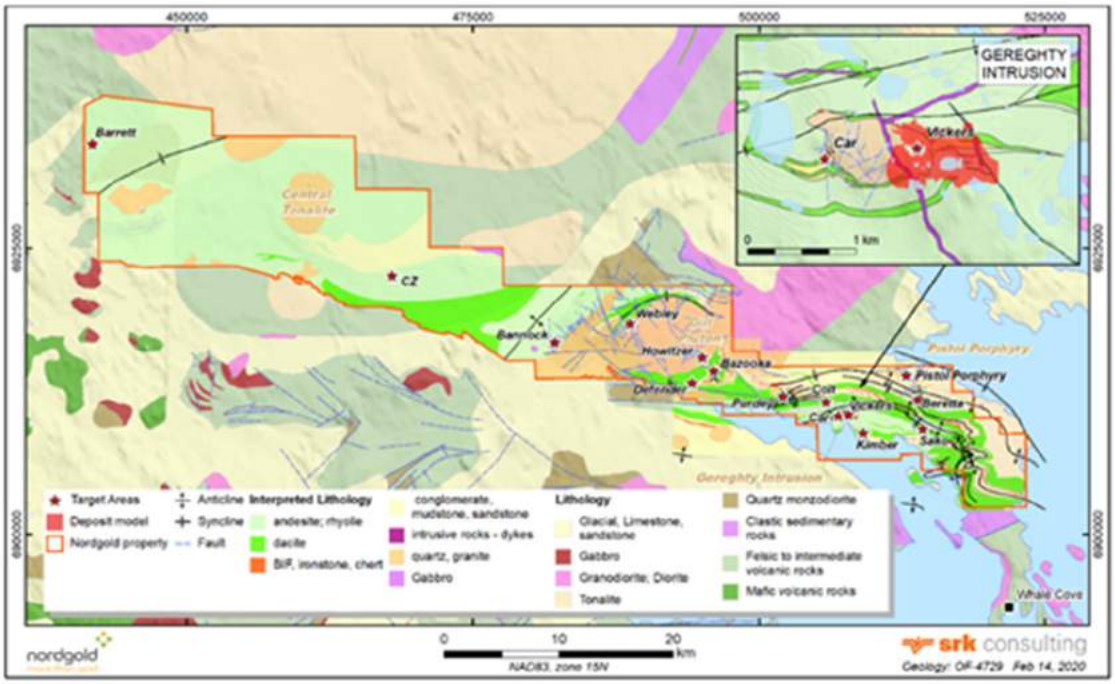


Figure 15-3: Pistol Bay Project Deposit Geology

15.3.2 Exploration History

Exploration work has been done incrementally on parts of the current Pistol Bay Gold Project since the 1960s. Prospecting, geological mapping, and geophysical programs focused primarily on the eastern portions of the property, including the current Vickers deposit area. Exploration work completed by historical operators is summarized in Table 15-1.

Table 15-1: Pistol Bay Gold Project Summary of Historical Exploration Work

Year	Company	Work Completed
1961	Tavane Syndicate	Prospecting, geological mapping, ground magnetometer and EM surveys
1967	Various Prospectors	Prospecting
1969	Penarroya Canada Ltée	Prospecting and petrography (62 thin sections)
1970-1972	Husky Oil Ltd.	Airborne magnetometer, EM, and gamma ray spectrometer surveys
1981-1982	Silver Chief Minerals	Prospecting and grab sampling
1988	Borealis Exploration Ltd.	Geological mapping and sampling
1988	Noble Peak Resources Ltd.	Geological mapping and sampling
1988-1989	Sikaman Gold Resources Ltd.	Geological mapping and sampling, and magnetometer and Dighem III airborne EM surveys
1983-1999	Canico	Extensive exploration work including line cutting, prospecting, geological mapping, ground and airborne geophysical surveys, 27 core boreholes (approx. 4,651.3 m)
1999	Comaplex	Prospecting, grab samples, small spectral IP survey

Exploration work completed between 2010 and 2019 included prospecting, geological mapping, airborne and ground geophysical surveys, glacial till sampling, and drilling. From 2017 through to 2020, Nordgold completed a multi-staged exploration program on the Pistol Bay property including prospecting, geological mapping, airborne and ground geophysical surveys, glacial till sampling, and drilling.

A total of 211 core boreholes (46,147 m) were drilled by Canico, Northquest and Nordgold between 1987 and 2019 throughout the Pistol Bay Gold Project area (Table 15-2). The best explored Vickers Deposit is drilled by relatively regular pattern ranging from 25 x 25 m to 100 x 100 m.

Table 15-2: Pistol Bay Property Summary of Drilling by Operator (1987-2019)

Company	Year	Target	Boreholes	Length (m)	BHID
Canico	1987	Vickers	8	1,243	DH63723-27, 38-40
	1988	Vickers	13	2,570	DH63741-51, 55-56
		Defender	3	378	DH63752-54
	1989	Vickers	2	395	DH63758-59
		Tommy	1	63	DH63757
Northquest	2011	Pistol Bay Porphyry	6	1,056	PB-11-01-05, 17
		Cooey	7	829	PB-11-06-12
		Sako	4	633	PB-11-13-16
	2012	Sako	3	455	PB12-01-03
		Bazooka	4	526	PB12-04-07
		VIckers	15	3,600	PB12-08-22
	2013	Vickers	10	2016	PB13-01-10
		Sako	3	474	PB14-01-03
	2014	Bazooka	2	295	PB14-04-05
		Vickers	13	3,785	PB14-06-18
	2015	Vickers	32	7,838	PB15-22, 24, 26-34
		Defender	2	295	PB15-23 and 25
	2016	Vickers	16	4,007	PB16-01-09, 11, 13, 16, 20, 22, 24, 26
		Howitzer	32	6,863	PB15-10, 12, 14-15, 17-19, 21, 23, 25, 27-48
Nordgold	2017	Defender	6	621	17PB049-054
		Howler	2	382	17PB055-56
		Howitzer	8	1,525	17PB057-63A
		Bannock	2	457	17PB064-65
		Car	4	755	17PB066-69
		Sako	1	182	17PB070
		Pistol Bay Porphyry	1	299	17PB071
	2019	Vickers	11	4,607	19PB072-081 (including 76A)
Total			**211**	**46,147**	

SRK is of the opinion that the drilling and sampling procedures adopted by Nordgold are well documented and consistent with generally recognized industry best practices. The resultant drilling pattern is sufficiently dense to interpret the geometry and the boundaries of the gold mineralization with a reasonable degree of confidence. SRK concludes that the samples are representative of the source materials and that there is no evidence to suggest that the sampling process introduced a bias.

Specific gravity testwork was completed on 8,841 samples from the Pistol Bay Gold Project, including 242 grab samples collected on the Vickers deposit area in 2014.

SRK has carried out a quality control review including the review of analytical quality control programs and their performance between 2011 and 2019. In the opinion of SRK, the sampling preparation, security and analytical procedures used by Nordgold are consistent with generally accepted industry best practices and are, therefore, adequate for the purpose of informing Mineral Resources.

15.4 Mineral Resources

15.4.1 Introduction

The Vickers deposit within the Pistol Bay project comprises brecciated rocks and intensive silicification which occurs in the variety of tectonic environments. Favourable structural domains include the east porphyry intrusion and the contact between the diorite plug and host rocks as well as some other minor structures (Figure 15-4 and Figure 15-5).

