NI 43-101 Technical Report: Preliminary Economic Assessment

Duparquet Gold Project Québec, Canada

Prepared for:

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NI 43-101 Technical Report: Preliminary Economic Assessment – Duparquet Gold Project

Revision # 0

Québec, Canada

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1 SUMMARY

1.1 Introduction

First Mining Gold Corp. ("First Mining" or the "Company") retained G Mining Services Inc. ("GMS"), InnovExplo Inc. ("IE" or "InnovExplo"), and Stantec Consulting Ltd. ("Stantec") to prepare a Preliminary Economic Assessment (the "Study" or "PEA") for the Duparquet Gold Project (the "Property", "Project" or "Duparquet Project") in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects. GMS was retained by First Mining to lead and coordinate the PEA. This technical report (the "Report" or "Technical Report") supports the results of the PEA, as disclosed in the First Mining press release entitled "First Mining Announces Positive Preliminary Economic Assessment for the Duparquet Gold Project, Québec, Canada", dated September 7, 2023.

The major contributors for the Study and the Report and their respective areas of responsibility are as follows:

- GMS: overall Technical Report and PEA coordination, mining methods, economic analysis, operating costs, infrastructure, power supply, capital cost estimate and project execution plan, flow sheet, recovery methods, mineral process plant design, and input to operating and capital cost estimates for the process plant
- IE: property description and location, accessibility, history, geological setting and mineralization, deposit types, exploration, drilling, sample preparation and security, data verification, Mineral Resource Estimates and adjacent properties
- Stantec: environmental, permitting, and social aspects

The qualified persons ("QPs") of this Technical Report are:

- Mr. Carl Michaud, P.Eng., Vice President, Mining Engineering for GMS
- Mr. Alexandre Dorval, P.Eng., Senior Mining Engineer for GMS
- Ms. Marina Iund, P.Geo., Senior Geologist, Mineral Resource Estimation for IE
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Messrs. Alexandre Dorval and Philip Rodrigue visited the Project site on July 27, 2023, Ms. Marina Iund visited the Project site on October 20, 2021, Mr. Olivier Vadnais-Leblanc visited the Project site on June 1, 2023, Mr. Carl Pelletier visited the Project site on November 16, 2011 and February 7, 2012, and finally, Mr. Sheldon Smith visited the Project site on July 26, 2023.

1.2 Reliance on Other Experts

This Report has been prepared by GMS for First Mining. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to the Authors and QPs at the time of the preparation of the Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Report.
- Data, reports, and other information supplied by the Company and other third-party sources which have been vetted and verified by the QPs where possible; where it was not possible to confirm past information, this material was taken at a lesser / reduced consideration.

Apart from what listed below, the QPs did not rely on other experts to prepare this Technical Report. The QPs relied on the Issuer's information regarding mining titles, option agreements, environmental liabilities and permits. Neither the QPs, GMS nor InnovExplo are qualified to express any legal opinion with respect to property titles, current ownership or possible litigation.

The following company and consultant have been retained by First Mining to prepare some aspects of this Report. Their involvements are listed below:

- Stantec has relied on Sara Magdouli of BluMetric Environmental for the review of previous geochemical testing results, proposed material processing, and potential implications from an environmental and regulatory perspective documented in Section 20.3 of this Technical Report.

1.3 Property Description and Location

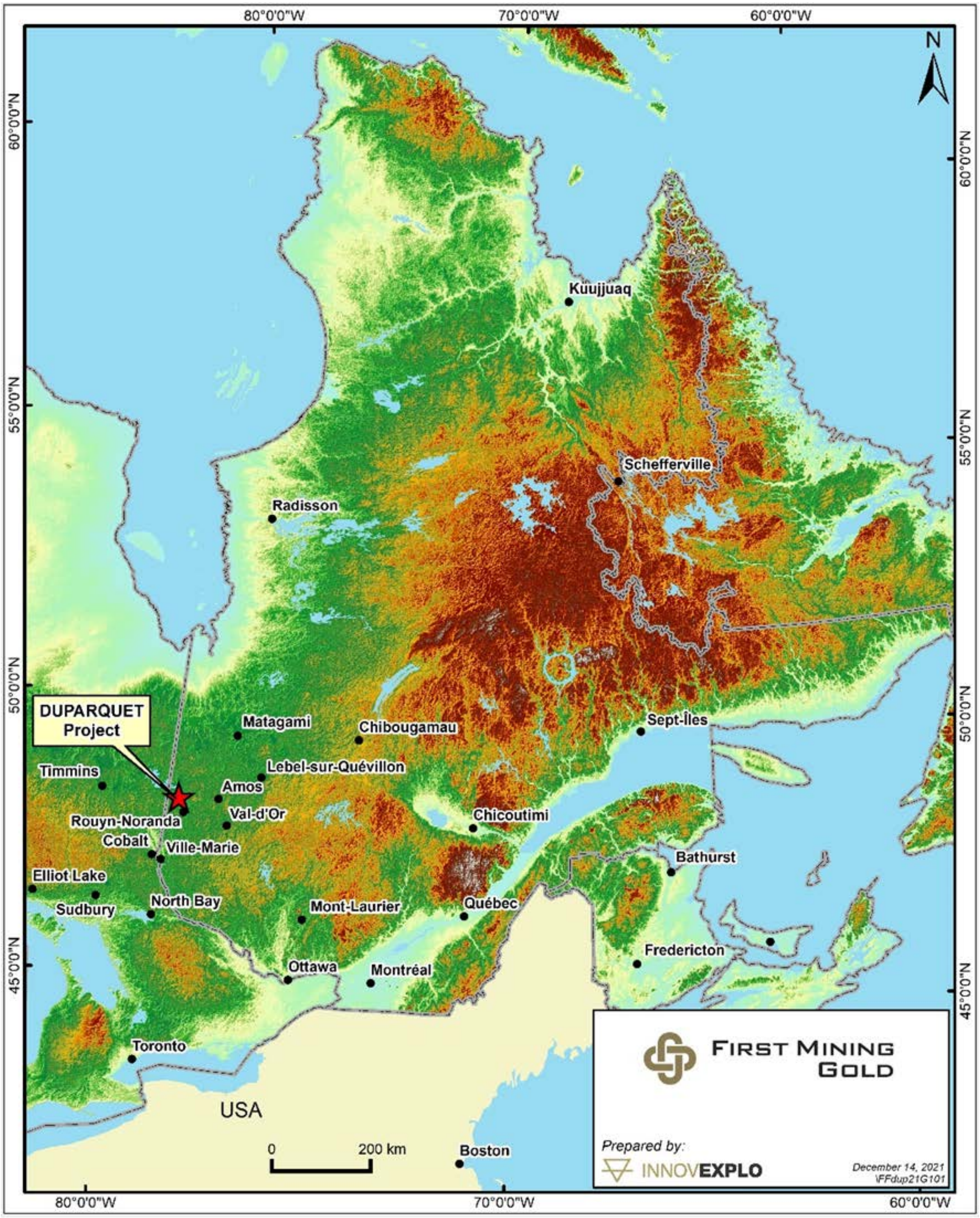
The Property is located in the Abitibi-Témiscamingue administrative region in the western part of the Province of Québec, Canada (Figure 1.1). The centroid of the Property is approximately 26 km north of the city of Rouyn-Noranda and about 7 km east of the town of Duparquet, Québec. The Property lies in the Destor and Duparquet townships and falls within the area covered by NTS map sheets 32D06 and 32D10. The approximate longitude and latitude of the centroid are 79.1304°W and 48.4836°N (NAD83), and the UTM coordinates are 638149 m E and 5371738 m N (NAD83 Zone 17).

The Property, as defined in this Report, consists of the amalgamation of seven contiguous claim blocks (from west to east): Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold, and Duquesne. The claim blocks cover an area of 5,804 ha, extending 19 km east-west and 8 km north-south along the Destor-Porcupine Fault Zone. The Beattie, Donchester and Duquesne blocks contain past-producing underground mines. Historical underground workings and a shaft were developed on the Central Duparquet block, but no gold was produced.

The Project comprises 199 map-designated claims ("CDC") registered under the name Mines d'Or Duparquet Inc. ("Mines d'Or Duparquet"), a wholly-owned subsidiary held 100% by First Mining. Mines d'Or Duparquet is the surviving entity following an agreement pursuant to which five corporations were amalgamated into a single company: Duquesne Gold Mines Inc., Mines d'Or Duparquet Inc. (formerly Clifton Star Resources Inc.), Beattie Gold Mines Ltd., 173714 Canada Inc. and 14601866 Canada Inc. (amalgamation effective January 1, 2023).

All claims are in good standing as of September 28, 2023. Since September 25, 2023, all claims have been registered in GESTIM to Mines d'Or Duparquet Inc. (103268). Before the amalgamation, the mining titles were subdivided into areas representing the former properties that collectively represent the Duparquet Project.

Figure 1.1: Location of the Duparquet Gold Project



Source: InnovExplo, 2021

1.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Project can be easily reached via the all-season, paved, two-lane provincial road 101 from Rouyn-Noranda, which heads north to La Sarre over approximately 30 km, then turns westward onto provincial road 393 for approximately 15 km to Duparquet. Both roads cross through the Property, and several gravel roads also lead onto it. The climate is continental, with cold, dry winters and warm summers. Winter temperatures average -17°C with lows down to -40°C in January, whereas summer temperatures average 17°C with highs up to 35°C in July. Annual precipitation is around 900 mm. Snow falls from mid-November to mid-April.

Rouyn-Noranda is the nearest major city with a specialized workforce and facilities for obtaining mining / exploration services and supplies. The town of Duparquet currently has a population of about 700 residents. Skilled workers and housing are available in the municipality. Water is available from the town's water supply or water bodies on the Project. Electric power is available at the Beattie mine site. Supplying the Project from the Renaud substation would require a new 14.5 km-long 120 KV power line. An existing power line passes through the Duquesne claim block.

Most of the mine buildings on the Project have been demolished. The shafts and vent raises have been capped and allowed to flood naturally. The existing connection from surface to the underground workings has also flooded. The only remaining buildings are the roaster, smokestack and water tower on the Beattie mine site.

The terrain is flat to gently undulating. The topography is characteristic of the southern Canadian Shield, with rolling glacial hills and intervening lowlands with lakes and swamps.

1.5 History

Mining exploration in the Duparquet area started in the early 1930s and reached its peak between the mid 1930s and mid 1950s after the discovery of the deposits that became the Beattie and Donchester mines near Duparquet, and the Duquesne mine approximately 16 km to the east.

The current Duparquet Project consists of seven claim blocks: Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold and Duquesne. It covers and overlaps many historical mining and exploration properties, the boundaries and names of which have changed over time following ownership (and/or option) changes, the abandonment and/or addition of claims, or modifications to mining title status when claims were converted into mining leases and then into mining claims.

All the claim blocks have been the subject of multiple exploration programs carried out by numerous exploration companies. The work included prospecting and geological mapping, geophysics, geochemistry and drilling, the latter ranging from exploration-stage to mineral resource definition. The drilling programs at Beattie, Donchester, Central Duparquet and Duquesne were conducted from both surface and underground. The claim blocks have been the subject of many geological studies and reports covering a wide array of topics, from mineral resource and mineral reserve estimates to engineering studies to regional geological surveys and synthesis.

1.6 Geological Setting and Mineralization

1.6.1 Regional Geology

The Project is located in the southern portion of the Archean volcanic belt in the Abitibi region of the Superior Province. The Archean Superior Province forms the core of the North American continent and is surrounded by provinces of Paleoproterozoic age to the west, north and east, and the Grenville Province of Mesoproterozoic age to the southeast.

The Abitibi Subprovince is divided into the Southern and Northern volcanic zones ("SVZ" and "NVZ", respectively; Chown et al., 1992) representing a collage of two arcs delineated by the Destor-Porcupine Fault Zone ("DPFZ") (Mueller et al., 1996). The SVZ is separated from the Pontiac Terrane sedimentary rocks, an accretionary prism to the south (Calvert and Ludden, 1999), by the Cadillac-Larder Lake Fault Zone ("CLLFZ").

Most of the rocks in the Southern Abitibi Greenstone Belt are Archean, with ages ranging from 2,730 to 2,670 Ma. The overall geometry of the Southern Abitibi comprises east-west trending lithological sequences primarily of volcanic origin that vary in composition from ultramafic (komatiites) through to felsic rocks.