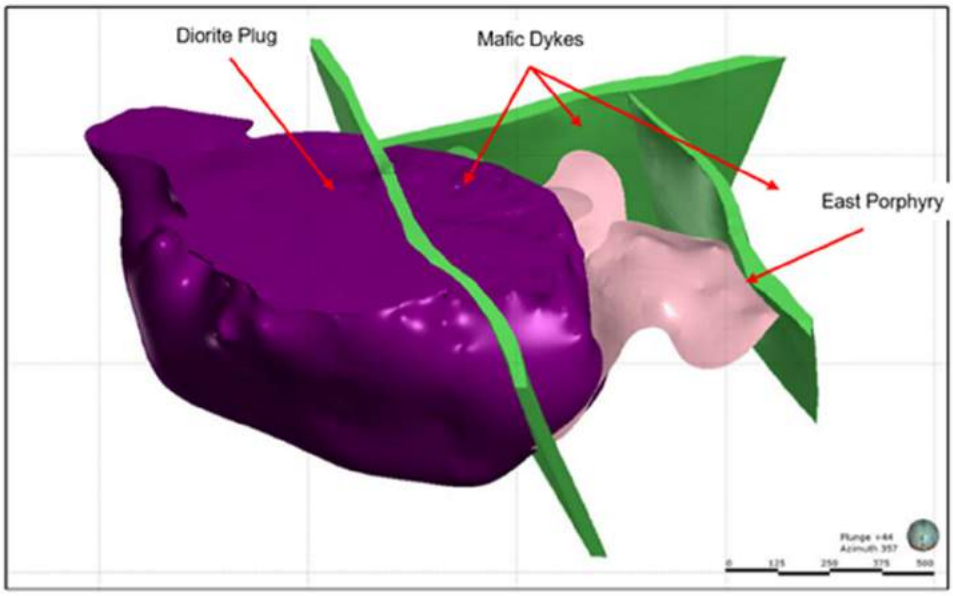


Figure 15-4: Pistol Bay Lithology Model

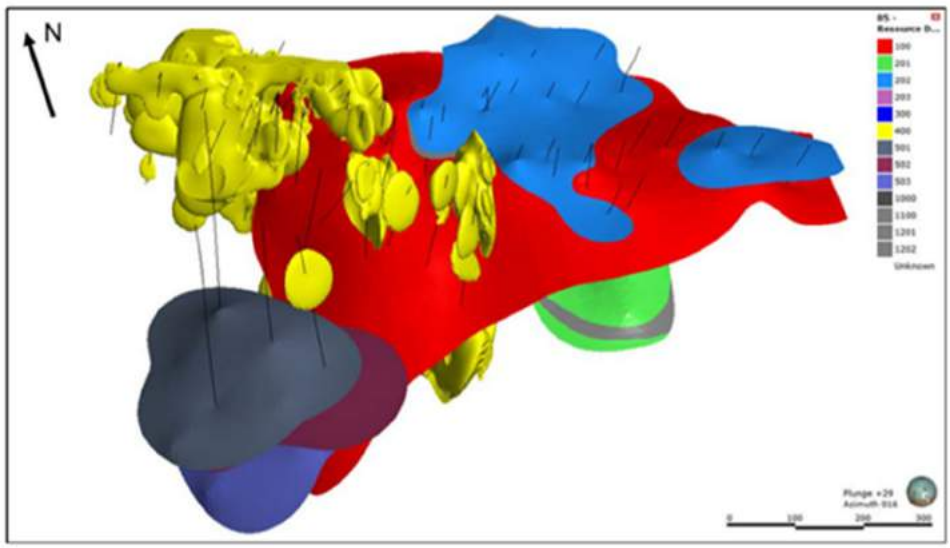


Figure 15-5: Pistol Bay Mineralization Domains

15.4.2 Mineral Resource Estimation

The most recent Mineral Resource estimate for the Vickers deposit of the Pistol Bay Project was prepared by SRK and included 124 core boreholes (30,815 m) and includes 22,486 samples assayed for gold and 3,375 specific gravity samples.

This following section describes the resource estimation methodology and summarizes the key assumptions considered by SRK. The mineral resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101.

- A lithological model consists of diorite, porphyry and several post-mineralization dykes in a mixed metasedimentary and metavolcanic unit. An overview of the lithology model is presented in Figure 15-4. Several mineralization zones were developed using a grade threshold of 0.2 g/t Au and considering a combination of geological parameters such as lithology and structure (Figure 15-5).
- Most of the assays are sampled at 1 m or 1.5 m intervals. SRK elected to composite at 3 m to avoid 'breaking' assays into smaller composites. Composites shorter than 50% of the composite length (or 1.50 m) were excluded in subsequent data analysis and block grade estimation.
- A capping value for gold, varying from 2.5 g/t to 30 g/t, was determined for each domain based on to the composites' grades.
- SRK grouped the domains into a set of packages for variogram analysis considering their geological nature and continuity:
- For each domain, SRK assessed two different spatial metrics: 1) traditional semi-variogram of gold; and, 2) correlogram of gold. Downhole variograms were calculated to determine the nugget effect.
- Block size of 5 × 5 × 3 m was chosen, with sub-cells at a resolution of 2.5 × 2.5 × 3 m to better reflect the shape of the mineralization domain.

- The block model was populated with a gold value using ordinary kriging in the mineralized domains, with three estimation runs using progressively relaxed search ellipsoids and data requirements. The first estimation pass uses a search radii up to the variogram range. The second pass uses radii set to 2.0 times the variogram range. The third pass was used to fill the rest of the block model. Several high-grade areas in close proximity to high-grade samples within domain 400 (gold grade >10 g/t) were estimated using a limited search radii and higher capping value of 30 g/t Au (zero run).
- The estimation ellipse ranges and orientations are based on the variogram models developed for the various domains within the deposit and conform to the orientation of the individual zones. A dynamic orientation of the search was used in estimation for domains 100 and 400 due to their complex geometry. The unconstrained external waste zone (domain 1000) was estimated using inverse distance weighting with a power of 2 in close proximity to the boreholes only. All non-estimated blocks within domain 1000 were assigned background (0.0001 g/t) gold grade.
- The block model was validated using visual comparison of block estimates and informing composites, and statistical comparisons between composites and block model distributions at zero cut-offs.
- The block classification strategy considers borehole spacing, geologic confidence and continuity of category. SRK considers that there are no Measured or Indicated Mineral Resources within the Vickers gold deposit. All blocks within mineralized domains were classified as Inferred Minera; Resources.

15.4.3 Mineral Resource Statement

SRK's audited Mineral Resource Statement for Pistol Bay is presented in Table 15-1 and is restricted to areas that have been shown to have Reasonable Prospects for Eventual Economic Extraction, as defined by the JORC Code.

In reporting the Mineral Resources as stated in Table 15-1, SRK notes the following:

1. All open pit Mineral Resources are reported based on an optimised pit shell at a gold price of USD1,550/oz (a lower price than Nordgold's current benchmark gold price for Mineral Resources of USD1,750/oz, as explained in Section 15.1.4).
2. Mineral Resources were originally reported as at 05 February 2020, and have not changed since that time (see note 1 above).
3. Reported at open pit resource cut-off grade of 0.9 g/t Au, where the CoG is based on a price of USD1,550/oz of gold and gold recoveries of 95%.
4. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.
5. All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add up due to rounding.
6. The total Mineral Resources reflect Nordgold's 100% ownership of the property.

Table 14-1: Pistol Bay Mineral Resource Statement as at 31 December 2020

Deposit	Classification	Tonnage (Mt)	Grade (g/t Au)	Content (koz Au)
Vickers	Inferred	22,370	2.20	1,581

15.5 Mining and Ore Reserves

No mining studies have been completed to date.

15.6 Geotechnical Considerations

No geotechnical studies have been completed to date.

15.7 Mineral Processing and Metallurgical Testing

Metallurgical testwork was undertaken in 2015 and in 2016.

In 2015, 10 composite samples of drill core from the 2014 drilling program on the Vickers Zone, ranging from 4.3 kg to 5.6 kg, were provided to ALS Metallurgy in Kamloops to investigate gold recovery using a gravity circuit at the target grind size and determine the gold extraction potential of the gravity tails using cyanide leaching. Five of the samples were from the intrusive rocks and five were from the host rock sequence at the Vickers Zone. The gold grade of the samples varied from 2.2 g/t Au to 25.5 g/t Au.

The total recovery of the gold in the feed from all ten samples ranged from 93.1% to 99.6%. The preliminary testing indicates that gold from the Vickers Zone is likely recoverable by standard gravity and cyanidation leach methods, with a high proportion recoverable from simple gravity techniques. Moreover, there is no significant difference in gold recovery whether the gold is in the intrusive rocks or the host rocks.

In 2016, 23 composites of core from holes drilled at the Vickers Zone in 2015 were submitted for metallurgical testing, using the same procedures as the previous year. Five of the samples were derived from iron formation, nine of the samples were derived from the host rock sequence, eleven of the samples were derived from the Eastern Porphyry, and one sample was derived from the Vickers intrusion. The gold content of the 23 composites ranged from 0.73 g/t to 29.5 g/t Au.

The total combined recovery of gold from the 23 samples ranged from 87.1% to 99.6%. This additional testing confirmed that the gold in the rocks of the Vickers Zone is probably recoverable through standard gravity and cyanidation leach methods, with a high proportion derived from simple concentration techniques. As with the 2015 test results, there was no significant difference in the total gold recovery whether the gold is in the intrusive rocks or the host rocks.

15.8 Infrastructure

The existing infrastructure includes an airstrip at Whale Cove, approximately 15 km from the exploration camp, plus some local roads (Figure 15-1). No studies have yet been undertaken to look at potential mine infrastructure requirements.

15.9 Environmental and Social Matters

15.9.1 Environmental Approvals

The environmental assessment process required for a mining project in the Territory of Nunavut is a relatively mature and very robust process that meets or exceeds international standards set by the International Finance Corporation and Equator Principles 4.

15.9.2 Environmental and Social Setting

The Pistol Bay Project is located approximately 21.6 kms west of the Hamlet of Whale Cove and approximately 60 kms south of Rankin Inlet. Whale Cove the closest community and Rankin Inlet have populations of approximately 440 and 2840, respectively.

The Pistol Bay Project is located in the Canadian Arctic well above the tree line. The region consists of a flat or subdued terraced glacial moraine and bedrock outcrops ranging from sea level to 114 m above sea level. The Archean bedrock forms a broad sloping landscape covered by fluvio-glacial eskers and hummocky terrain of sandy tills. Low lying areas are characterized by many lakes, rivers and swamps. Moraine and esker material are locally reworked, dissected, or overlain by coastal features such as beaches or marine clay.

The area is underlain by continuous permafrost with an upper active layer that thaws in the summertime. The project is well north of the treeline and vegetation is limited to dwarf birch, willow and alder in dry areas, and willow, sphagnum moss and sedge in the lowlands. Wildlife includes caribou, arctic ground squirrel, arctic fox, rabbit, ptarmigan, and an abundance of waterfowl particularly in the coastal areas. Wolf, wolverine, raptors, and grizzly and polar bears have been observed in the property area (SRK, 2020). The environment is generally classified as a “sensitive environment”.

15.9.3 Approach to Environmental and Social Management

As part of Nordgold’s exploration authorizations an engagement plan was developed and has been actively carried out on a regular basis. The plan requires regular communications and meetings with these communities. The in-person community meetings scheduled for the spring of 2020 where cancelled as a precautionary measure due to the onset of the Coronavirus global pandemic.

Review of the NWB public registry indicated the relationship between Nordgold and these communities and mineral rights holders is a healthy relationship. In addition, Nordgold utilizes the services provided by the community of Whale Cove, such as their landfill and port facility and they employ community members at the Project when exploration activities are active.

The Territory of Nunavut is accepting of environmentally and socially responsible mining of gold in the Territory. Currently there are two additional operating gold mines in the Territory which were assessed and approved under the existing legislation.

15.9.4 Key Issues

There were no environmental or social issues suggesting this project could not successfully be advanced through the environmental assessment processes of the Territory of Nunavut allowing the project to proceed to an operational status.

15.10 Economic Assessment

No updated economic modelling work has been prepared by SRK or Nordgold, other than to demonstrate RPEEE of the Mineral Resources.

15.11 Future Work, Recommendations

SRK's report from February 2020 noted that "the geological setting and the character of the gold mineralization delineated and modelled at the Vickers gold deposit are of sufficient merit to justify additional exploration and pre-development investigations on the greater Pistol Bay property. In this regard, SRK propose that Nordgold develop a strategy focussed on optimizing the full exploration potential of the Pistol Bay Gold Project and on evaluating the economic merit of the project".

SRK recommended the following to further explore and develop the Project:

- Further improve the delineation and classification of the current Mineral Resources.
- Evaluate at a conceptual level the viability of an open pit mine on the Vickers Mineral Resource.
- Drill test and evaluate depth extensions of the Vickers gold mineralization, to assess whether or not these have the potential to be extracted by underground mining methods.
- Characterize the geological and structural setting of the entire property with the identification and prioritization of additional gold exploration targets.
- Evaluate exploration targets on the property to potentially grow the Mineral Resource to the minimum size required to attract economic interest.

In parallel to exploration activities, SRK recommends that Nordgold also initiates engineering, metallurgical, environmental, permitting, and other studies aimed at completing the characterization of the context of the gold mineralization and to allow evaluating at a conceptual level the economic potential of economic open pit and / or underground mine on the property (a Scoping Study).

15.12 Mineral Asset Conclusions

Nordgold, through its subsidiary Northquest Limited, has undertaken exploration activities at the Pistol Bay Project since its acquisition in 2016, and following this work SRK carried out a Mineral Resource Estimate for the Vickers deposit in the eastern part of the Project area in 2019, reporting Inferred Resources of 1,581 koz gold within 22.4 Mt of ore at an average grade of 2.2 g/t Au.

SRK notes that the Mineral Resources discussed in this section occupy only a small footprint of the very large Pistol Bay property. The potential mineral resources outside of the Vickers deposit area have not yet been fully evaluated.

SRK is unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform future exploration work recommended for the Project.

16 EXPLORATION

16.1 Introduction

Nordgold asses its exploration strategy on an annual basis encompassing both brown and green field exploration, within a Tier planning system. This system considers both the pipeline in terms of increasing the confidence of existing Mineral Resources and the definition of new targets and bringing material into Mineral Resources.

The Tier system considers the exploration activities under the following levels:

- Tier 5: Confidence drilling;
- Tier 4: Resource conversion drilling;
- Tier 3: Advanced definition drilling;
- Tier 2: Initial Drill testing; and
- Tier 1: Target definition.

Under the system, Tier 5 and 4 generally focus on the conversion of Mineral Resources to higher confidence categories and Tiers 3, 2 and 1 relate to extending existing Mineral Resources along strike/down dip, generating new targets and ultimately bringing new material into Mineral Resource.

The Tier 1-3 activities include the application of geophysics, geochemistry and trenching, progressing to exploratory drilling and resource delineation in Tiers 2 and 3 respectively. A positive example of how Nordgold has applied this relates to the Tokko project which Nordgold has taken from geophysics to drilling and Mineral Resource definition in three years.

The planning process considers each initiative individually, assessing where it addresses potential gaps in the forthcoming life of mine plans, presents a potential opportunity, assesses the potential AISC that the material might achieve per ounce and then prioritises the programme accordingly. Budgets are developed considering the style of exploration (geophysics etc), drilling (RC, Diamond core etc, analytical and other associated costs.

In recent years Nordgold has implemented a successful programme of replenishing their Ore Reserve balance through acquisition, the generation of Mineral Resources from grass root targets and proving up Mineral Resources to Ore Reserves. In 2015, Nordgold reported total Ore Reserves of 432 Mt at 1.0 g/t Au for 14.0 Moz. The 2020 Ore Reserve has reported herein equates to 701 Mt at 0.7 g/t Au for 15.2 Moz. For the corresponding 5-year period Nordgold has delivered approximately 1 Moz production/depletion per annum, and therefore demonstrates a replenishment programme in the order of 6 Moz.

SRK understands that going forward Nordgold is looking to build on the successful history of Mineral Resource to Ore Reserve conversion and expand their near mine and regional exploration activities and budgets to define new exploration targets and bring material in to the Inferred and higher Mineral Resource categories. This approach is encapsulated in the Nordgold Technical Excellence “TEX Project” which is being implemented throughout the business, where this aims to:

- Standardise strategies, approaches, tools and methodologies;
- Stimulate innovation, through applying new technologies to support “smart exploration”; and
- Improve evaluation approaches, facilitating faster and strategic thinking and decision making, alongside performance (KPI) monitoring.

16.2 Exploration Expenditure

Table 16-1 presents the total exploration expenditure for the 5-year period up to and including 2020. The figures have been split by brownfields (resource conversion) and greenfields activities where these broadly align with Tier 4/5 and Tiers 1-3, respectively. The expenditure presented encapsulates the following assets: Lefa, Bissa/Bouly, Taparko, Gross, Taborny, Irokinda, Berezitovy, Suzdal, Tokko, Uryakh, Chelolek, Zhanok, Montagne d’Or, and Pistol Bay.

Table 16-1: Nordgold Exploration Expenditure 2015-2020

	2015 USDm	2016 USDm	2017 USDm	2018 USDm	2019 USDm	2020 USDm
Brownfield spend	27.76	16.76	19.69	22.15	23.95	23.57
Greenfield spend	11.62	17.82	16.30	16.60	14.00	14.53
Total spend	39.37	34.58	35.99	38.75	37.95	38.10

Nordgold has allocated an exploration budget of USD54.8m for 2021, broadly equivalent to a 50:50 split between Tier 4-5 resource conversion activities and Tier 1-3 greenfield exploration, as shown in Table 16-2. Section 16.3 and 16.4 describe the proposed activities in relation to the potential targets encapsulated with the exploration budgets.

Table 16-2: Nordgold Exploration Expenditure 2021

Project	Tier 1-3 Budget (USDm)	Tier 4-5 Budget USDm)
West Africa Operations		
Bissa/Bouly	3.2	4.8
Lefa	4.5	5.5
Taparko		1.0
Russian Operations		
Gross	0.7	3.0
Taborny	0.8	1.5
Irokinda	1.3	2.3
Berezitovy	0.4	0.6
Kazakhstan Operations		
Suzdal	1.2	1.8
Russian Projects		
Tokko	5.9	7.2
Uryakh	4.5	
Chelolek	1.5	
Canada Projects		
Pistol Bay	3.2	
Total	**27.1**	**27.7**

16.3 Resource Conversion

Resource conversion reflects those activities encapsulated within Tier 5 and Tier 4 plans developed by Nordgold each year. The below section narrates a selection of the key activities which are considered in the expenditure projected for 2021 on an asset by asset basis. It should be noted that the material targeted within the resource conversation exploration programme has to the vast degree been encapsulated in the Ore Reserve plus Mineral Resources (Base Case) scenarios.

Bissa/Bouly: Total projected drilling for 2021 42,000 m Bissa, 38,000 m Bouly

- Bissa Pits: Further drilling to improve the confidence in the resources in the Bissa SW and current Z52 pits.
- Zandkom main and Zandkom Oxide: Infill drilling within current pit extents to target near surface oxide material.
- Yimiougou and Ronguen advanced grade control: close spaced drilling to confirm depth of artisanal depletion, and further confidence of resources.
- Bouly confidence drilling: Drilling to improve geological, structural, metallurgy, and density understanding within close proximity to the existing Bouly pit.

Lefa: Total projected drilling for 2021 63,500 m

- Lerokarta and Fayalala confidence drilling: Infill drilling areas within existing pits to improve confidence in areas of lower drilling density.
- Lerokarta Underground: Increasing confidence in areas currently assigned as Inferred Mineral Resources to support further technical studies.
- Diguili Center Oxide: Infill drilling to improve confidence of the oxide material within the extent of the current Mineral Resources.

Taparko: Total projected drilling for 2021 14,400 m

- Confidence drilling: Infill drilling to improve confidence in the Mineral Resources associated to primarily the Bissinga and Goengo deposits.

Gross: Total projected drilling for 2021 10,000 m

- Confidence drilling: Infill drilling within the 2022-2023 pit contours.

Taborny: Total projected drilling for 2021 13,500 m

- Taborny and Temny confidence drilling: RC infill drilling within the 2022-2023 Taborny and Temny pit contours, plus verification core drilling to deeper levels in support of Base Case studies.
- Vysoky Confidence drilling: Infill drilling within the current pit extents.

Berezitovy: Total projected drilling for 2021 7,000 m

- Underground confidence drilling: Focused on infill drilling within the northern and southern flanks on the underground Mineral Resources to target the upgrade in confidence of material currently reported as Inferred Mineral Resources.

Irokinda: Total projected drilling for 2021 38,300 m

- Confidence and resource conversion drilling: Infill drilling to increase confidence in the Mineral Resources and Ore Reserves for the main three ore bodies: Vysokaya-Poperechnaya, Serebryakovskaya, Tuluinskaya.

Suzdal: Total projected drilling for 2021 52,800 m

- Confidence and resource conversion drilling: Improving confidence in priority target areas within the current Mineral Resource categories, for zones 7, 1-3 and 4.