The volcanic sequences have been intruded by mafic to felsic batholiths, mostly dated between 2,707 and 2,696 Ma.

Deformation zones like the DPFZ are terrane lineaments that display the change from thrusting to transcurrent motion as documented in the turbiditic flysch basins unconformably overlain by or in structural contact with coarse clastic deposits in strike-slip basins (Mueller et al., 1991, 1994, 1996; Daigneault et al., 2002).

The DPFZ extends 200 km from west to east from Ontario to Québec. The deformation zone is well known for having a significant gold endowment, and several mines and projects (active or historic) can be found along the structure.

These sequences are spatially related to less common, younger coarse clastic rocks of the Timiskaming Group and its equivalents, generally thought to be 2,677 ± 2 Ma (Corfu, 1993).

Minor felsic intrusions and their extrusive equivalents occur in many areas, including the Porcupine area (2,690 Ma), the Kirkland Lake area (2,677 ± 2 Ma) and the Duparquet area (2,689 to 2682 Ma) (Armstrong et al., 2010).

The metamorphic grade in the Abitibi Subprovince displays greenschist to sub-greenschist facies (Joly, 1978; Powell et al., 1993; Dimroth et al., 1983b; Benn et al., 1994) except around plutons where amphibolite grade facies prevail (Joly, 1978).

The local geology in the Property area is characterized by ENE-WSW and WNW-ESE stratigraphy, that dips steeply (80°- 85°) to the south. The predominant structures are the SE-trending regional DPFZ and its E-W-trending fault splays. On the claim blocks, these splays include the Duquesne, Lac Lepine, Central Duparquet, Donchester and Beattie fault zones. Several subsidiary faults with NE-SW to E-W orientations are closely related to these structures.

The local stratigraphy is predominantly represented by the Kinojevis, Blake River, Kewagama and Timiskaming groups.

The Kinojevis Group, the oldest rock group forming the base of the stratigraphy in this area, lies north of the DPFZ and is subdivided into two units: the Deguisier Formation, composed of massive to pillowed tholeiitic basalt associated with some amounts of andesite, felsic pyroclastic rocks and gabbro, and the Lanaudière Formation, consisting of basalts, andesites, rhyolites, komatiites and multiple mafic to ultramafic intrusions (Goutier and Lacroix, 1992).

The Hébécourt and Reneault-Dufresnoy formations form the Blake River Group, located south of the DPFZ. This group is characterized by a volcanic sequence 4 to 7 km thick belonging to the Southern Volcanic Zone (SVZ). The Hébécourt Formation is formed generally by tholeiitic basalts, characterized by varioles and glomeroporphyritic textures. The Reneault-Dufresnoy Formation, composed of andesites and intermediate pyroclastic rocks, lies in stratigraphic continuity on the Hébécourt Formation. The mafic volcanic rocks and the several felsic volcanic centres of the Blake River Group are interpreted as part of a mega-caldera complex representing a multi-stage collapse structure occupying most of the present Blake River Group surface area (Pearson and Daigneault, 2009). The arguments supporting a mega-caldera complex include (i) the mafic-intermediate swarm pattern, (ii) the overall geometry, (iii) the fault pattern, (iv) the distribution of volcaniclastic rocks, and (v) the distribution pattern of carbonate-rich hydrothermal alteration (Pearson and Daigneault, 2009).

The two sedimentary groups in this area, the Kewagama and Timiskaming groups, are younger than the volcanic groups. Sedimentary rocks of the Mont-Brun and Caste formations originated from turbidites deposited in deep basins and formed the Kewagama Group (Mortensen, 1993; Davis, 2002).

The Duparquet Formation of the Timiskaming Group is the youngest Archean unit of the region. It is composed of polymictic coarse-grained, poorly sorted sedimentary rocks deposited in alluvial and fluvial environments. In several locations, the Timiskaming Group lies with angular unconformity against deformed volcanics or alkaline and calc-alkaline porphyritic intrusions (Mueller et al., 1996).

Numerous ultramafic to felsic and alkaline intrusions cut the rocks of the area. Several mafic and ultramafic intrusions are interpreted as synvolcanic sills. Quartz-feldspar porphyries are seen throughout the Duparquet camp and are characterized by the presence of feldspar and quartz phenocrysts and a weak to intense iron-carbonate and sericite alteration. These intrusions are of diorite to granodiorite composition and of calc-alkaline affinity. The Beattie syenite represents almost the only alkaline intrusion found on the Québec side of this gold-bearing belt.

The level of erosion appears to be of a lesser extent than what is deemed typical regionally across the Abitibi Belt. This may have contributed to the preservation of the calc-alkaline and alkaline porphyry intrusive rocks, and Timiskaming Group conglomerates. Two generations of folds are observed locally in this area of which the first is associated with the Lanaudière Formation and the second with the Duparquet Formation. Multiple E-W faults are present in the area and crosscut most lithologies. These faults are not necessarily subsidiary structures of the DPFZ, oriented ESE-WNW. Intense ENE-WSW to E-W schistosity is associated with the DPFZ and E-W faults but appears to be locally variable.

All the rocks of the area have been subjected to sub-greenschist or greenschist facies metamorphism.

1.6.2 Mineralization

1.6.2.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

At the historical Beattie mine, gold has been associated with silicified and brecciated zones containing a low percentage of very fine-grained pyrite and arsenopyrite (Goutier and Lacroix, 1992). According to Bevan (2011), the main type of gold mineralization generally occurs within shears or brecciated zones along or within the adjacent syenitic intrusions and is associated with finely disseminated pyrite and minor arsenopyrite replacement. Sulphide content is generally low (0.5 to 4%), although it can sometimes reach 10%. Higher gold grades appear to be related to the finer-grained sulphides (Bevan, 2011). Historically, gold production at the Beattie mine was accompanied by the extraction of arsenic trioxide and silver as by-products. The breccia type of mineralized material is found within the metavolcanic rocks (volcanics and tuffs) and is represented as well-mineralized, siliceous, brecciated, grey-coloured, and bleached units. The porphyry-style of mineralization is represented as fine-grained, strongly silicified mineralized zones hosted in porphyry intrusives. These units generally have lower gold grades than other styles of mineralization within the deposit (Bevan, 2011).

The typical mineral assemblage in mineralized zones of all types is characterized by feldspar, quartz, sulphides (pyrite and arsenopyrite), sericite, chlorite, and other secondary minerals. Mill tests suggest that 35% of the gold occurs as free gold and the remainder is known to be associated with sulphides. According to Bevan (2011), three phases of gold enrichment or remobilization can be interpreted from the cross-cutting relationships between gold-bearing veins. Bevan (2011) also states that higher gold concentrations are found along cross-cutting faults, in fold noses, and within the lath-textured porphyry dyke intrusions and are representative of remobilization processes.

At the past producing Beattie mine, the main mineralized lenses are hosted along the contacts of the shear zones (BF and DF) and the syenite intrusion. In this report, the main zone is referred to as the North Zone, and it is the northernmost contact of the syenite intrusion, and a second gold-bearing lens, the South Zone, occurs at the southern contact of the syenite intrusion.

Gold mineralization at the Donchester mine was of higher grade and associated with an E-W shear zone cutting across volcanic units and syenitic dykes (Goutier and Lacroix, 1992). This zone is interpreted herein as the east extension of the South Zone. At both the Beattie and Donchester mines, the South Zone can be subdivided into several mineralized lenses, modelled as ten individual subzones. Six other major mineralized zones within the Beattie-Donchester area have been interpreted by Iund et al., 2022.

Mineralization at Central Duparquet is hosted within the CDF and is of a similar nature as the South and North zones (Bevan, 2011). InnovExplo interpreted three mineralized zones at Central Duparquet.

Dumico is the eastern extension of Central Duparquet. According to Iund et al., 2022, five mineralized zones were interpreted at Dumico. Three of these strike E-W and are interpreted as extensions of the Central Duparquet CD Zones. The other two zones, which strike NW-SE, occur on the eastern portion of Dumico. Based on the current interpretation, they are thought to be associated with a secondary structure subparallel to the regional DPFZ.

1.6.2.2 Pitt Gold Claim Block

Most of the mineralized intersections have been obtained north of the DPFZ. A few isolated gold values were encountered in sediments to the south of the fault zone and a few more within schist (chlorite, sericite, carbonate, fuchsite) representing the fault zone, but although the assay values could be quite high, limited continuity could be established with the data available.

Gold mineralization is more abundant towards the north of the fault zone and is hosted within distinctive structures and units that seem to be more variable and complex. Porphyry intrusions are prominent north of the DPFZ; and their association with gold mineralization is poorly understood. It is suggested that the intrusions were emplaced along the same dilatational structures that mobilized gold-bearing fluids. Drill hole data suggests that gold is not only confined to the porphyries, and there appears to be a cross-cutting relationship between the gold-bearing structures and the porphyries or volcanic units.

The mineralized structures are diffused and not always clearly defined. Their physical expression is represented by zones of silicification (and locally albitization) and dark grey quartz veining (locally graphitic), exhibiting significant fine pyrite (5 to 10%) in veinlets, as well as the altered host unit. Mineralized intersections vary from a few centimetres up to several metres. The gold content is highly variable and can locally reach ‘bonanza grade’ (hundreds of grams of gold per tonne). Visible gold is rarely observed in diamond drill core and outcrop. Gold appears closely related to pyrite and may be hosted along grain boundaries, in fractures, or within the pyrite crystals. Areas with stronger alteration (silicification) and increase in fine pyrite yield higher gold grades.

A previous model described gold-bearing structures located along the internal contacts of the porphyry intrusion and two main zones, namely the Main Zone (upper contact) and the Stringer Zone (lower contact), were defined in a resource model that was based on a 100 m x 100 m drill spacing. In an effort to further validate the model, the drillhole spacing was adjusted to 50 m x 50 m. However, the outcomes did not fully yield the same findings and subsequent drilling was carried out, which revealed that there is more complexity to the stratigraphy than initially anticipated.

1.6.2.3 Duquesne Claim Block

Felsic porphyry intrusions are very important for gold mineralization at Duquesne. These felsic intrusions are located on the contact between two lithostratigraphic units, in the fault zone or on the extension of the sedimentary band of the Duparquet Formation.

Gold is found in four geological settings: a) within syenite and feldspar porphyry and mafic to ultramafic host rocks within shears that splay off the DPFZ; b) within sheared and brecciated zones associated with the splay-faults and associated with quartz-feldspar porphyry and syenite porphyry; c) within quartz-carbonate-rich systems within quartz-feldspar porphyry, syenite porphyry, and quartz diorite; in particular silicified and chert rich quartz-flooding of the sheared areas of the host rocks; and d) along contacts between mafic and ultramafic sheared units.

Mineralization is within or parallel to secondary fault splays from the DPFZ, which are known to be gold-bearing. Gold-bearing zones within historical Duquesne mine workings are associated with pyrite-carbonate-rich breccias hosted within syenite porphyries. Gold values have also been known to be associated with contact zones of iron formations, sheared conglomerate sediments and within chert horizons of sedimentary rocks. The main host for gold mineralization is sheared and silicified syenite porphyry within a felsic syenite intrusive rock, which lies at the footwall of the DPFZ.

More meaningful gold values in the Duquesne deposit are primarily associated with disseminated pyrite, molybdenum, and quartz veinlets. Native gold is typically fine-grained and lies at the pyrite grain boundaries, although some is found as independent grains in the quartz veinlets. Alteration in the form of sericite, carbonates, and sulphides is typical of the deposit and the style of mineralization. Silver and molybdenum are associated with higher gold values in this deposit type. Arsenic concentrations in the deposits of this class are typically low, reported as less than 100 ppm (Legault et al., 2005).

1.7 Deposit Types

The prolific Destor-Porcupine Fault Zone (“DPFZ”) represents a major gold-bearing structure with a 200 km strike length in the Abitibi Subprovince. Numerous deposits have been found near the DPFZ and its associated splays, resulting in more than 80 million ounces of gold being produced in operations along the structure that extends west to east from Timmins, Ontario, to the east of Duparquet, Québec.

Gold deposits along the fault are varied, and the majority of the lithologies can host gold mineralization, except for the Timiskaming sediments which are known to be deposited post-mineralization. Some deposits consist mainly of quartz-carbonate veins, while others are related to alteration zones exhibiting disseminated sulphides (pyrite, pyrrhotite, arsenopyrite, etc.). In addition, the alteration assemblages vary regionally with carbonate alteration (ankerite and others) being more prominent along the fault, but silicification, sericitization, fuchsite and K-feldspar alterations are not uncommon.