Tokko: Total projected drilling for 2021 60,200 m

- Roman Resource conversion drilling: Infill drilling within the central proportion of the Roman deposit, targeting the conversion of current Inferred Mineral Resources to higher confidence categories in support of a Feasibility Study.

16.4 Exploration Potential

In order to build an organic pipeline of projects from within the existing portfolio, Nordgold is actively involved in greenfield exploration which focuses on the exploration potential within the existing licence areas. This encapsulates both, extensions to existing deposits, the targeting of new satellite deposits and regional exploration, where this is typically captured with Tier 3, 2 and 1 plans and expenditure. The section below narrates a selection of the key greenfield activities. This reflects material that has not been included in the current Ore Reserves (Ore Reserve Case) or Ore Reserves plus Mineral Resources (Base Case) assumptions.

Bissa/Bouly: Total projected drilling for 2021 36,000 m Bissa, 9,600 m Bouly

- Bissa extensions to existing areas: Along strike and step out drilling to test Bissa Hill extension, Bissa pits Z52 D, E and F (Figure 16-1).
- Zandkom/ Gougre corridor (Figure 16-2): Phased exploration programme comprising geophysical surveys, mapping and geological interpretation, RAB and RC drilling.
- Ronguen near mine exploration: Testing along strike (east and west) and down dip potential extensions of the Ronguen deposit.
- Niou deposit delineation: Recently acquired permit to the southwest of Bissa. Follow up ground truthing programme to confirm previous soil, RAB and RC anomalies, followed by an expanded RAB and RC drilling programme
- Bouly NE extension: RAB drilling planned to test the NE extension of the Bouly pit.

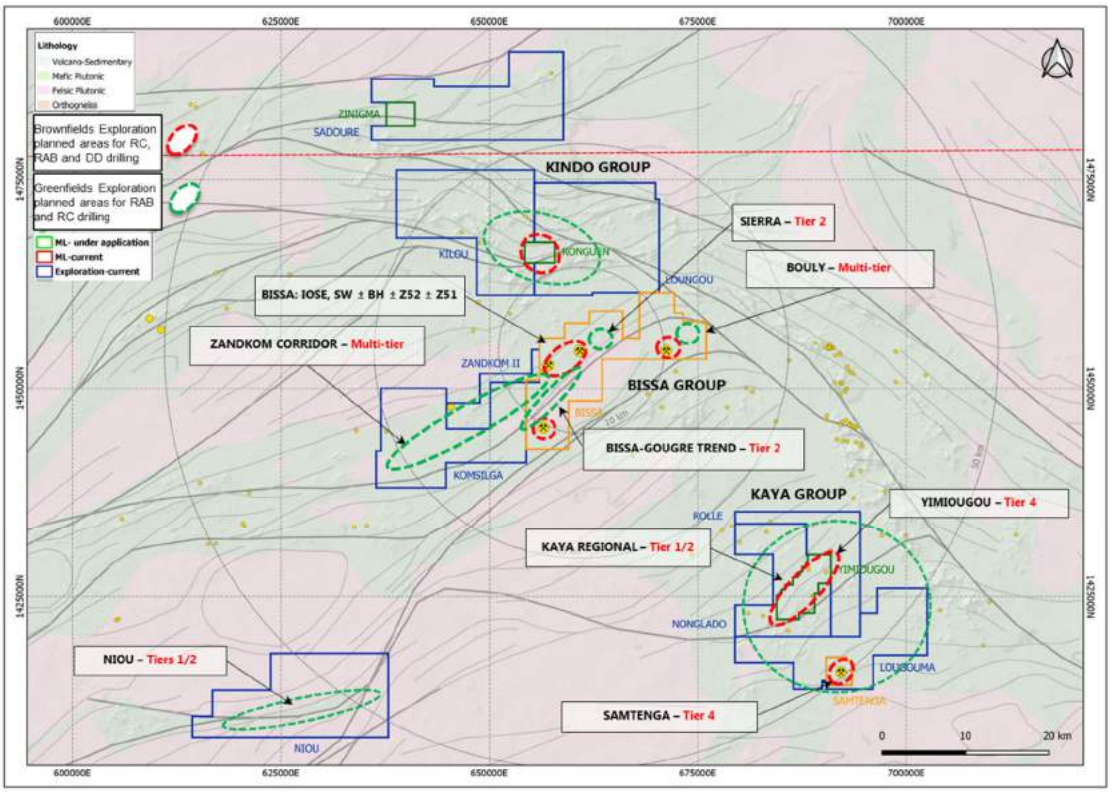


Figure 16-1: Bissa-Bouly Exploration by Deposit and Tier

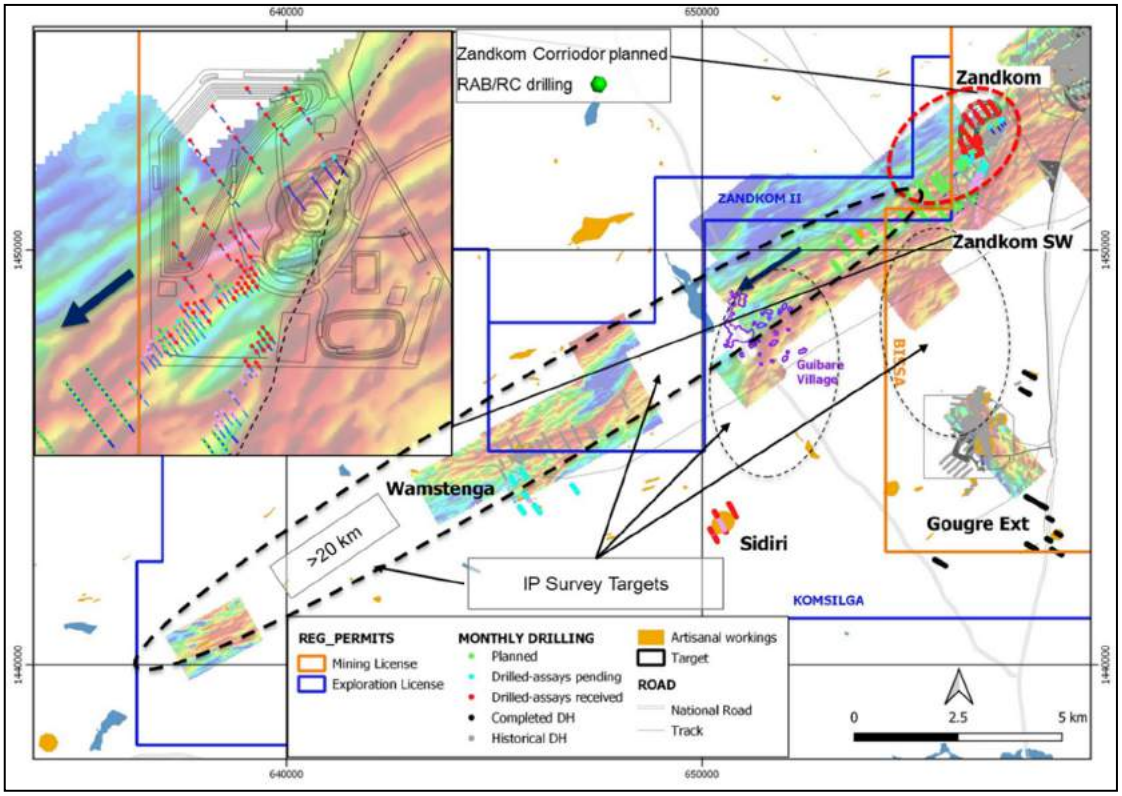


Figure 16-2: Zandkom Corridor Exploration

Lefa: Total projected drilling for 2021 34,600 m

- Fayalala footwall extensions: Drilling poorly informed downdip extensions below the base of the current Fayalala pit and potential footwall flanks (Figure 16-3).
- Fayalala Oxide sources: Additional small shallow targets at Banko, Gold Ring and Toume-Toume.
- Diguili extension: Stepping out and testing the potential extension of the Diguili deposit down dip, as well as wide spaced drilling to the northeast, south and southwest (Figure 16-4).
- Satellite testing (Hansagnere, Amina, Nyerema, Tikoni): Regional Induced Polarisation surveys (circa 1,400 km line length), plus wide spaced reconnaissance aircore fence lines, targeting areas between known targets and geochemical and structural targets.