The DPFZ is known to have three stages of veining, predominantly associated with alteration. The first and earlier vein sets are barren of mineralization and have no visible alteration. The second, main-stage of veining has both barren- and gold-bearing quartz veins with the later associated with sericite-carbonate-ankerite-chlorite alteration haloes. Later stage veining is known to be barren quartz-carbonate veins with ankerite alteration haloes. Spatially, the vein stages are also distinguishable, with earlier veins being more widespread and oriented at various angles, with main-stage veins generally confined to well-defined vein systems that are related to faults with specific strike directions. Late-stage veins locally crosscut and brecciate earlier veins.

The Project's style of gold mineralization is characterized by disseminated sulphides associated with a porphyritic intrusion. Controls on mineralization in this deposit type are frequently complex and poorly understood. Gold is associated with quartz flooding and sulphide-bearing veinlets and is disseminated throughout the host rock as opposed to being in or immediately adjacent to veins. According to Legault et al. (2006), this type of mineralization can be subdivided into two types based on the composition of the intrusive rock: 1) Disseminated sulphides with quartz-carbonate veins and veinlets associated with calc-alkaline intrusions; the calc-alkaline subtype has a limited sulphide content, generally displaying strong carbonatization, and probably constitutes a variant of classic orogenic deposits; 2) Disseminated sulphides associated with alkaline intrusions. The subtype associated with alkaline lithologies is richer in sulphides and exhibits intense silicification.

The Duparquet deposit comprises both these styles of mineralization. The Duquesne deposit mineralization is describe as disseminated sulphides associated with calc-alkaline intrusive rocks (Legault et al., 2005). The gold mineralization on the Pitt Gold claim block is found within or close to QFP intrusions ("QFPs").

The main-stage gold-bearing systems are associated with faults commonly forming contacts between geological units with contrasting competency. The syenite and granite intrusive rocks within these areas provide a host for silica-flooding enrichment and zones of brittle rock that allow fluid ingress during vein-forming events. Secondary cross-faulting provides areas for increased gold concentrations in syenite and granite intrusion corridors. Generally, they 'bulge' (up to thicknesses of 40 m) close to cross-cutting fault structures and are predominantly concentrated on one side of the cross-cutting fault. Intrusions of late porphyry dykes within fault fractures are associated with remobilization and deposition of gold.

1.8 Exploration

Line cutting and IP survey work was completed on the Duquesne claim block in 2012, 2013, 2015 for Clifton Star, and in 2016 on behalf of First Mining by Geophysique TMC.

In 2017, First Mining undertook a program of channel sampling on an outcrop located in the central part of the Duquesne mining concession (#377-Block 4) approximately 450 m northwest of the Duquesne shaft.

1.9 Drilling

First Mining initiated a Phase I diamond drill program in May 2023 totaling approximately 5,000 m. This program represents the first drill program undertaken by the company since acquiring the project in 2022. The aim of the drill program was to validate geologic models and test extension opportunities of the current resource estimate, as well as defining new gold zones from the modelled data in the western part of the Duparquet Project. The drilling program is being conducted with one hydraulic drilling rig from Forage Roullier of Amos, Québec.

The 2023 drill holes by First Mining were not reviewed as part of this PEA and are not included in the 2022 Mineral Resource Estimate on the Duparquet deposit as the holes were drilled after the close-out date of the drill database and the effective date of the 2022 MRE technical report.

1.10 Data Verification

1.10.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

Data verification included visits to the Project by the QPs and an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

The updated master database for the Beattie, Donchester, Dumico and Central Duparquet claim blocks contains 904 diamond drill holes totalling 270,119 m and 173,831 sampled intervals, and 2,371 samples from 892 channels (for a total length of 1,827 m).

The QP believes that the data verification process demonstrates the validity of the data and the protocols for the Beattie, Donchester, Dumico and Central Duparquet claim blocks. The QP considers the database to be valid and of sufficient quality for use in the 2023 Mineral Resource Estimate herein.

This item covers the verification of data supplied by First Mining for the Pitt Gold claim block and used in the current MRE. The close-out date of the 2023 MRE database for Pitt Gold is July 7, 2023.

Data verification included a site visit as well as an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

The QP, Olivier Vadnais-Leblanc, visited the Pitt Gold claim block on June 1, 2023, accompanied by Louis Martin from First Mining. Mr. Vadnais-Leblanc also visited the First Mining core shack and offices in the town of Duparquet.

The QPs reviewed all the drilling information from the Pitt Gold claim block that was used for the 2023 MRE. First Mining has not drilled any holes since the 2017 MRE was published (Lewis and San Martin, 2017).

The 2023 validation included all aspects of the drill hole database (i.e., collar locations, drilling protocols, down-hole surveys, logging protocols, sampling protocols, QA/QC protocols, validation sampling, density measurements and checks against assay certificates).

The QP is of the opinion that the sample preparation, analysis, QA/QC and safety protocols used for those programs met generally accepted industry standards at the time but currently prevent a higher level of estimation confidence. As such, the Pitt Gold Mineral Resource Estimate is entirely classified as Inferred.

1.10.2 Duquesne Claim Block

This item covers the verification of data supplied by First Mining for the Duquesne claim block and used in the current MRE. The close-out date of the 2023 MRE database for Duquesne is February 28, 2023.

Data verification included a site visit and an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

The QP, Olivier Vadnais-Leblanc, visited the Duquesne claim block on June 1, 2023, accompanied by Louis Martin from First Mining. Mr. Vadnais-Leblanc also visited the First Mining core shack and offices in the town of Duparquet, the drill site, and the outcrops.

The QPs reviewed all the drilling information from the Duquesne claim block that was used for the 2023 MRE. First Mining has not drilled any holes since the 2016 MRE was published (Rioux, 2016).

The 2023 validation included all aspects of the drill hole database (i.e., collar locations, drilling protocols, down-hole surveys, logging protocols, sampling protocols, QA/QC protocols, validation sampling, density measurements and checks against assay certificates).

The QP is of the opinion that the sample preparation, analysis, QA/QC and safety protocols used for those programs met generally accepted industry standards at the time but currently prevent a higher level of estimation confidence. As such the Duquesne Mineral Resource Estimate is entirely classified as Inferred.

1.11 Mineral Processing and Metallurgical Testing

Metallurgical test work was previously completed on the Project and has been documented in the previous NI 43-101 Technical Report by Poirier et al., (2014). Several metallurgical test work programs have been completed on the Project, with the most recent test work program completed in 2013 by SGS which involved flotation, pressure oxidation (POX), cyanidation, rheology and environmental bench scale test work. Currently no new metallurgical test work has been completed on samples since 2013.

After a comprehensive trade-off study, a conventional comminution and gold flotation flowsheet was selected as the appropriate treatment of mineralized material from the Duparquet deposit to produce a gold-bearing concentrate for sale.

Pilot plant flotation test work was conducted on Duparquet samples by SGS in April 2013. The pilot plant was operated to confirm previous laboratory test results and to generate concentrate for a POX pilot plant and high-grade concentrate for direct sale market evaluation. Cyanidation tests were conducted on the flotation tailing to investigate the extraction of gold from this product. Flotation test results from test PP-07 from the pilot plant tests were used as the basis for process plant design and gold recoveries for this PEA.

The metallurgical parameters used for the flotation process design criteria for the PEA are summarized in Table 1.1.

Table 1.1: Key Process Design Criteria

Criteria	Unit	Nominal Value
Abrasion	g	0.547
A x b	-	27
RWI	kWh/t	19.1
BWI	kWh/t	18.5
Rougher Residence Time (lab)	min	35
1st Cleaner Residence Time (lab)	min	10
2nd Cleaner Residence Time (lab)	min	6
PAX Dosage	g/t	151
MIBC Dosage	g/t	35
R208	g/t	63
Concentrate Grade	g/t Au	36.3
Gold Recovery to Concentrate	%	89.5

1.12 Mineral Resource Estimates

The Mineral Resource Estimate ("MRE") for the Project (the "2023 MRE") was prepared using all available information. The main objective was to update the 2016 MRE for the Pitt Gold claim block and the Duquesne claim block (Lewis et al., 2016 and Rioux, 2016). The updated estimate includes all information available. A new geological interpretation has been done for both projects.

The 2022 Duparquet project (Beattie, Donchester, Central Duparquet and Dumico) MRE is included in this report but has not been modified since its original publication. Its effective date is September 12, 2022.

The 2023 Pitt Gold and Duquesne MREs are the most recent mineral resource estimates published on those properties. The effective date for the Pitt Gold MRE is September 15, 2023. The effective date for the Duquesne MRE is August 31, 2023.

Table 1.6 represents a combination of all mineral resources from the Duparquet, Duquesne and Pitt Gold deposits (the "Duparquet Consolidated Mineral Resource Estimate").

1.12.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

The QPs have classified the current Mineral Resource Estimate for the Duparquet deposit as Measured, Indicated, and Inferred resources, based on data density, search ellipse criteria, drill hole spacing and interpolation parameters. The QPs also believe that the requirement of "reasonable prospects for eventual economic extraction" has been met by having:

- Resources constrained by a pit shell, with a 50° angle in rock and a 30° angle in overburden
- Constraining volumes applied to any blocks (potential underground extraction scenario) using DSO for the out-pit resources
- Cut-off grades based on reasonable inputs amenable to potential open pit and underground extraction scenarios

The MRE is considered reliable and based on quality data and geological knowledge. The estimate follows CIM Definition Standards.

Table 1.2 presents the results of the in-pit and underground portions of the MRE, combining potential open pit and underground mining scenarios at respective cut-off grades of 0.4 g/t Au and 1.5 g/t Au.

Table 1.2: In Pit and Underground Portions of the Duparquet Deposit 2022 Mineral Resource Estimate by Mining Method

Area (mining method)	Cut-off (g/t)	Measured Resource			Indicated Resource			Inferred Resource		
		Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces
Open Pit	0.4	163,700	1.37	7,200	59,410,600	1.52	2,909,600	28,333,000	1.07	970,400
UG Mining	1.5	-	-	-	5,506,900	2.26	399,300	9,038,900	2.29	665,600
Total	-	163,700	1.36	7,200	64,917,474	1.59	3,308,880	37,371,851	1.36	1,636,044

Notes to accompany the Mineral Resource Estimate:

1. *The independent and qualified persons for the Mineral Resource Estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P.Eng., all from InnovExplo, and Guy Comeau, P.Eng. from Soutex. The effective date of the estimate is September 12, 2022.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of economic viability.*
4. *The estimate encompasses sixty mineralized domains and one dilution envelope using the grade of the adjacent material when assayed or a value of zero when not assayed.*
5. *High-grade capping of 25 g/t Au supported by statistical analysis was done on raw assay data before compositing.*
6. *The estimate was completed using a sub-block model built in GEOVIA SURPAC 2021, a block size of 5 m x 5 m x 5 m and a minimum block size of 1.25 m x 1.25 m x 1.25 m. Grades interpolation was obtained by inverse distance squared ("ID2") using hard boundaries.*

7. A density value of 2.73 g/cm³ was used for the mineralized domains and the envelope. A density value of 2.00 g/cm³ was used for the overburden. A density value of 1.00 g/cm³ was used for the excavation solids (drifts and stopes) assumed to be filled with water.
8. The Mineral Resource Estimate is classified as Measured, Indicated and Inferred. The Measured category is defined by blocks having a volume of at least 25% within an envelope built at a distance of 10 m around existing channel samples. The Indicated category is defined by blocks meeting at least one (1) of the following conditions: (i) blocks falling within a 15-m buffer surrounding existing stopes, and/or (ii) blocks for which the average distance to composites is less than 45 m. A clipping polygon was generated to constrain indicated resources for each of the 60 mineralized domains. Only the blocks for which reasonable geological and grade continuity have been demonstrated were selected. All remaining interpolated blocks were classified as Inferred resources. Blocks interpolated in the envelope were all classified as Inferred resources.
9. The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the requirement of reasonable prospects for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. It is reported at a rounded cut-off grade of 0.4 g/t Au (in-pit) and 1.5 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 70.00 (UG); processing cost = CAD 11.9 to $17.0; G&A = CAD 8.75; refining and selling costs = CAD 5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).
10. The number of metric tons and ounces was rounded to the nearest hundred, following NI 43-101 recommendations, and any discrepancies in the totals are due to rounding effects.
11. The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.

Table 1.3: Tailings Portion of the Duparquet Deposit 2022 Mineral Resource Estimate

Domain	Cut-off (g/t)	Potential Measured Resource			Potential Indicated Resource		
		Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces
Zones 1 and 2	0.4	19,900	2.03	1,300	-	-	-
Zones 3 and 4		-	-	-	4,105,200	0.93	123,200

Notes to accompany the Mineral Resource Estimate:
1. The independent and qualified persons, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P. Eng., all from InnovExplo and Guy Comeau, P.Eng. from Soutex. The effective date of the estimate is September 12, 2022.
2. These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.
3. The results are presented in situ and undiluted and have reasonable prospects of economic viability.
4. The estimate encompasses four tailing zones.
5. High-grade capping supported by statistical analysis was done on raw assay data before compositing. High-grade capping was established at 13.0 g/t Au for Zone 1, 3.5 g/t Au for Zone 2, 1.7 g/t Au for Zone 3 and 2.2 g/t Au for Zone 4.
6. The estimate used a block model built in GEOVIA GEMS with a block size of 5 m x 5 m x 1 m. Grade interpolation was obtained by ID2 using hard boundaries.
7. A fixed density of 1.45g/cm³ was used in zones and waste.
8. The Measured and Indicated categories were defined based on the drill hole spacing (Measured: zones 1 and 2 = 30 m x 30 m grid; Indicated: Zone 3 = 100 m x 100 m grid and Zone 4 = 200 m x 200 m grid).
9. The tailings mineral resource is reported at the in-pit cut-off grade of 0.4 g/t Au. The cut-off grade was calculated using the following parameters: processing cost = CAD 11.9; G&A = CAD 8.75; refining and selling costs = CAD 5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).
10. The number of metric tons and ounces was rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.
11. The QPs are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.

1.12.2 Pitt Gold Claim Block

The Pitt Gold deposit MRE (Table 1.4) includes all blocks ("must-take blocks") that fall within a potentially mineable shape meeting "reasonable prospects for eventual economic extraction", as specified in the CIM MRMR Best Practice Guidelines (2019).

Table 1.4: Pitt Gold 2023 MRE

Pitt Gold - Potential Underground Long-hole Mining				
Gold Price ($)	**COG (g/t Au)**	**Sum of Tonnes**	**Sum of Ounces**	**Grade (g/t Au)**
1,800	1.75	2,120,000	187,200	2.75

Notes to accompany the Pitt Gold Project Mineral Resource Estimate:

1. *The independent qualified persons for the Pitt Gold Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. from InnovExplo. The effective date of the estimate is September 15, 2023.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *Pitt Gold: Underground: High-grade capping of 20 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *For Pitt Gold, the estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6 m x 6 m x 6 m and a minimum block size of 1.5 m x 0.5 m x 0.5 m. Grade interpolations were obtained by ID2 using hard boundaries.*
6. *For Pitt Gold, a density value of 2.7 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *For Pitt Gold, the Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Pitt Gold was prepared using 3D block modelling and the ID2 interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 210 m for Inferred in all zones for Pitt Gold.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2 m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *Underground: The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Pitt Gold resources are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD:CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *The number of metric tons was rounded to the nearest thousand and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
13. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

1.12.3 Duquesne Claim Block

The Duquesne deposit MRE (Table 1.5) includes all blocks ("must-take blocks") that fall within a potentially mineable shape meeting "reasonable prospects for eventual economic extraction", as specified in the CIM MRMR Best Practice Guidelines (2019).

Table 1.5: Duquesne 2023 MRE

Area	Cut-off	Duquesne Inferred Resource		
(potential mining method)	(g/t)	Tonnage (t)	Au (g/t)	Ounces
Open Pit	0.5	6,300,000	1.56	316,000
UG Mining	1.75	5,030,000	3.1	501,400
Total		11,330,000	2.24	817,400

Notes to accompany the Duquesne Mineral Resource Estimate:

1. *The independent qualified persons for the Duquesne Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. from InnovExplo. The effective date of the estimate is August 31, 2023.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *Duquesne: In-pit and Underground: High-grade capping of 55 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *For Duquesne, the estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6m x 6m x 6m and a minimum block size of 1.5m x 0.5m x0.5m. Grade interpolations were obtained by ID2 using hard boundaries.*
6. *In-pit and Underground: For Duquesne, a density value of 2.7 g/cm3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm3 was used for the overburden. A density value of 1.00 g/cm3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *In-pit and Underground: For Duquesne, the Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Duquesne was prepared using 3D block modelling and the ID2 interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 75 m for Inferred in all zones for Duquesne.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *In-pit and Underground: The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Duquesne resources are reported at a rounded cut-off grade of 0.5 g/t Au (in-pit) and Duquesne resources (underground) are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD:CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *The number of metric tons was rounded to the nearest thousand and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
13. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

1.12.4 Duparquet Consolidated Mineral Resource Estimate

Table 1.6 represents a combination of all resources from Duparquet, Duquesne and Pitt Gold.

Table 1.6: Duparquet Consolidated Mineral Resource Estimate

	Total Measured Resource			Total Indicated Resource			Total Inferred Resource		
Area (potential mining method)	**Tonnage (t)**	**Au (g/t)**	**Ounces**	**Tonnage (t)**	**Au (g/t)**	**Ounces**	**Tonnage (t)**	**Au (g/t)**	**Ounces**
Open Pit	163,700	1.37	7,200	59,410,600	1.52	2,909,600	34,633,000	1.16	1,286,400
UG Mining	-	-	-	5,506,900	2.26	399,300	16,189,000	2.6	1,354,100
Tailings	19,900	2.03	1,300	4,105,200	0.93	123,200	-	-	-
Total	183,600	1.43	8,500	69,022,700	1.55	3,432,100	50,822,000	1.62	2,640,500

Refer to individual MRE table footnotes for more information on Consolidated Mineral Resources Estimate

1.13 Mineral Reserve Estimates

This report is a PEA, and there is no Mineral Reserve Estimate stated on the Duparquet Project as per National Instrument NI 43-101 Canadian Standards of Disclosure for Mineral Projects regulations.

1.14 Mining Methods

1.14.1 Introduction

The Duparquet project is planned as a mix of conventional open pit mine and a long hole (transversal – longitudinal – uppers) underground mine. The milling rate is planned at 5.5 Mtpa with a ramp-up period of 0.5 years during the open pit operational period. The mill will run for eleven years. The total stockpile will reach a maximum of 2 Mt to allow steady mill feed. The maximum stockpile is reached at Year 1. Figure 1.2 and Figure 1.3 show the cumulative tonnage split by mining approach and the planned mill feed.

1.14.1.1 Open Pit

Open pit mining will be done with the use of diesel equipment including drills and haul trucks coupled with hydraulic shovels. The project consists of seven pits with Pit 1 having three phases.

The peak mining rate is 27.0 Mtpa over a Life of Mine of 11 years. A total of 43.6 Mt of mineralized material will be mined at an average diluted gold grade of 1.36 g/t Au. A total of 4.1 Mt of tailings will be mined at an average total gold grade of 0.93 g/t Au. A total of 235.1 Mt of combined waste and overburden will be extracted, including an estimate of 2.2 Mt of mineralized material that will be lost in the old underground stopes and mined as waste, resulting in a strip ratio of 5.4 t of waste per tonne of mined mineralized material. The primary production equipment includes 12 m³ diesel-hydraulic shovel coupled with 65 t high-capacity road trucks for the mineralized material, and 22 m³ diesel-hydraulic production shovels and 200 t off-highway mining trucks for the waste. An owner mining operation is planned, with overburden stripping and topographic drilling activities outsourced to contractors.

Pre-production mining will take place for about six months to provide material for construction and to remove overburden to allow access to the pits. A total of 8.8 Mt of waste and overburden as well as 1.7 Mt of mineralized material will be mined in the pre-production and ramping up period.

1.14.1.2 Underground

The proposed underground operation consists of one mine separated in four zones accessible through access ramps from a common portal.

The average underground mine production rate is 3,800 tpd of ore, and the anticipated mine life will be approximately 11 years, which includes an initial ramp-up period of 18 months. Selected mining method is sublevel transverse stoping with longitudinal and transversal variants.

Table 1.7: Mining Resources by Phase and Pit

			Pit 1									
		Grand Total	Phase 1	Phase 2	Phase 3	Total Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Pit 7
Total Tonnage	*kt*	277,878	19,148	101,735	49,910	170,793	45,855	15,744	15,227	16,105	11,242	2,912
Overburden	*kt*	15,998	4,588	2,831	985	8,404	4,873	1,449	378	383	323	187
Rock	*kt*	218,298	9,913	83,248	41,946	135,107	34,968	12,270	12,422	11,826	9,337	2,368
Stripping Ratio	*W:MM*	*5.38*	*3.12*	*5.50*	*6.15*	*5.26*	*6.63*	*6.78*	*5.27*	*3.13*	*6.10*	*7.16*
Mineralized Material	*kt*	43,581	4,646	15,656	6,979	27,282	6,013	2,024	2,427	3,896	1,583	357
Grade (diluted)	*g/t*	1.36	1.86	1.34	1.22	1.40	1.30	1.54	1.10	1.04	1.81	1.57

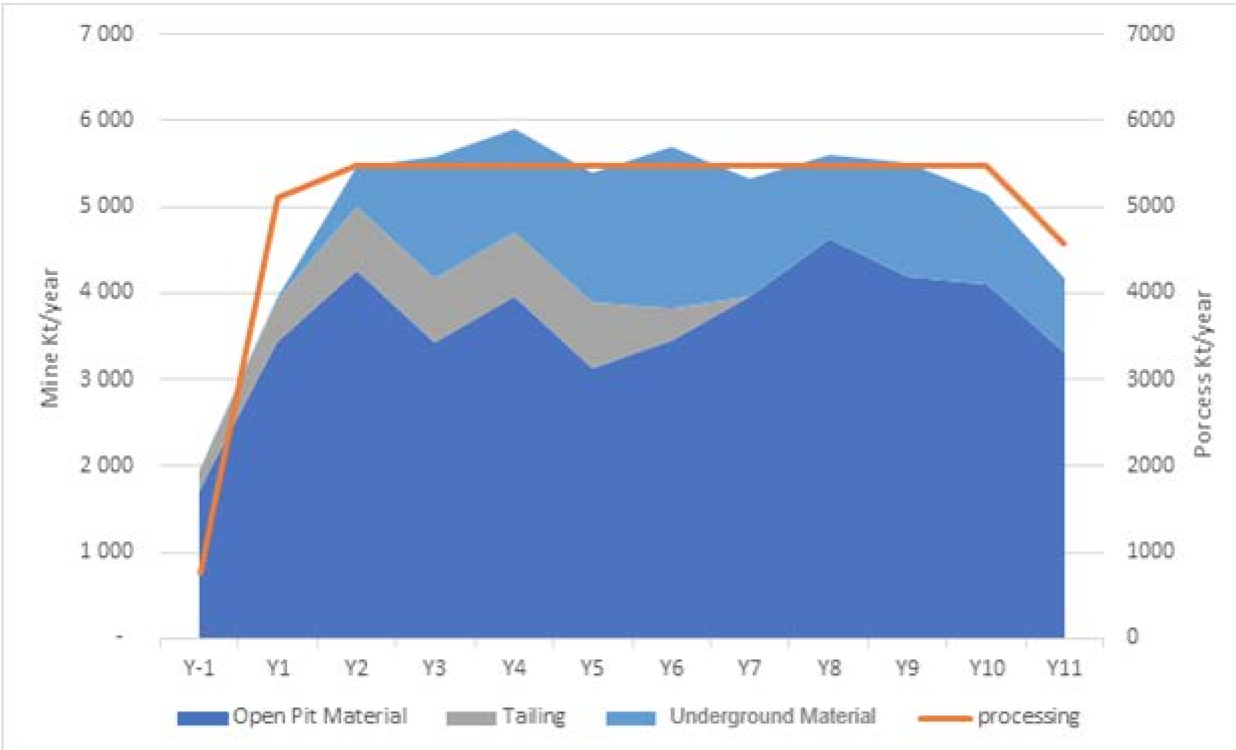
Table 1.8: Open Pit Mining and Historical Tailings Production Schedule Summary