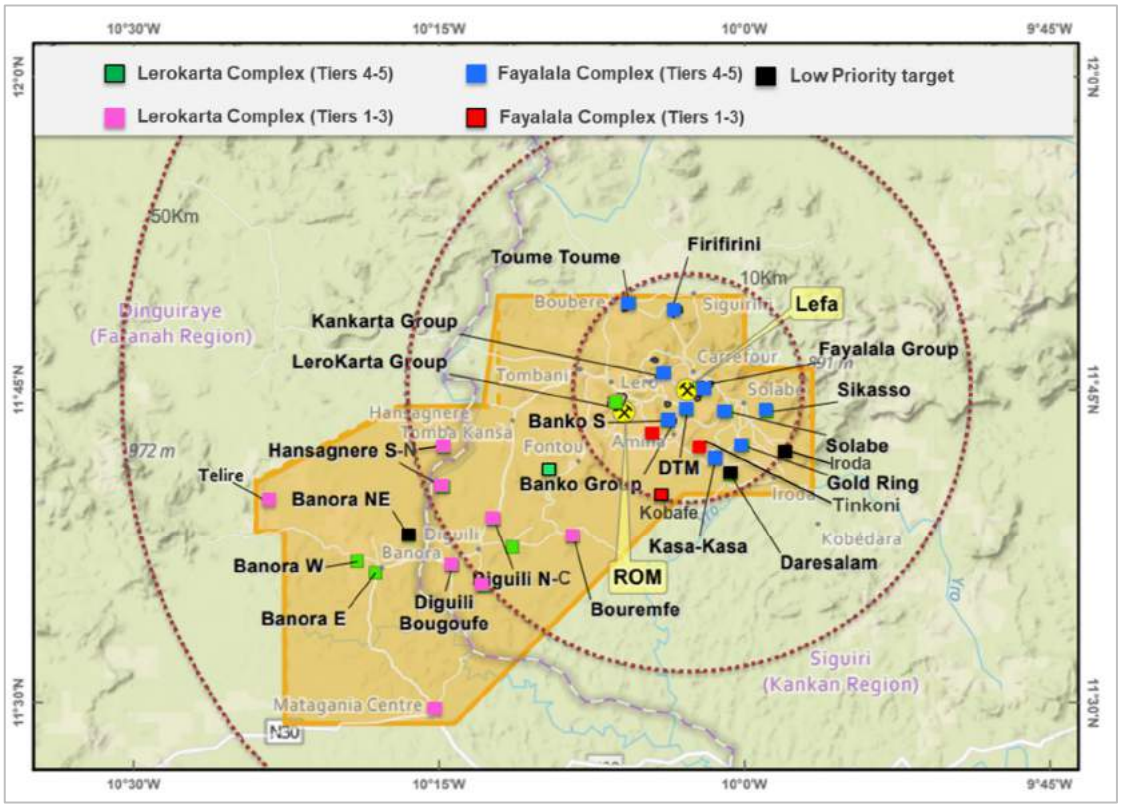


Figure 16-3: Lefa Exploration by Deposit and Tier

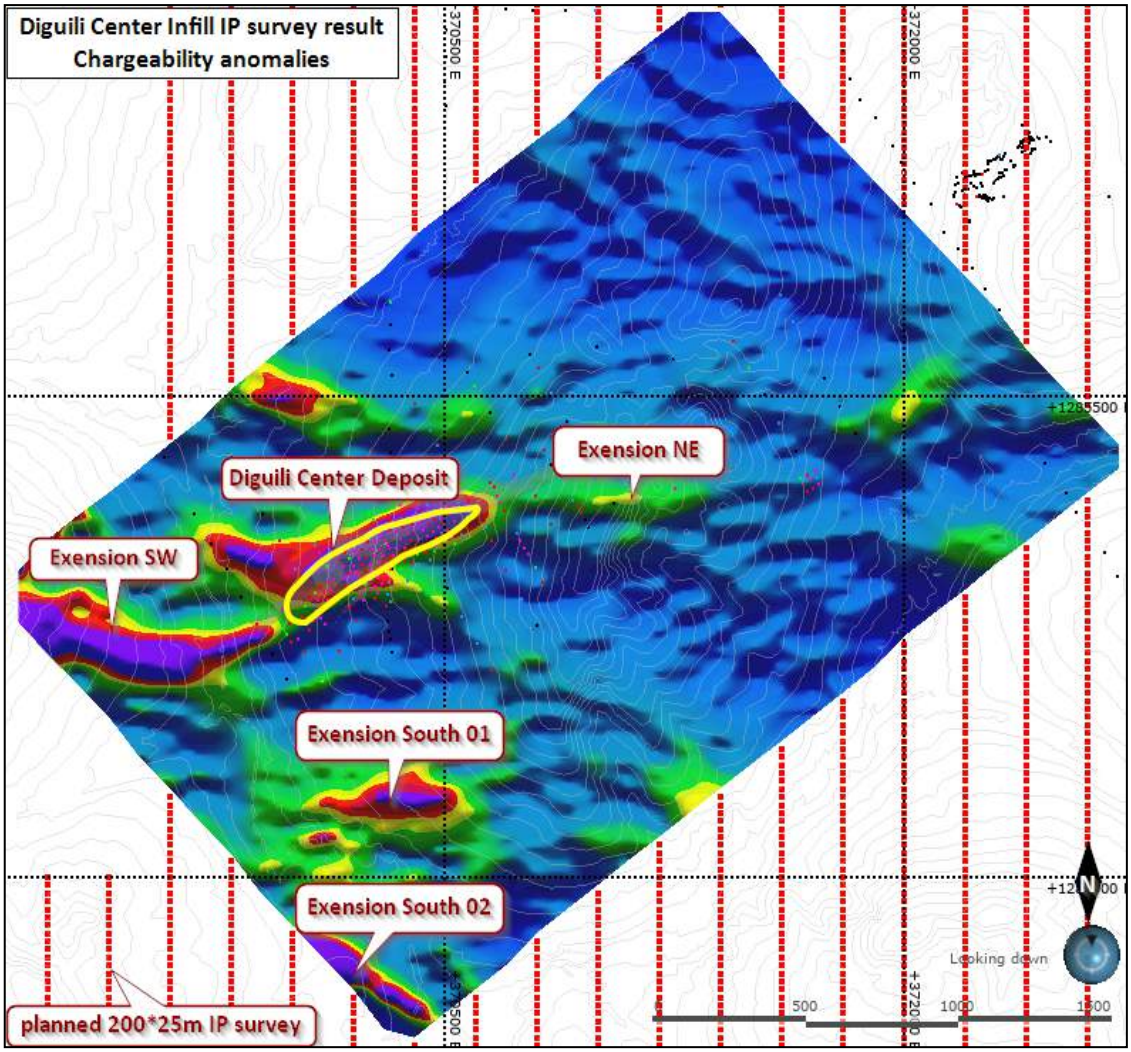


Figure 16-4: Diguili IP targets

Gross: Total projected drilling for 2021 15,800 m

- Extensional drilling: Potential to define minor extensions in the southwest and east flanks of the Gross deposit.

Taborny: Total projected drilling for 2021 4,500 m

- Temny extensional drilling: Potential to define extensions to mineralisation in the hanging wall to the south of the current resource area.

Berezitovy: Total projected drilling for 2021 4,800 m

- Underground flank and extensional targets: Testing the down dip extents of the north and south mineralisation trends, plus potential for minor extension to the southern flank of the south pit.
- Regional target generation: Conduct airborne geophysics (magnetic, electromagnetic and radiometric) over the Khaikta permit at the Berezitovy deposit, including the new Mongoli permit.

Irokinda: Total projected drilling for 2021 31,700 m

- Serebryakovskaya Flanks: Testing the flanks of the Serebryakovskaya vein, represented by the Sluchainaya and Yubileinaya veins.
- Tuluinskaya Vein: Drilling from surface to test the down dip and southern extension of the Tuluinskaya Vein.
- Visokaya Vein and Flanks: Surface and Underground drilling to test the extensional potential on the northern flank of the Visokaya vein, represented by the Verkhnyaya and Belaya veins, which has been identified/supported through surface sampling.

Suzdal: Total projected drilling for 2021 17,200 m

- Extensional drilling: Testing the along strike extents to zone OB-7 to the northwest, and to a minor extent the extension of zone OB1-3 to the southwest.

Tokko Project and Surrounding Exploration Licences (Kondinsky, Pogranichnaya, Postoyannaya, Kremera): Total projected drilling for 2021 26,600 m, plus 3,000 m trenching (Figure 16-5)

- Tokko licence – Tokkinskoe deposit flank extension: Following up on soil sample anomalies, a series of fence lines to test the south east extension of the Tokkinskoe deposit, and to a lesser extent the potential extension to the southwest.
- Tokko licence - Otchuguy target definition: Prospecting diamond drilling to test Otchuguy soil anomaly.
- Tokko licence - Bogodikta target definition: 1,000 m of trenching to test Bogodikta soil anomalies.
- Kondinsky licence - Chuostakh target definition: Prospecting diamond drilling and trenching of geochemical and geophysical anomalies.
- Pogranichnaya and Postoyannaya target generation and definition: Expansion of geochemical soil sampling programme for the remaining areas of the exploration licence not covered in 2020, follow up trenching and RC drilling on previously defined targets.
- Kremera licence – no current exploration plans for 2021.

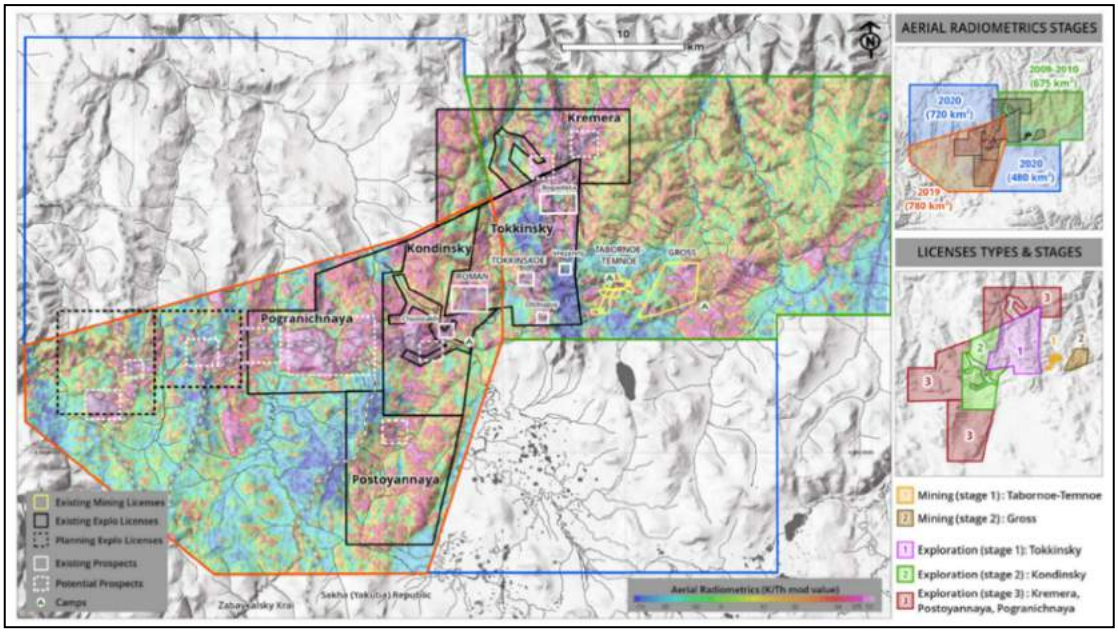


Figure 16-5: Tokko Exploration and Potential Target Areas

Uryakh: Total projected drilling for 2021 9,200 m, plus 2,600 m trenching

- Zolotoy and Vetvisty target development: Drilling and trenching to test the previous prospecting drilling at the two sites, as well as testing the corridor between the two sites, such that it targets bringing the two areas in the resource base.