	Units	Total	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Total Tonnage	*kt*	282,002	9,148	18,295	25,423	25,241	27,456	25,189	27,281	26,968	26,070	26,320	25,557	14,929
Overburden	*kt*	15,998	1,726	3,453	1,718	4,581	498	2,689	83	437	577	236	-	-
Rock	*kt*	218,298	5,709	11,418	19,447	17,229	23,005	19,362	23,745	22,572	20,865	21,892	21,452	11,603
Historical Tailings	*Kt*			750	750	750	750	750	375					
Stripping Ratio	*W:MM*	5.38	*4.34*	*4.34*	*4.97*	*6.36*	*5.94*	*7.03*	*6.90*	*5.81*	*4.63*	*5.28*	*5.23*	*3.49*
Mineralized Material	*kt*	43,581	1,712	3,425	4,258	3,431	3,953	3,138	3,453	3,959	4,628	4,191	4,105	3,326
Grade (Diluted)	*g/t*	1. 36	1.30	1.30	1.80	1.51	1.20	1.34	1.18	1.09	1.31	1.66	1.03	1.53
Historical Tailings	*Kt*	4,125	250	500	750	750	750	750	375					
Historical Tailings Grade	*g/t*	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94					

Table 1.9: Underground Mine Production Plan

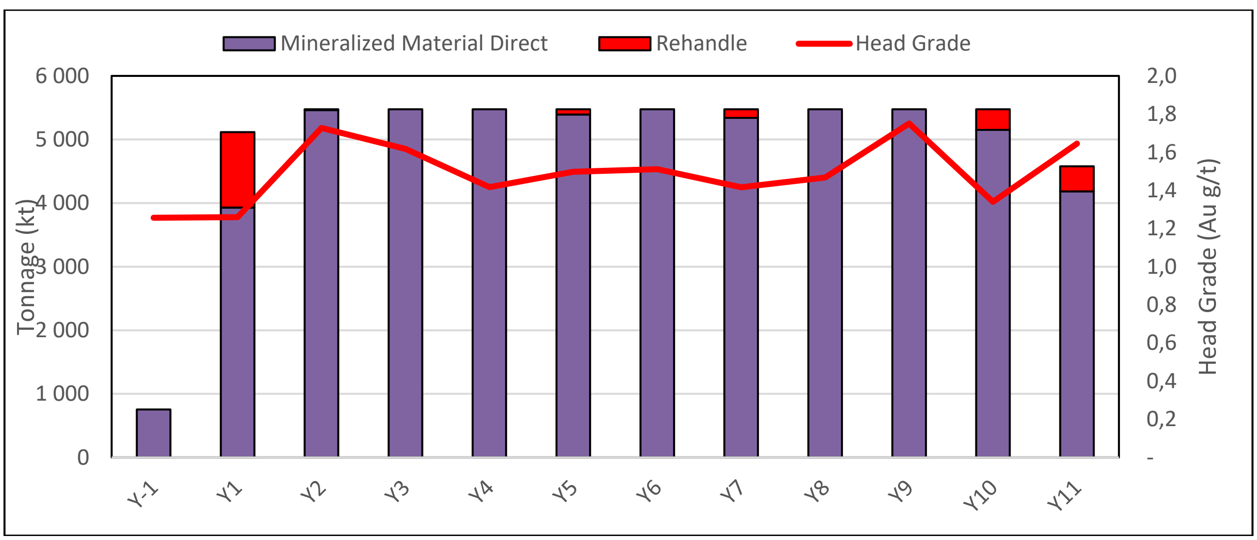
Duparquet Mine	Units	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
All Zones													
Development	Tonnes (t)	1,456,819	5,029	166,898	225,616	214,783	200,110	154,049	106,838	119,759	175,030	79,825	8,882
	Au grade (g/t)	2.44	4.79	2.59	2.55	2.54	2.23	2.42	2.25	2.21	2.45	2.45	2.46
Stoping	Tonnes (t)	10,561,322	-	287,649	1,169,434	995,004	1,305,458	1,709,313	1,273,556	864,163	1,143,340	965,362	848,043
	Au grade (g/t)	2.23	-	2.24	2.19	2.39	2.12	2.22	2.31	2.23	2.14	2.28	2.22
Total	Tonnes (t)	12,018,141	5,029	454,547	1,395,050	1,209,787	1,505,568	1,863,363	1,380,394	983,922	1,318,370	1,045,187	856,925
	Au grade (g/t)	2.25	4.79	2.37	2.25	2.42	2.13	2.24	2.31	2.23	2.18	2.29	2.22

Figure 1.2: Tonnage per Mining Approach



Source: GMS, 2023

Figure 1.3: Mill Feed



Source: GMS, 2023

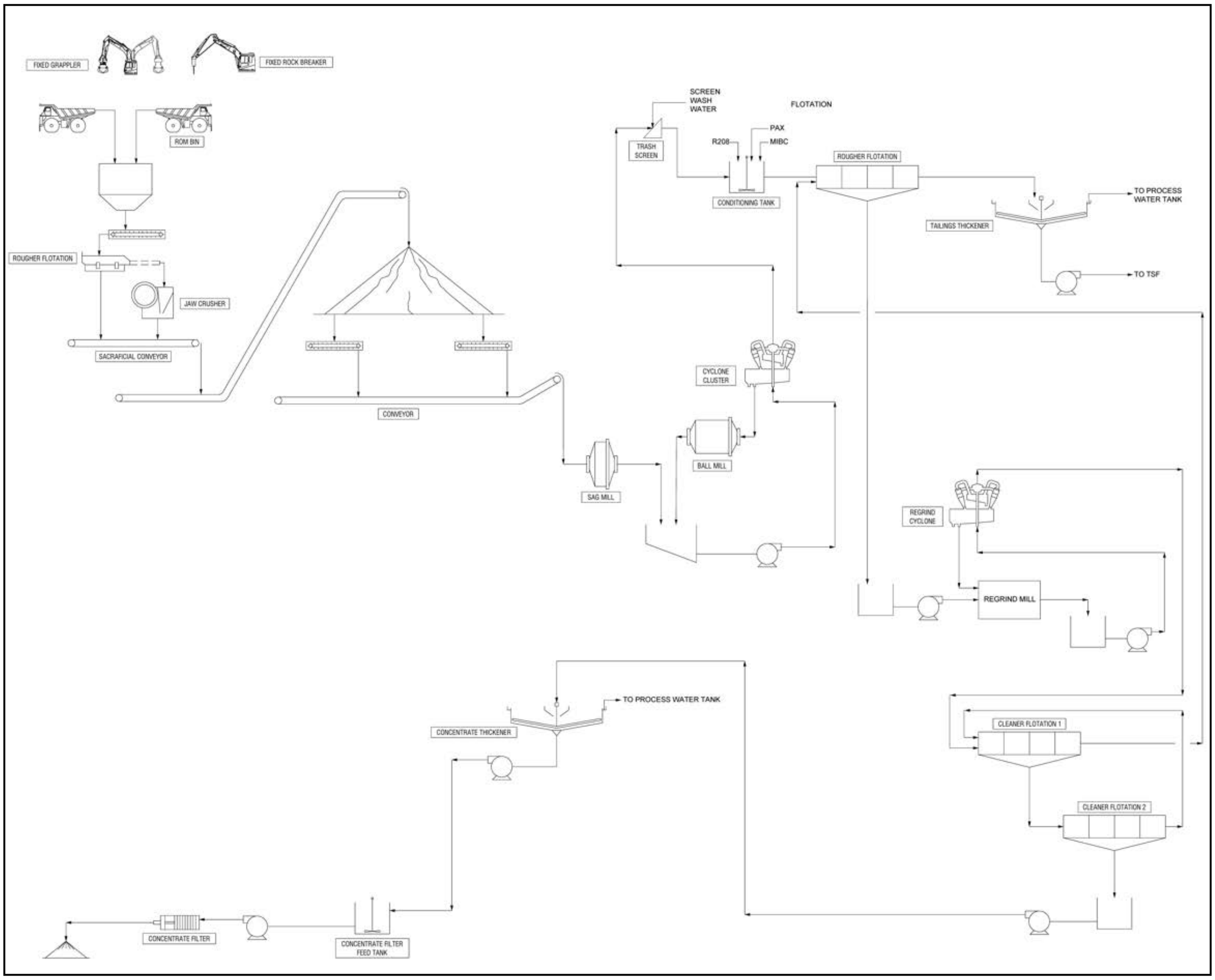
1.15 Recovery Methods

The preliminary process plant design for the Duparquet Project is based on a robust metallurgical flowsheet to treat gold-bearing material to produce gold concentrate. The flowsheet is based on previous metallurgical test work, industry standards and conventional unit operations. The process plant is designed to nominally treat 15,000 tonnes per day (t/d) of material and will consist of comminution and gold flotation circuits. Flotation tailings will be dewatered to produce a tailings slurry for storage onsite. Figure 1.4 represents the overall flowsheet for the Duparquet Project.

The key project design criteria for the process plant are listed below:

- Nominal throughput of 5.475 million tonnes per year (Mt/y) of material
- Crushing plant availability of 75%
- Grinding and flotation circuits availability of 92% through the use of standby equipment in critical areas, inline crushed material stockpile and reliable power supply
- Comminution circuit to produce a particle size of 80% passing (P80) of 100 µm
- Gold flotation circuit with an average mass pull of 4.3%
- Equipment selection based on suitability for the required duty, reliability, and ease of maintenance

Figure 1.4: Overall Flowsheet



Source: GMS, 2023

Material from the open pit will be transported to the plant by dump trucks and tip directly to the Run of Mine material (ROM) bin. Material will be withdrawn from the ROM bin to a vibrating grizzly. Oversize from the grizzly will report to the jaw crusher, which will operate in open circuit. Crushed material from the crusher discharges, together with undersize from the grizzly will be withdrawn by a sacrificial conveyor and feed a stockpile.

Reclaimed material from the stockpile will feed a SAG mill with a 9,000-kW synchronous motor and VSD. SAG mill discharge will pass through a screen to remove grinding media scats and a small amount of pebbles. The SAG trommel undersize will report to the cyclone feed pump box, combining with ball mill discharge. SAG trommel oversize will be conveyed to the SAG mill feed conveyor.

Slurry from the cyclone feed pump box will be pumped to a cluster of hydrocyclones for size classification. The cyclone overflow, at a final target product P80 of 100 µm, will flow via gravity to the rougher flotation conditioning tank prior to sulphide flotation. Cyclone underflow will feed a ball mill with a 13,000 kW fixed speed motor. Slurry will overflow from the ball mill to a trommel screen, attached to the ball mill discharge end. Trommel undersize will discharge into the cyclone feed pump box.

The flotation circuit will consist of rougher and two stage cleaner tank-cells. The rougher concentrate will feed a concentrate regrind circuit. The rougher tailings will be pumped to a tailings dewatering circuit. The regrind circuit will grind the concentrate to a P80 of 38 µm and the product will feed the first cleaner flotation circuit. First cleaner flotation concentrate will be pumped to the second cleaner flotation circuit and first cleaner flotation tailings will be pumped back to the feed of the rougher circuit. Second cleaner flotation concentrate will be pumped to the concentrate dewatering circuit and second cleaner flotation tailings will be pumped back to the first cleaner circuit.

Cleaner flotation concentrate will be pumped to a thickener to increase slurry concentrate density for filtering. Flocculant will be added to the thickener feed to promote the settling of solids. The thickener overflow will report to the process water tank. The thickener underflow will be pumped to a filter feed tank and then pumped to a pressure filter to produce a gold concentrate for sale. Filtrate from the filter press will be pumped back to the concentrate filter. The dewatered gold concentrated will be loaded by front end loader into lined containers for export.

Rougher tailings will be pumped to thickener to increase tailings density. Flocculant will be added to the thickener feed to promote the settling of solids. The thickener overflow will report to the process water tank. Thickener underflow will be pumped to the tailings storage facility.

Reagents consumed within the process plant will be prepared on site and distributed via various reagent handling and makeup systems. These reagents include potassium amy xanthate (PAX) collector, R208 collector, MIBC frother and flocculant.

1.16 Infrastructure

The infrastructure and process plant platform is located on the north side of the pits. Waste rock stockpiles are located on each side of the pits. A 4.5-kilometre long haul road, primarily constructed using waste rock, will provide access to the infrastructure, stockpiles and the tailings storage facility (TSF) area. The provincial road 393, which crosses the mine property from north to south, will be in the pit footprint and will therefore require relocation before Year 2.