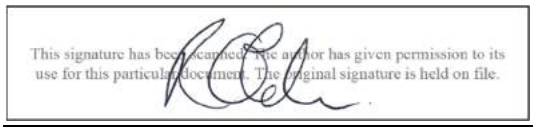
Chelolek: Total projected drilling for 2021 2,000 m, plus 2,000 m trenching

- Chelolek target definition: New Exploration licence to the South of Uryakh and North of Bahtarnak, historical exploration has demonstrated positive radiometric and geochemical anomalies, which are to be evaluated by further trenching and drilling.

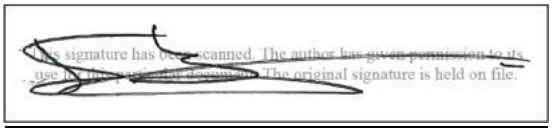
Pistol Bay: Total projected drilling for 2021 7,750 m

- Lateral and down-dip extension of the Vickers deposit: Phased drilling programme to test the near surface mineralisation and down dip extents of the Vickers deposit to the southwest of a dyke structure.
- Regional target generation: Follow up exploratory drilling programme to target anomalies developed through desktop studies.

For and on behalf of SRK Consulting (UK) Limited



Richard Oldcorn
Corporate Consultant, Due Diligence
Project Manager
SRK Consulting (UK) Limited



Iestyn Humphreys
Corporate Consultant, Due Diligence
Project Director
SRK Consulting (UK) Limited

GLOSSARY, ABBREVIATIONS, UNITS

Property

Advanced Exploration Property

Mineral assets for which only Mineral Resources have been declared.

Development Property — Mineral assets for which Ore Reserves have been declared and are essentially supported by a minimum of a pre-feasibility study which on a multi-disciplinary basis demonstrates that the consideration is technically feasible and economically viable.

Pre-Development Property

Mineral assets for which Mineral Resources have been defined but where a decision to proceed with development has not been made.

Exploration Property — Mineral assets for which no Mineral Resources have been declared.

Feasibility Study — A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.

Producing Property — Mineral assets for which current Ore Reserves are declared and mining and processing operations have been commissioned and are in production.

Mineral Resource and Ore Reserve

Mineral Resource — A ‘Mineral Resource’ is 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. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

Indicated Mineral Resource

An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.

Inferred Mineral Resource

An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration,

	sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. *Measured Mineral Resource* A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.
Ore Reserve	An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.
Probable Ore Reserve	A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Ore Reserve	A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

Glossary

3D modelling	The process of three dimensional geological modelling of mineral deposits and the surrounding rock mass.
Acid	A pH of less than 7.0.
Aggregated	100%
All In Sustaining Costs	All direct cash expenditures required to secure the sales volumes and sales revenues as determined and include, mining (net of capitalised costs), processing, general and administration, transportation, treatment charges, refining charges, royalties and by-product credits and in addition other costs necessary to sustain mining operations including capitalised operating costs, sustaining capital, closure costs and working capital movements.
Alluvial	Relating to or derived from alluvium. Deposition of sediment over a long period of time by a river; an alluvial layer.
	An x-ray instrument used for routine, relatively non-destructive chemical analyses of rocks, minerals, sediments and fluids.
Anticline	A type of fold that is an arch-like shape and has its oldest beds at its core. A typical anticline is convex up in which the hinge or crest is the location where the curvature is greatest, and the limbs are the sides of the fold that dip away from the hinge.
Aquifer	An underground stratum that will yield water in sufficient quantity to be of value as a source of supply. An aquifer is not a stratum that merely contains water, for this would apply to all strata in the ground-water area. An aquifer must yield water.
Argillaceous	Rocks in which clay minerals are a secondary but significant component.
Assay	To analyse the proportions of metals in an ore; to test an ore or mineral for composition, purity, weight, or other properties of commercial interest.
Asset Retirement Obligation	A legal obligation associated with the retirement of a tangible long-lived asset in which the timing or method of settlement may be conditional on a future event, the occurrence of which may not be within the control of the entity burdened by the obligation. The liability equals the present value of the expected cost of retirement/remediation. An asset equal to the initial liability is added to the balance sheet, and depreciated over the life of the asset. The result is an increase in both assets and liabilities, while the total expected cost is recognized over time, with the accrual steadily increasing on a compounded basis.
Basement	Any rock below sedimentary rocks or sedimentary basins that are metamorphic or igneous in origin.
Basin	A general region with an overall history of subsidence and thick sedimentary section.
Bedding	The arrangement of a sedimentary rock in beds or layers of varying thickness and character; the general physical and structural character or pattern of the beds and their contacts within a rock mass, such as cross-bedding and graded bedding; a collective term denoting the existence of beds.
Capital Expenditure	An amount spent to acquire or upgrade productive assets (such as buildings, machinery and equipment, vehicles) in order to increase the capacity or efficiency of a company for more than one accounting period: initial capital expenditure is normally referred to as project capital; capital expenditure associated with subsequent non-recurring activities are defined as deferred capital; and capital expenditure associated with recurring activities (periodic maintenance, tailings dam lifts) are defined as sustaining capital.
Carbonaceous	Rocks or sediments consisting of or containing carbon or its compounds.
Carbonate	A compound containing the acid radical CO_3 of carbonic acid. Bases react with carbonic acid to form carbonates.

Cenozoic	The current and most recent of the three Phanerozoic geological eras, following the Mesozoic Era and extending from 66Ma to the present day.
Chloride	A compound of chlorine with another element or group, especially a salt of the anion Cl^- or an organic compound with chlorine bonded to an alkyl group.
Clay	A finely-grained natural rock or soil material that combines one or more clay minerals with possible traces of quartz, metal oxides and organic matter.
Coal	A combustible black or brownish-black sedimentary rock usually occurring in rock strata in layers or veins called coal beds or coal seams.
Company	Nord Gold UK Societas.
Competent Person	A minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation', as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Conceptual Closure Plan	Mine closure planning involves planning effectively for the after-mining landscape – all activities required before, during, and after the operating life of a mine that are needed to produce an acceptable landscape economically. The most important benefit of closure planning is identification of critical activities to achieve successful reclamation. Closure planning usually identifies areas of needed research. It also identifies planning constraints (and sometimes opportunities) especially identifying safe methods and locations for tailings storage. These plans provide some assurance that the mine is not "painting itself into a corner" and provide a starting basis to estimate financial assurance levels – important to both mines and regulators. It also forms a base case against which future planning changes can be compared. Much of this work falls under the concept of "design for closure" introduced 30 years ago.
Conglomerate	A coarse-grained clastic sedimentary rock, composed of rounded to sub-angular fragments larger than 2mm in diameter (granules, pebbles, cobbles, boulders) set in a fine-grained matrix of sand or silt, and commonly cemented by calcium carbonate, iron oxide, silica, or hardened clay; the consolidated equivalent of gravel.
Copper	A reddish metallic element that takes on a bright metallic lustre and is malleable, ductile, and a good conductor of heat and electricity. Symbol, Cu.
Core Recovery	The amount of the drilled rock withdrawn as core in core drilling, generally expressed as a percentage of the total length of the interval cored.
Cretaceous	A geologic period and system that spans 79Ma from the end of the Jurassic Period 145Ma to the beginning of the Paleogene Period 66Ma. A relatively warm climate, resulting in high eustatic sea levels that created numerous shallow inland seas.
Cut-off grade	The grade of mineralised rock which determines as to whether or not it is economic to recover its gold content by further concentration.
Decline	A surface or sub-surface excavation in the form of a tunnel which is developed from the uppermost point downwards.
Devonian	A geologic period and system of the Palaeozoic, spanning 60Ma from the end of the Silurian, 419Ma, to the beginning of the Carboniferous, 359Ma.
Dilution	The contamination of ore with barren or grade bearing wall rock in stoping. The assay of the ore after mining is frequently lower than when sampled in place. The proportion of waste that is contained in the Run-of-Mine ore delivered to the metallurgical processing plant.
Diorite	A speckled, coarse-grained igneous rock consisting essentially of plagioclase, feldspar, and hornblende or other mafic minerals.