The TSF, designed with a capacity of 34.5 million cubic metres and constructed in phases without the use of liners, will leverage the favourable existing topographic and ground conditions in the eastern part of the

Project site. Additionally, a 10-million ton waste rock storage is planned with the assumption that no liner will be necessary.

A containerized sewage treatment plant is considered, with no plans for domestic water treatment, as it is anticipated that a water well can supply water clean enough for domestic purposes. Four potential freshwater collection points have been identified to access the water sources within the historical mine stopes. Moreover, a Main Water Treatment Plant will be established to treat all on-site contact water before it is released back into the environment. The fire protection distribution system will be a standard containerized skid combined with a fire water tank which will be set up as an overflow to the raw water tank.

A new 120 kV transmission line with an approximate length of 15 km is necessary to connect with the Reneault Hydro-Québec substation to feed the process plant. The connected power at site is evaluated at 22.7 MW with an average running load of 17.4 MW.

Buildings on site are minimized as much as possible by strategically placing a single multipurpose operations building at the site entrance. This building will accommodate the security guard office, the offices for technical personnel, the change rooms, the infirmary, and a lunchroom. A temporary fabric shelter truck shop is considered for the initial years of operation, and a permanent six-bay truck shop is planned at Year 4. A 200,000-litre fuel storage system is also planned. The majority of the process plant will be housed in a building, which will include space for reagents storage. An assay lab is planned on site.

A containerized explosive magazine has been considered but the location is still to be confirmed.

There are no plans for an administrative building, warehouse, facilities for light vehicle maintenance and employee accommodations on-site, as these are considered in the nearby town. Minimal mobile equipment is considered for site operations, with the majority being rented as needed.

For the underground mine, the incorporation of a single portal, along with the inclusion of some compressors and the establishment of ventilations and escape ways, are considered.

A green wall will be built with waste rock to provide a separation between the pit and the town. Additionally, the project will necessitate the relocation of some houses and potentially a portion of the golf course.

Lastly, to facilitate the progress of the Project, demolition of the existing infrastructure of the former Beattie mine will be required.

1.17 Market Studies and Contracts

1.17.1 Markets

Gold is a freely traded commodity in an established and mature market that is known to be an investor's safe haven. It is a metal that has national, as well as international, reputable smelters and refineries. It is a commodity that is sold daily through banks and traders at a spot price for immediate delivery.

The Duparquet Project will produce a relatively clean high-grade gold concentrate grading 31.5 g/t Au available for sale to local and international smelters or roasters.

Based on initial market studies, the produced concentrate will be readily saleable to a number of markets locally and internationally, examples of which include:

- The Horne smelter located approximately 50 km south of the Duparquet Project in Rouyn-Noranda
- Asian smelters such as those located in China, Japan and South Korea
- European smelters located in Norway, Sweden, Finland, Germany and Bulgaria
- Roasters located in the United States

Arsenic content is relatively minimal in the produced concentrate however, the Horne, Japanese, Korean and European smelters, as well as American roasters will typically evaluate the concentrate based on the prevailing overall market supply at the time of tendering, and the produced concentrate may be subject to penalties for contaminants or impurities.

1.17.2 Contracts

There are no mining, concentrating, smelting, refining, transportation, handling, sales and hedging, forward sales contracts, or arrangements for the Duparquet Project. This situation is typical at this development stage where the project is still several years away from potential production. The sale of concentrate is expected to include a mixture of long-term and spot contracts.

1.17.3 Metal Prices

The projections incorporate consideration of recent market information, trailing metal prices, and consensus bank analyst long-term price estimates. The resulting gold price and exchange rate assumptions used in the PEA are:

- Gold: USD 1,800/oz Au
- Exchange rate: 1.33 USD : CAD

1.18 Environmental Studies, Permitting and Social/ Community Impact

Environmental baseline data necessary to support an Environmental Assessment ("EA") for the Duparquet Gold Project has been collected on an intermittent basis since 2010 by First Mining and the previous operators of the Project. The studies, both completed and ongoing, are focused on characterizing all relevant biological and physical components of the aquatic and terrestrial environments that may be impacted by, and may interact with, the Project. The Project design incorporates certain brownfield reclamation aspects which are expected to support the improvement of the local environment, including existing groundwater and surface water conditions.

The Project area is located within the balsam fir – white birch zone and occupies the south of the boreal zone. There have been occurrences of vegetative species at risk within 8 km of the Project area of Lake-cress (*Rorippa aquatiqua*), Sand Violet (*Viola sagittate var. ovata*) and Calypso (*Calypso bulbosa var. americana*).

The Project is located in fur-bearing animal management zone UGAF3 where fur harvesting is practised. Species present among others include weasel, beaver, coyote, squirrel, wolf, otter, muskrat, lynx, black bear, and 274 species of birds are reported in the Abitibi-Témiscamingue Rouyn-Noranda region.

The northern and western project area is drained by an unnamed creek referred to as West Creek which drains west and south to Lake Duparquet. The southern portion of the project area drains via several smaller unnamed watercourses south to Lake Duparquet. The area contains a number of naturally occurring lakes. The largest is Lake Duparquet to the south of the Project, followed by Lake Hébécourt, located west of Lake Duparquet. The Glory Hole pond on the project site represents a historic surface breakthrough of underground mining. Approximately 35 fish species are potentially present within an 8 km buffer from the Project area. According to the MRNF, two spawning areas are potentially present in the region: one for walleye (*Stizostedion vitreum*) and the other for pike (*Esox lucius*).

The Project is anticipated to require a provincial environmental assessment and potentially a federal impact assessment which will require regulatory engagement and the release of assessment guidelines. The Project will also subsequently require a range of federal, provincial and local municipal permits.

The Duparquet Project Development Area ("PDA") is located in the Abitibi-Témiscamingue region in its namesake community. The nearby communities, along with Duparquet, include La Sarre and Rouyn-Noranda, and have been shaped primarily by natural resource-based industries, including mining and forestry. There are currently six operating gold mines in the region and 11 mine projects under development according to the MRNF. In 2019, mining activities generated 1 in 7 jobs in the region. The Abitibi-Témiscamingue region is also known for commercial forestry, mineral exploration, outfitters, cabins, harvesting (e.g., trapping, hunting and fishing), and recreational land use (e.g., hiking, boating, snowmobiling and all-terrain vehicle ("ATV") use).

First Mining is committed to operating the project within a sustainable development framework which protects the environment, contributes to local communities, respects human and Indigenous rights, and adheres to openness and transparency in operations. As per their Stakeholder Engagement Policy, First Mining has and continues to engage with relevant government departments and agencies, Indigenous groups, and stakeholder organizations, including communities, business and industry organizations, fish and wildlife organizations, environmental non-governmental organizations and individuals (i.e. land users, surface rights holders).

1.19 Capital and Operating Costs

1.19.1 Capital Expenditures

The Capital Expenditure ("CAPEX") estimate is summarized in Table 1.10. Work Breakdown Structure ("WBS") Areas 100 to 600 include the Project's direct costs, while WBS Areas 700 to 900 cover indirect costs, owner's costs and mine pre-production. The CAPEX for construction, equipment purchase and pre-production activities is estimated at CAD 706.0M, excluding pre-production revenues. The CAPEX includes a contingency of 25% of the total directs and indirects. The pre-production revenue of the construction period is estimated at CAD 58.1M.

Table 1.10: Capital Expenditures Summary

Capital Expenditures	M CAD
100: Infrastructure	10.4
200: Power and Electrical	14.7
300: Water	37.4
400: Mobile Equipment	4.5
500: Mining	102.2
600: Process Plant	189.9
700: Construction Indirects	89.8
800: General Services	53.9
Construction Cost	502.7
990: Contingency	125.7
900: Pre-production, Start-up, Commissioning	57.2
Working Capital	20.3
Total	**706.0**

Numbers may not add due to rounding.

1.19.2 Sustaining Capital

Sustaining capital of CAD 737.8M is required over the Life of Mine ("LOM") for the following main items:

- Infrastructure
- Power supply
- Mine equipment purchases (additions and replacements)
- General & Administration ("G&A") and surface equipment purchases (additions and replacements)
- Mine development expenditures.
- Underground mine development

1.19.3 Operating Costs

The operating costs include open pit and underground mining, processing, G&A and royalties. The costs for concentrate transportation to smelters and smelting and refining charges are not considered site operating costs and are therefore excluded from the OPEX estimate. The transportation costs and smelter conversion charges ("TC/RC") are deducted from gross smelter revenues to estimate the Net Smelter Return ("NSR"). The LOM operating cost summary is presented in Table 1.11. The total cash operating cost per ounce produced is USD 751/oz and the all-in sustaining costs ("AISC") per ounce produced is USD 976/oz, inclusive of all sustaining capital and closure costs.

Table 1.11: Operating Costs Summary

Item	Total LOM Cost (M CAD)	Unit Cost (CAD / t milled-production)
Mining Open Pit	872.9	20.85
Mining Underground	531.9	44.26
Total Mining	1,404.8	23.82
Processing	624.7	10.59
General and Administration	173.1	2.90
Total	**2,202.5**	**37.35**

1.20 Economic Analysis

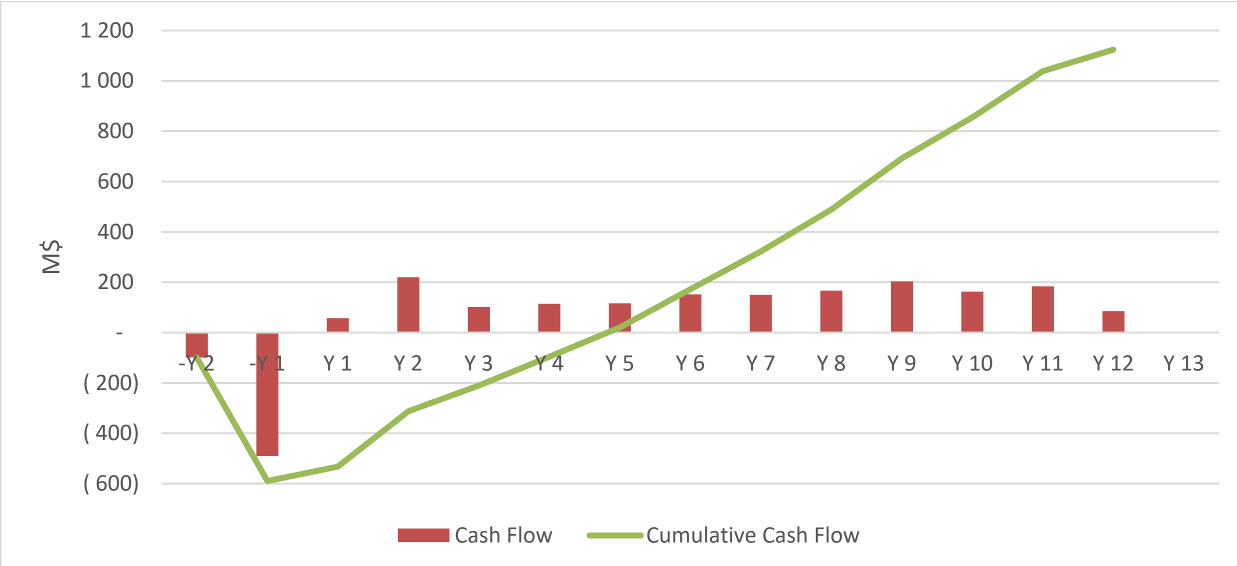
The economic model results are presented in terms of NPV, Internal Rate of Return ("IRR"), and payback period in years for recovery of the initial CAPEX. These economic indicators are presented on both pre-tax and after-tax basis. The NPV is presented both undiscounted (NPV0%) and using a discount rate of 5% (NPV5%). The economic results on a before-tax and after-tax basis are presented in Table 1.12.

The annual project cash flow is illustrated in Figure 1.5.

Table 1.12: Economic Results Summary

Economic Results Summary	Unit	Before-Tax Results	After-Tax Results
$NPV_{0\%}$	CAD M	1,877.9	1,124.0
$NPV_{5\%}$	CAD M	1,073.0	588.2
IRR	%	24.9%	18.0%
Payback	Years	3.8	4.8

Figure 1.5: After-tax Annual Project Cash Flow



1.21 Adjacent Properties

The east-west trending Destor-Porcupine Fault Zone ("DPFZ") encompasses several major gold deposits in Québec and Ontario. Exploration work around the Duparquet Project has been focused directly on the DPFZ and its splays. The Project is surrounded by properties belonging to third party mining and exploration companies or individuals. The descriptions in this section are drawn from information publicly disclosed by the owners of the adjacent properties.