Dip	The angle at which a planar feature is inclined to the horizontal plane.
Drill rig	A drill machine complete with all tools and accessory equipment needed to drill boreholes.
Environmental and Social Impact Assessment	A process for predicting and assessing the potential environmental and social impacts of a proposed project, evaluating alternatives and designing appropriate mitigation, management and monitoring measures.
Environmental and Social Liabilities	All bio-physical and social liabilities relating to the closure of a mining and processing operation which inter alia may include physical remediation and retrenchment expenditures as well as post closure monitoring expenditures.
Environmental and Social Management Systems	A set of policies, procedures, tools and internal capacity to identify and manage a financial institution's exposure to the environmental and social risks of its clients/investees.
Eocene	Epoch, lasting from 56Ma to 3Ma, is a major division of the geologic timescale and the second epoch of the Paleogene Period in the Cenozoic Era.
Ephemeral stream	A stream that flows only briefly during and following a period of rainfall in the immediate locality.
Equator Principle	A risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.
Exploration Programme	The Exploration Programme for the Development Property, the Advanced Exploration Property and the Exploration Properties of the Company comprising annual schedules of activities and expenditures not included in the Life-of-Mine plans for the Mineral Assets.
Facies	An assemblage or association of minerals reflecting the environment and conditions or origin of the rock.
Feldspar	A group of rock-forming tectosilicate minerals that make up about 41% of the Earth’s continental crust by weight. Feldspars crystallize from magma as veins in both intrusive and extrusive igneous rocks and are also present in many types of metamorphic rock.
Filtration	Removal of suspended and/or colloidal material from a liquid by passing the suspension through a relatively fine porous medium, e.g., a canvas or other fabric diaphragm; the process is activated by suction or pressure, and commonly includes filter aids. The products are clear liquid and a filter cake.
Fold	A curve or bend of a planar structure such as rock strata, bedding planes, foliation, or cleavage. A fold is usually a product of deformation, although its definition is descriptive and not genetic and may include primary structures.
Footwall	The mass of rock underlying the mineral deposit or reef or the underlying side of an orebody or stope.
Gabbro	A phaneritic (coarse-grained), mafic intrusive igneous rock formed from the slow cooling of magnesium-rich and iron-rich magma into a holocrystalline mass deep beneath the Earth's surface.
Geochemical	Compounds that make up the earth, its atmosphere, and its seas.
Geochemistry	The study of the relative and absolute abundances of the elements and their nuclides (isotopes) in the Earth; the distribution and migration of the individual elements or suites of elements in the various parts of the Earth (the atmosphere, hydrosphere, lithosphere, etc.), and in minerals and rocks, and also the study of principles governing this distribution and migration. Geochemistry may be defined very broadly to include all parts of geology that involve chemical changes, or it may be focused more narrowly on the distribution of the elements.
Geophysics	Branch of physics dealing with the Earth, including its atmosphere and hydrosphere. It includes the use of seismic, gravitational, electrical, thermal, radiometric, and magnetic phenomena to elucidate processes of dynamical

	geology and physical geography, and makes use of geodesy, geology, seismology, meteorology, oceanography, magnetism, and other Earth sciences in collecting and interpreting Earth data. Geophysical methods have been applied successfully to the identification of underground structures in the Earth and to the search for structures of a particular type, as, for example, those associated with oil-bearing sands.
Geosyncline	A large-scale depression in the earth's crust containing very thick deposits.
Gold	A chemical element with symbol Au and atomic number 79.
Graben	An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides. It is a structural form that may or may not be geomorphologically expressed as a rift valley.
Grade	The relative quantity or the percentage of ore-mineral or metal content in an orebody.
Granite	A common type of felsic intrusive igneous rock that is granular and phaneritic in texture.
Groundwater	Water that collects or flows beneath the Earth's surface, filling the porous spaces in soil, sediment, and rocks. Groundwater originates from rain and from melting snow and ice and is the source of water for aquifers, springs, and wells. The upper surface of groundwater is the water table.
Hanging wall	The mass of rock overlying the mineral deposit or reef. The overlying side of an orebody, fault, or mine working, especially the wall rock above an inclined vein or fault.
Hydraulic conductivity	A property of soils and rocks, that describes the ease with which a fluid (usually water) can move through pore spaces or fractures.
Hydrogeological characterisation	The process by which a hydrogeological system/domain is characterised in respect of physical properties governing the flow of water.
Hydrology	The branch of science concerned with the properties of the earth's water, and especially its movement in relation to land.
Igneous	Formed through the cooling and solidification of magma or lava.
In situ	Ore or waste material in its original unmined state.
International Finance Corporation	An international financial institution that offers investment, advisory, and asset-management services to encourage private-sector development in developing countries.
Iron	A chemical element with symbol Fe and atomic number 26.
ISO 14001	The international standard that specifies requirements for an effective environmental management system.
ISO 5001	The international standard that specifies requirements for an energy management system.
ISO 9001	The international standard that specifies requirements for a quality management system.
JORC Code	The 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia”
Jurassic	The second period of the Mesozoic Era, thought to have covered the span of time between 190Ma and 135Ma.
Kriging	An interpolation method of assigning values from samples to blocks that minimises the estimation error.
Leaching	A process where ore is soluble and impurities are insoluble, widely used extractive metallurgy technique which converts metals into soluble salts in aqueous media.
Life-of-mine plan	The production plan which provides physical details in monthly, quarterly or annual time increments in respect of mined waste and ore through to processed material, recovered saleable products and waste materials from a

	processing facility. The duration of the plan typically reflects the Life-or-Mine, and normally limited to depletion of 'Ore Reserves'.
Life-of-mine	The time in which, through the employment of the available capital, the Ore Reserves-or such reasonable extension of the ore reserves as conservative geological analysis may justify-will be extracted.
Limestone	A sedimentary rock consisting chiefly (more than 50% by weight or by areal percentages under the microscope) of calcium carbonate, primarily in the form of the mineral calcite, and with or without magnesium carbonate; specif. a carbonate sedimentary rock containing more than 95% calcite and less than 5% dolomite.
Liquidation Fund	The fund established for financing of environmental liabilities, specifically bio-physical closure costs.
Lycopodium	Lycopodium Minerals Canada Ltd
Mesozoic	An interval of geological time from about 252Ma to 66Ma. It is also called the Age of Reptiles
Metallogenic	Geographic area characterized by a particular assemblage of mineral deposits, or by a distinctive style of mineralization.
Mineral Assets	The entire suite of producing properties, development properties, advanced exploration properties and exploration properties comprising deposits and all related production facilities (mining, processing, infrastructure).
Modifying Factors	The term 'Modifying Factors' is defined to include mining, metallurgical, economic, marketing, legal, environmental, social and governmental considerations.
Nominal Terms	Expenditures or revenues expressed in nominal terms are unadjusted from the date in which they are recorded, specifically they will include inflationary aspects as determined form a specified reference date.
Nordgold	Nord Gold UK Societas.
Operating Expenditure	An operating expense, operating expenditure, operational expense, operational expenditure is an ongoing cost for running a product, business, or system.
Orogenic	An orogen or orogenic belt develops when a continental plate crumples and is pushed upwards to form one or more mountain ranges; this involves a series of geological processes collectively called orogenesis. Orogeny is the primary mechanism by which mountains are built on continents.
Outcrop	The part of a rock formation that appears at the surface of the ground.
Permian	A geologic period and system which spans 47Ma from the end of the Carboniferous Period 299Ma, to the beginning of the Triassic period 252Ma.
Polymetallic	An ore that is the source of more than one metal suitable for recovery.
Polymictic	Holomictic lakes that are too shallow to develop thermal stratification; thus, their waters can mix from top to bottom throughout the ice-free period.
Porphyry	A textural term for an igneous rock consisting of large-grained crystals such as feldspar or quartz dispersed in a fine-grained silicate rich, generally aphanitic matrix or groundmass.
Potable	Water that is safe to drink or to use for food preparation, without risk of health problems.
Precipitate	The solids resulting from the precipitation process.
Precipitation	The action or process of precipitating a substance from a solution.
Pre-Feasibility Study	A Preliminary Feasibility Study (Pre-Feasibility Study) is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine

	if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.
Proterozoic	A geological eon spanning the time from the appearance of oxygen in Earth's atmosphere to just before the proliferation of complex life (such as trilobites or corals) on the Earth. The Proterozoic Eon extended from 2.5Ga to 541Ma.
Pyrite	The mineral pyrite, or iron pyrite, also known as fool's gold, is an iron sulphide with the chemical formula FeS_2. Pyrite is considered the most common of the sulphide minerals.
Quaternary	The current and most recent of the three periods of the Cenozoic Era and follows the Neogene Period and spans from 2.6Ma to the present.
Real terms	Values which has been adjusted to remove the impact of inflation, e.g. where nominal values have been adjusted to determine values which are base dated to a specific date.
Receptor	Environmental and Social Receptors which are impacted by the mining and processing operations.
Retrenchment	The action of making an employee redundant.
Riverine	Relating to or situated on a river or riverbank.
Russia	Russian Federation.
Sandstone	A clastic sedimentary rock composed mainly of sand-sized (0.0625mm to 2mm) mineral particles or rock fragments.
Scoping Study	A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.
Sedimentary	Rock that has formed from sediment deposited by water or air.
Silicate	Rock-forming minerals with predominantly silicate anions. They are the largest and most important class of rock-forming minerals and make up approximately 90% of the Earth's crust.
Siliceous	Sedimentary rocks that have silica (SiO_2) as the principal constituent.
Siltstone	A sedimentary rock which has a grain size in the silt range, finer than sandstone and coarser than claystones.
Silver	A precious shiny greyish-white metal, the chemical element of atomic number 47.
SRK	SRK Consulting (UK) Limited
Stoping	The process of extracting the ore from an underground mine, leaving behind an open space known as a stope.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulphur	The chemical element of atomic number 16, a yellow combustible non-metal. that occurs widely in nature, especially in volcanic deposits, minerals, natural gas, and petroleum. It is used to make gunpowder and fertilizer, to vulcanize rubber, and to produce sulfuric acid.
Tailings Storage Facility	An impoundment used to deposit tailings arising as waste from a metallurgical processing facility.
Terrigenous	Derived from the erosion of rocks on land; that is, they are derived from terrestrial (as opposed to marine) environments.
Tertiary	Relating to or denoting the first period of the Cenozoic era, between the Cretaceous and Quaternary periods, and comprising the Palaeogene and Neogene sub-periods.
Third Party	Someone who is not one of the main people involved in a business agreement or legal case, but who is involved in it in a minor role.