Adjacent to the north, between the Central Duparquet, Pitt Gold and Duquesne claim blocks, the mining claims are owned by Duparquet Assets Ltd., holder of the Duquesne West, also known as the Duquesne-Ottoman Project. On September 8, 2011, Xmet published the results of a new NI 43-101 compliant resource estimate for the Duquesne-Ottoman property. The current mineral resource at Duquesne-Ottoman stands at 853,000 ounces of gold in the Inferred category uncut at a grade of 6.36 g/t Au, or 727,000 ounces of gold at a grade of 5.42 g/t Au applying a gold top cut-off grade of 30 g/t.

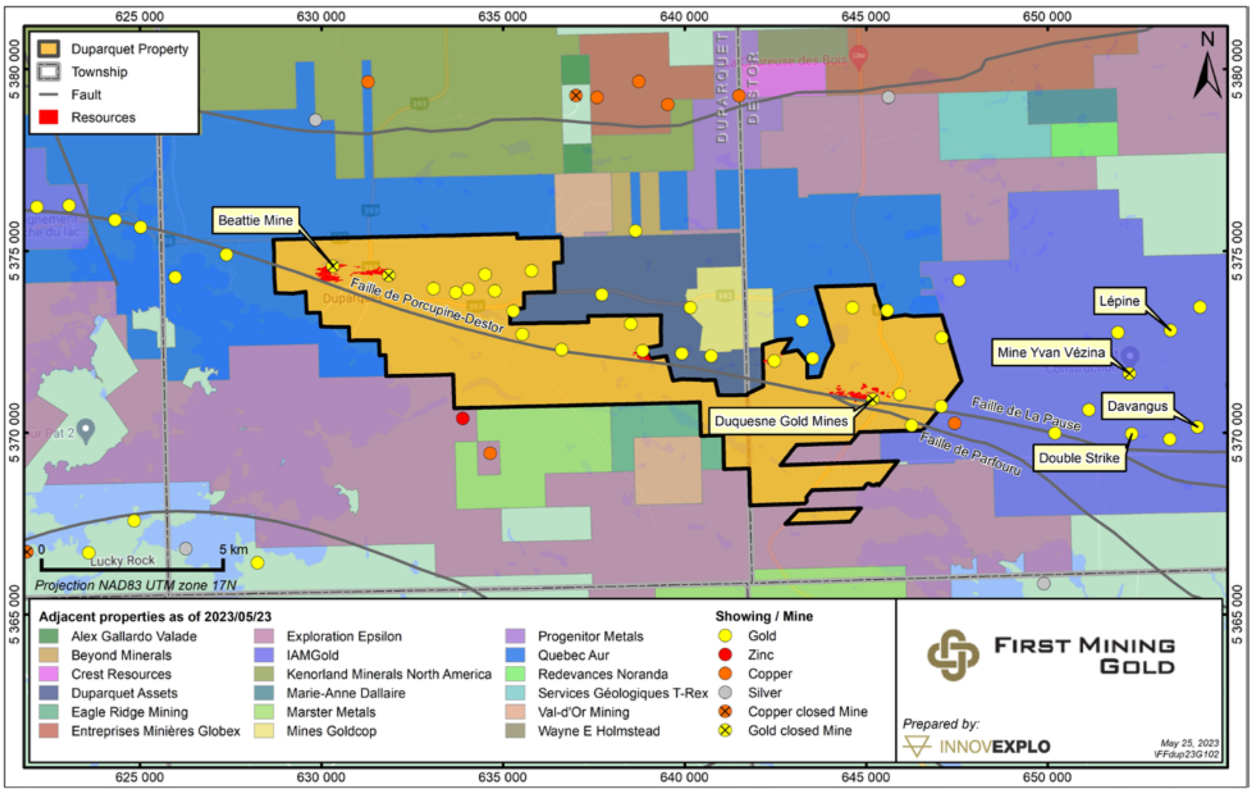
Adjacent to the east of the Duparquet Project, the mining claims are owned by IAMGOLD Corporation. The Lépine-Bassignac Property contains several gold deposits and showings, including the former Yvan Vézina mine, the Double Strike and Davangus deposits, as well as the Sylvanite Pit and Lépine showings. The Yvan Vezina mine, located approximately 4.6 km further east along the DFZ, operated from 1982 to 1988. The mine produced 1,095,191 tonnes at a grade of 3.72 g/t Au. (sigeom.mines.gouv.qc.ca).

To the northwest and northeast, the Duparquet Project is bordered by mining claims owned by Québec Aur Ltd.

To the south of the Duparquet Project, mining claims are held by Exploration Epsilon Inc., Marster Metals Inc. and Eagle Ridge Mining Ltd.

Figure 1.6 shows all the current ownership of mining titles adjacent to the Project.

Figure 1.6: Adjacent Mining Titles



InnovExplo, 2023

1.22 Other Relevant Data and Information

The reader is cautioned that this PEA is preliminary in nature as it includes Inferred mineral resources that are too geologically speculative for the economic considerations that would enable them to be categorized as mineral reserves to be applied, and there is no certainty that the PEA will be realized.

1.23 Risks and Opportunities

The risks and opportunities identification and assessment processes are iterative and have been applied throughout the PEA Study phase. The risks and opportunities are summarized in Table 1.13 and Table 1.14.

Table 1.13: Risks, Impacts, and Mitigations

Risk	Potential Impact	Possible Risk Mitigation
Difficulty attracting experienced professionals	Increased OPEX	The early search for professionals will help identify and attract critical people.
Downsizing the optimized Duparquet resource shell due to its proximity to the municipality of Duparquet and private lands	Increased CAPEX and OPEX	Relocation of houses away from the buffer zone of the pit
Recovery of existing tailings from government-owned land	Loss of resources and/or increased CAPEX and OPEX	Proactive discussion with Québec regulators centred on ground reclamation
Québec Ministry of Transportation will not allow bypass of provincial road 393	Loss of resources inside a potential permanent pillar within the pit	Proactive discussion with Québec regulators
Increased costs of relocating provincial road 393 due to restricted road path selection because of social acceptability	Increased CAPEX and OPEX	Better investigation of the possible options
Cannot relocate provincial road 393 in Year 2 of operation due to hauling traffic and blasting	Road 393 relocation included in Initial CAPEX instead of Sustaining	Investigations of proximity to blasting and potential impact of road presence during construction and first year of operation
Process affected by the arsenic concentration	Environmental consideration Concentrate may be subject to penalties	Additional test work Evaluate treatment options Evaluate concentrate options with smelters and roasters
Processing of arsenic trioxide not handled by process plant	Cost consideration of offsite waste treatment	Perform testing to validate the selected process can handle it and investigate further treatment options

Risk	Potential Impact	Possible Risk Mitigation
Low recovery from historical tailings, not economically advantageous	Increased CAPEX and OPEX	Additional testing Reconsider the treatment of the historical tailings
Classification stays Inferred in Duquesne	Not enough confidence in the classification (DDH and underground openings locations) to improve the category to reserves	Do a survey campaign to precisely locate the DDH collars where available, twin holes
Not enough power available at Reneault Hydro-Québec substation	Increased CAPEX and OPEX	Early discussions with Hydro-Québec.
Use of Beattie mine water via water wells at the process plant is not feasible	Increased CAPEX and OPEX	Early testing of wells, investigation of alternative sources and inclusion of additional water wells
Use of existing buildings in or near Duparquet becomes unfeasible	Increased capital and operating cost	Early investigation of all options
Footprint of required green wall and buffer zone bigger than anticipated	Increased capital cost and reduction of the pit size	Higher CAPEX for the green wall construction and less resources available by open pit mining
Geochemical analysis results from the waste and overburden indicates greater than anticipated mitigation and/or control requirements	Increased capital cost	Complete early characterization to allow full consideration of control and mitigation options
Change to hydrogeology or mine dewatering assumptions	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX	Conduct hydrogeological and rainfall investigations and studies 3D numerical modelling to reduce uncertainty around water management of the seven pits
Changes to current geotechnical parameters	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX	Conduct additional geotechnical investigations
Equipment selection and availability	Higher CAPEX and OPEX	Complete thorough investigation of the options

Risk	Potential Impact	Possible Risk Mitigation
Old underground excavation localization and condition	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX	Complete thorough investigation and localization of older excavation

Table 1.14: Opportunities

Opportunities	Explanation	Potential Benefit
Experienced workforce	An experienced workforce already present in the Abitibi region	Creation of a team-building environment
Exploration at depth	Zones are still open at depth	Increase in underground mineral resources
Pursue other metallurgical recovery processes.	BIOX and ALBION processes were tested and evaluated in the past, but recent advancements in these technologies make them more attractive now	Replacement of acid leaching with a bacteria solution or higher oxidation following a finer grinding
Ore sorting	Reduce the amount of waste going to the mill	Limit dilution and provide a higher grade material to the mill
Locate and survey Mine openings (Duquesne)	Because the location of the opening is not well defined, a large area has been artificially depleted to be sure not to include mined out area on the MRE	Some interpreted mineralized zones artificially depleted could be considered in the resources and improve the result
Collar survey campaign (Pitt Gold)	Surveyed collars will bring confidence in drill hole location	The general classification could be improved
Drill deep mineralized zones toward surface (Pitt Gold)	Some mineralized zones do not extend up to the surface.	By expanding them up to the surface, an open pit could possibly be optimized
Electrical and BEV mine equipment	Convert some equipment to electrical equipment or battery equipment	Reduce the OPEX cost
Autonomous equipment	Convert some mining equipment to automated equipment	Reduce the OPEX cost
Usage of a mix of contractor and owner fleet	Use of contractor to reduce the purchase of mine equipment	Potential reduction in CAPEX

Opportunities	Explanation	Potential Benefit
Mine schedule	Schedule optimization to reduce distance to waste storage facility	Potential reduction in OPEX
Used equipment	Purchase of used equipment or use of contractors during peak years	Potential reduction in sustaining CAPEX
Ore loss reduction	Reduction of ore loss in old stopes through mining methods	Increase in mineralized material
Mine ventilation	Optimization of primary ventilation network with a detailed and staged ventilation design	Potential reduction in CAPEX development and/or in OPEX (power consumption)
Stope design	Increase stope dimensions with new information from geotechnical drilling campaign	Potential reduction in CAPEX development and OPEX
Mining method	Convert underground mine longitudinal horizons from typical longitudinal long hole mining to Avoca or modified Avoca method	Potential reduction in OPEX (backfill cost)
Optimize tailings design	With a better survey and further detailed geotechnical investigation, it may be possible to optimize the design	Reduce the CAPEX cost
Decontaminate the site from historical arsenic trioxide through processing	Arsenic trioxide from former mine operation can potentially be cleaned up through processing. Contaminated soil and groundwater collected and managed in accordance with regulatory criteria	Site remediation and cleaning up of former mine site. Excavation of arsenic trioxide contamination zone within footprint of open pits. Open pit dewatering and treatment of contaminated groundwater
Decontaminate the site from the former mine tailings	Old uncontained tailings from former mine operation deposited on land surface could be passed through the process	Decontaminate the site and avoid long term storage. Recover the gold included in the tailings

1.24 Recommendations

This Technical Report, compliant with NI 43-101 standards, was prepared by experienced consultants and Qualified Persons (QPs), following recognized engineering standards. Upon completion of this PEA, the authors and the QPs recommend proceeding with the necessary work to advance to the next phase of development, specifically by initiating a pre-feasibility study. However, several exploration and engineering tasks are required. Field programs should be planned to gather data for geotechnical and hydrogeological studies, as well as to conduct sampling for metallurgical tests and environmental characterizations. This will provide refined design data to support future studies.

2 INTRODUCTION

The following technical report (the “Report” or “Technical Report”) was prepared for First Mining Gold Corp. (“First Mining” or “The Company”), effective September 15, 2023, to summarize the results of the Preliminary Economic Assessment (“PEA”) on the Duparquet Gold Project (the “Property”, the “Project”, “Duparquet Project” or "Duparquet”), located in the Abitibi region of Québec. The Report has been compiled to include all information pertinent to the Duparquet Project, Québec, Canada. The Duparquet Project consists of seven claim blocks: Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold and Duquesne. The Pitt Gold and Duquesne mineral resources were not considered in the economic assessment.