Thrust	A break in the Earth's crust, across which older rocks are pushed above younger rocks.
Vein	An epigenetic mineral filling of a fault or other fracture in a host rock, in tabular or sheetlike form, often with associated replacement of the host rock; a mineral deposit of this form and origin.
Volcanic	Characteristic of, pertaining to, situated in or upon, formed in, or derived from volcanoes.
Water table	The surface where the water pressure head is equal to the atmospheric pressure. It may be visualized as the “surface” of the subsurface materials that are saturated with groundwater in a given vicinity.
X-ray spectral fluorescent analyses	An x-ray instrument used for routine, relatively non-destructive chemical analyses of rocks, minerals, sediments and fluids.
X-ray	A form of electromagnetic radiation.

Abbreviations

AARL	Anglo American Research Laboratory
AAS	absorption spectrometry
AAS	atomic absorption spectrometry
AC	Air Core
ADT	articulated dump trucks
AEX	autorisation d'exploitation'
AISC	All in Sustaining Costs
AMS	Automated monitoring system
ARDML	acid rock drainage and metal leaching
ARO	Asset Retirement Obligation
ASM	Artisanal and small-scale mining
ASX	Australian Securities Exchange
AUG	Auger
BAM	Baikal-Amur Mainline
BAT	best available techniques/technologies
BFS	bankable feasibility study
BGEEE	Guinean Bureau of Studies and Environmental Assessments
bgl	below ground level
BH	blast holes
BP	Business Plan
BSc	Bachelor of Science
BU	Business Units
BUMIGEB	Burkina Faso Government Bureau of Mines and Geology
BUNEE	National Office of Environmental Assessments
C. Chem	Chartered Chemist
C. Geol	Chartered Geologist
C.Eng	Chartered Engineer
CCD	Counter-Current Decantation
CEO	Chief Executive Officer
CIP	Carbon-in-Pulp
CIT	Corporate Income Tax
CO_2	Carbon Dioxide
CoG	cut-off grade
Counsel	Conseil de défense écologique
CPDM	Centre de Promotion et de Développement Minier
CPR	Competent Persons Report
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
DDH	Diamond Drillholes
DP	Development Property
DPA 1998	Data Protection Act 1998 of the United Kingdom
DSF	Dry stack tailings storage facility
EBITDA	Earnings Before Interest Tax, Depreciation and Amortisation
ECOWAS	Economic Community of West African States
EHSG	Environmental Health and Safety Guidelines
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative

ELOS	equivalent linear overbreak slough
EP	Exploration Property
EPA	Environmental Protection Authority
ESA	Effective Strength Analysis
ESG	environmental, social and governance
ESHS	Environmental, Safety and Health System
ESIS	Environmental and Social Impact Study
ESMP	Environmental and Social Management Plan
ESTMA	Extractive Sector Transparency Measures Act
Eur. Geol.	European Geologist
FCA	Financial Conduct Authority
FGS	Fellow of the Geological Society
FMIMM	Fellow of the Institute of Materials, Minerals and Mining
FOS	Factors of Safety
FS	Feasibility Study
FTE	full time equivalent
FW	footwall
G&A	General and Administration
GCMP	Ground Control Management Plans
GIIP	Good International Industry Practice
GIS	Geographic information system
GPS	Global Positioning System
GRR	Exploration Depreciation
GT	Grand Trench
GWMP	Ground Water Management Plans
H&S	health and safety
H1	1st half of the financial/calendar year in this case being 1 January through 30 June
H2	2nd half of the financial/calendar year in this case being 1 July through 31 December
HDPE	High-density polyethylene
HG	High grade
HLF	Heap Leach Facility
HLP	heap leach pads
HSE	Health, Safety and Environment
HW	hanging wall
IBA	International Bar Association
IDI	Igiredmet Design Institute
IDW	inverse distance weighting
IDW2	Inverse Distance Weighting Squared
IFC	International Finance Corporation
IFRS	International Financial Reporting Standards
ILO	International Labour Organization
IO	incremental cut-off grade
JDS	JDS Mining & Energy Inc
JSA	job safety analysis
JV	Joint Venture
KCAA	Kappes, Cassiday & Associates Australia

KNA	kriging neighbourhood analysis
LDA	Local Development Agreement
LG	low grade
LHD	load-haul-dump loaders
LoM	Life of mine
LoMp	Life of Mine plan or long-term mine plan
LTIFR	Lost time injury frequency rate
Lycopodium	Lycopodium Minerals Canada Ltd
MAC	maximum allowable concentrations
MAusIMM	Member of the Australasian Institute of Mining and Metallurgy
MEEF	Ministry for Environment, Water and Forests
MEEVCC	Ministry of the Environment, Green Economy and Climate Change
MICAEW	Member of the Institute of Chartered Accountants of England and Wales
MIMMM	Member of the Institute of Materials, Minerals and Mining
MPA	Mine Planning Assumptions
MPT	Medvezhya-Poperechnaya-Tuluinskaya
MRM	Mineral Resource Management
MRO	Nunavut Mining Recorder's Office
MRSC	Member of the Royal Society of Chemistry
MSc	Master of Science
MSO	Mineable Shape Optimiser
MTS	Mine Technical Services
NGO	Non-Governmental Organisation
NGWA	National Groundwater Association
NIES	Notice d'impact environnemental et social
NIRB	Nunavut Impact Review Board
NORM	naturally occurring radioactive materials
NPC	Nunavut Planning Commission
NWB	Nunavut Water Board
OECD	Organisation for Economic Co-operation and Development
OK	Ordinary Kriging
OVOS	environmental action plans
OVOS	Otsenka Vozdeystviya na Okruzhayushchuyu Sredu
PEA	preliminary economic assessment
PEK	environmental monitoring programmes
PER	permis exclusif de recherche'
PFS	Pre-feasibility / Preliminary Feasibility Study
PGB	Paramaca Greenstone Belt
pH	A logarithmic scale used to specify the acidity or basicity of an aqueous solution.
PhD	Doctorate of Philosophy
PLS	Pregnant Leach Solution
PNS	Professional Natural Scientist
PPE	personal protective equipment
PS	Performance Standards
RAB	Rotary Air blast
RAP	Resettlement Action Plan
RC	Reverse Circulation

RCD	RC collar and a DDH tail
RGMP	World Gold Council Responsible Gold Mining Principles
RoM	Run of mine
RPEEE	Reasonable Prospects for Eventual Economic Extraction
RPO	Recognised Professional Organisation
Russia	Russian Federation
SBA	safety behavioural audit
SBP	Strategic Business Plan
SDAGE	Schémas Directeurs d'Aménagement et de Gestion des Eaux
SDOM	Schéma Départemental D'Orientation Minière de la Guyane
SMD	Société Minière de Dinguiraye
SMU	selective mining unit
SMZ	Sergachi Metallogenic Zone
Somita	Société des Mines de Taparko S.A.
SOP	standard operation procedures
SP	Self Potential
SPZ	Sanitary Protection Zone
SRK	SRK Consulting (UK) Limited
SS	Serebryakovskaya-Sluchainaya
SWMP	Surface Water Management Plans
TDS	Total Dissolved Solids
TEEP	Techniko-Economicheskoe Predlozhenye
TEO	Technico Economicheskiye Obosnovaniye
TEP	Technical Economic Parameters
TSF	tailings storage facility
TSL	Thin Sprayed Liners
UG	underground
UK	United Kingdom of Great Britain and Northern Ireland
USA	Undrained Strength Analysis
VP	Visokaya-Poperechnaya
WAI	Wardell Armstrong International
WB	water boreholes
WFD	Water Framework Directive
WPZ	Water Protection Zones
WRD	waste rock dump

Units

amsl	above mean sea level
g	a gramme
Ga	a billion years ago
g/L	a gramme per litre
g/t	a gramme per tonne
GWh	a billion watt hours
ha	hectare
Hz	a hertz
km	a kilometre
km^2	a square kilometre
kt	a thousand metric tonnes
ktpa	a thousand tonnes per annum
kV	a thousand volts
kW/t	a thousand watts per tonne
kWh	a thousand watt hours
KZT	Kazakhstan Tenge
L	a litre
L/day	litres per day
L/s	litres per second
m	a metre
mbgl	metres below ground level
m^2/day	a square metre/day
m^3	a cubic metre
m^3/d	a cubic metre per day
m^3/h	a cubic metre per hour
Ma	a million years ago
mabsl	metres above sea level
mamsl	metres above mean sea level
mbgl	metres below ground level
m/d	metres per day
m^3/h	a cubic metre per hour
Mlpa	a million litres per annum
mm	a millimetre
m/s	a metre per second
MPa	a Mega Pascal
Mt	a million tonnes
Mtpa	a million tonnes per annum
MW	a million watts
MWh	a million watt hours
m/y	metres per year
No.	number of
ppm	parts per million
t	a metric tonne
t/h	tonnes per hour
USD	a United States Dollar
USDbn	a billion United States Dollars

USDk	a thousand United States Dollars
USD/kg	United States Dollars per kilogramme
USDm	a million United States Dollars
USD/t	United States dollars per tonne
V	volts
°	a degree
°C	a degree Celsius
%	percentage
% w/w	the proportion of a particular substance within a mixture, as measured by weight or mass
µm	a micron or $1x10^{-6}$