This Technical Report was prepared in compliance with the disclosure requirements of the Canadian National Instrument 43-101 (“NI 43-101”) and in accordance with the requirements of Form 43-101 F1.

First Mining acquired 100% ownership of the Duparquet Project in September 2022.

First Mining is a Canadian exploration and development company focusing on gold projects located in Canada. The Company’s principal assets are the Duparquet Project in the Abitibi region of Québec and the Springpole Gold Project in northwestern Ontario. The Company is based in Vancouver, British Columbia, Canada, with its head office located at Suite 2070 – 1188 West Georgia Street, Vancouver, British Columbia, Canada V6E 4A2, and its common shares trade on the TSX., OTCQB and Frankfurt stock exchanges under the symbols “FF”, “FFMGF,” and “FMG” respectively.

2.1 Scope of Work

First Mining retained G Mining Services Inc. (“GMS”), InnovExplo Inc. (“IE”), and Stantec Consulting Ltd. (“Stantec”) to prepare a Preliminary Economic Assessment (“PEA”) in accordance with National Instrument 43-101. GMS was retained by First Mining to lead and coordinate the PEA. This Technical Report supports the results of the PEA, as disclosed in First Mining’s press release entitled “First Mining Announces Positive Preliminary Economic Assessment for the Duparquet Gold Project, Québec, Canada”, dated September 7, 2023.

A PEA is preliminary in nature and intended to provide only an initial, high-level, review of the Project potential and design options. The PEA mine plan and economic model include numerous assumptions and the use of Inferred resources. Inferred resources are too geologically speculative to have economic considerations applied for categorization as mineral reserves or for use in an economic analysis, except as allowed for in PEA studies. There is no guarantee that Inferred resources can be converted to

Indicated or Measured resources, and as such, there is no guarantee the Project economics described herein will be achieved.

This Report includes several cut-off dates for information:

- The effective date of the current mineral resource for the Duparquet deposit is September 12, 2022.
- The effective date of the current mineral resource for the Duquesne deposit is August 31, 2023.
- The effective date of the current mineral resource for the Pitt Gold deposit is September 15, 2023.
- The effective date of this Report is September 15, 2023.

The PEA scope includes the following main aspects:

- Mineral resource drilling and mineral resource estimation
- Geotechnical assessment and updated mine design criteria
- Mine engineering, including mine design and production schedule
- Simplified metallurgical flowsheet
- Infrastructure requirements
- Tailings disposal evaluation
- Estimation of operating expenditures (“OPEX”) and capital expenditures (“CAPEX”) for the Project
- Economic analysis

The sections of this Technical Report have been prepared and assembled by GMS in collaboration with IE and Stantec. GMS is an independent mining consulting firm based out of Brossard, Québec, Canada; IE is an independent mining consulting firm based out of Val-d’Or, Québec, Canada; and Stantec is based out of Markham, Ontario, Canada. GMS, IE and Stantec are entirely independent of First Mining as described in Section 1.5 of NI 43-101.

The respective areas of responsibility of the major contributors for the Study and the Report are as follows:

- GMS – overall Technical Report and PEA coordination, mining methods, economic analysis, operating costs, infrastructure, power supply, capital cost estimate and project execution plan, flow sheet, recovery methods, mineral process plant design, and input to operating and capital cost estimates for the process plant

- IE - property description and location, accessibility, history, geological setting and mineralization, deposit types, exploration, drilling, sample preparation and security, data verification, Mineral Resource Estimates
- Stantec - environmental, permitting, and social aspects

The qualified persons (“QPs”) involved in producing this Report hold no interest in First Mining or its related entities. The relationship between First Mining and GMS is strictly professional, and GMS is being compensated on a commercial-fee basis that is not contingent upon the results presented in this Technical Report; this also applies to First Mining's relationship with IE and Stantec.

The QPs responsible for the entire Technical Report are mentioned in Table 2.1.

The authors emphasize they are QPs only in respect to the areas in this Technical Report identified in their “Certificates of Qualified Persons” submitted with this Technical Report to the Canadian Securities Administrators.

This Technical Report is intended to be used by First Mining as a Preliminary Economic Assessment Report with Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Except for the purposes contemplated under provincial securities laws, any other use of this Report by any third party is at the party’s sole risk.

Permission is given to use portions of this Report to prepare advertisement, press releases, and publicity material, provided such advertisement, press releases, and publicity material do not impose any additional obligations or create liability for GMS.

Table 2.1: Summary of Qualified Persons

Qualified Person	Company	Title	Report Sections
Carl Michaud, P. Eng. (OIQ 117090)	G Mining Services Inc.	Vice President, Mining Engineering	1.1, 1.2, 1.13, 1.14, 1.17, 1.19, 1.20, 1.22, 1.23,1.24, 2, 3, 15, 16, 19, 21, 22, 25, 26 and 27
Alexandre Dorval, P. Eng. (OIQ 5027189)	G Mining Services Inc.	Senior Mining Engineer	1.14, 15, 16, 25, 26 and 27
Marina Iund, P.Geo. (OGQ 01525)	InnovExplo Inc.	Senior Geologist, Mineral Resource Estimation	1.3, 1.4, 1.5, 1.6, 1.7, 1.8 1.9, 1.10, 1.12, 1.21,1.23, 1.24, 4, 5, 6 ,7, 8, 9, 10, 11, 12, 14.1, 14.4, 23, 25, 26 and 27
Olivier Vadnais-Leblanc, P.Geo. (OGQ 001082)	InnovExplo Inc.	Resource Geologist	1.3, 1.4, 1.5, 1.6, 1.7, 1.8 1.9, 1.10, 1.12, 1.21,1.23, 1.24, 4, 5, 6 ,7, 8, 9, 10, 11, 12, 14 (except 14.1) 23, 25, 26 and 27
Carl Pelletier, P.Geo. (OGQ 00384)	InnovExplo Inc.	Co-President Founder	1.3, 1.4, 1.5, 1.6, 1.7, 1.8 1.9, 1.10, 1.12, 1.21,1.23, 1.24, 4, 5, 6 ,7, 8, 9, 10, 11, 12, 14, 23, 25, 26 and 27
Simon Boudreau, P. Eng. (OIQ 132338)	InnovExplo Inc.	Senior Mine Engineer	1.10, 1.12, 1.23, 1.24, 12, 14, 23, 25 26 and 27
Neil Lincoln, P. Eng. (PEO 100039153)	G Mining Services Inc.	Vice President, Metallurgy	1.11, 1.15, 1.23, 1.24, 13, 17, 25, 26 and 27
Philip Rodrigue, P. Eng. (OIQ 5039654)	G Mining Services Inc.	Civil Engineer	1.16, 1.23, 1.24, 18, 21, 25, 26 and 27
Sheldon Smith, MES, P.Geo. (OGQ 02397)	Stantec Consulting Ltd.	Senior Hydrologist	1.18, 1,23, 1.24, 20, 25, 26 and 27

2.2 Sources of Information and Data

Unless otherwise stated, all the information and data contained in the Report or used in its preparation have been provided by First Mining up to September 7, 2023. The above-named QPs have no reason to doubt the reliability of the information provided.

Sources of information include:

- Discussions with GMS, IE, Stantec, and First Mining personnel

- Inspection of the Duparquet Gold Project area, including drill collars, channels, drill core, and ground conditions
- Inspection of the principal and secondary laboratories
- Drilling database received from First Mining
- Geological interpretations, provided by InnovExplo
- Exploration data, compiled and provided by First Mining and validated by InnovExplo
- InnovExplo developed the most recent NI 43-101 Technical Report and Mineral Resource Estimate Update for the Duparquet deposit, dated September 2022, upon which the current PEA is based
- Information about mining titles, royalty agreements, environmental liabilities, and permits provided by First Mining
- Jeff Reinson, Chief Operating Officer for First Mining, who worked with GMS to optimize and comment on the surface layout.
- James Maxwell (P.Geo.), Vice President Exploration for First Mining, who worked with InnovExplo to update and review the geological structure and domain wireframes.
- Louis Martin (P.Geo.), a senior geological consultant of First Mining who worked with InnovExplo to update the geological structure and domain wireframes, mineral resource models, and property and claim tenure status.
- Technical and scientific reports by external consultants

The QPs believe that information supplied to be reliable, but does not guarantee the accuracy of conclusions, opinions, or estimates that rely on third party sources for information that is outside the area of technical expertise. As such, responsibilities for the various components of the summary, conclusions and recommendations sections are dependent on the associated sections of the Technical Report from which those components were developed.

All currencies in this Report are expressed in Canadian dollars (“CAD”) unless otherwise stated.

2.3 Site Visit

In accordance with NI 43-101 regulations, personal inspections were completed by the QPs of the Duparquet Gold Project as part of the data validation process and are listed below in Table 2.2.

Table 2.2: Site Visit Dates of Qualified Person

Qualified Person	Site Visit Scope	Dates
Alexandre Dorval, P. Eng. (OIQ 5027189)	Mining	July 27, 2023
Marina Iund, P.Geo. (OGQ 01525)	Geology and Resources	October 20, 2021
Olivier Vadnais-Leblanc, P.Geo. (OGQ 001082)	Geology and Resources	June 1, 2023
Carl Pelletier, P.Geo. (OGQ 00384)	Geology and Resources	November 16, 2011 and February 7, 2012
Philip Rodrigue, P. Eng. (OIQ 5039654)	Infrastructure	July 27, 2023
Sheldon Smith MES, P.Geo. (OGQ 02397)	Environment	July 26, 2023

The site visits for geology and resources covered the following aspects:

- Drill core inspection and visual comparison with assay values
- Identification of drilling locations and validation of drill collar coordinates
- Audit of logging, sampling, and QA/QC protocols
- Acquisition of ¼ core duplicates for independent analysis (“QP samples”)
- Visit to the First Mining core logging and core storage area in Duparquet

The site visits for infrastructure and mining covered the following aspects:

- Visiting the former mine site, including the open pit sector, the existing facilities, the mill building, the storage containers, and the bunker
- Visiting the historical tailings deposition area
- Visiting the historical processed mine tailings area
- Examining the available infrastructure nearby
- Assessing potential locations for borrow pits
- Determining property boundaries with potential road realignment considerations
- Identifying the potential location for future mining tailings and waste rock piles

- Evaluate the pit footprint
- Visiting Hydro-Québec Reneault substation
- Inspecting drill core to assess the geotechnical quality of the rock

2.4 Units of Measure, Abbreviations and Nomenclature

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

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

Table 2.3: List of Main Abbreviations

Abbreviations	Full Description
3DL	three times the detection limit
3SD	three times standard deviations
43-101	National Instrument 43-101 (Regulation 43-101 in Québec)
A x b	resistance to impact
AAS	atomic absorption spectroscopy
ABA	acid-base accounting
AACE	Association for the Advancement of Cost Engineering
Ai	abrasion index
AISC	all-in sustaining costs
Ag	silver
AGP	acid generation potential
ANFO	ammonium nitrate fuel oil
AP	potential acid
As	arsenic
ARD	acid rock drainage
ATV	all-terrain vehicle
Au	gold
B	burden

Abbreviations	Full Description
BCM/hole	blasted cubic metre per hole
BFZ	Beattie Fault Zone
BWI	ball mill work index
C	carbon
CAD	Canadian dollar
CANMET	Canada Centre for Mineral and Energy Technology
CAPEX	capital expenditure
CNWA	Canadian Navigable Waters Act
CCBE	capillary barrier effect
CCD	counter current decantation
CDFZ	Central Duparquet Fault Zone
CDPNQ	Québec natural heritage data centre
CERQ	Québec's ecological frame of reference
CGP	contaminant generation potential
CIL	carbon-in-leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM definition standards for mineral resources and mineral reserves (2014)
CIM Guidelines	CIM estimation of mineral resources & mineral reserves best practice guidelines (2019)
CLLFZC	Cadillac–Larder Lake Fault Zone
CN	cyanide
CND	contaminated neutral drainage
CNT	total cyanide
CNWAD	cyanide weak acid dissociable
COG	cut-off grade
Comp	composite
Conc	concentrated

Abbreviations	Full Description
COV	coefficient of variation
CSD	critical solid density
CSFA	conglomerate-sandstone facies association
CRF	cemented rock fill
CRM	certified reference material
Cu	copper
CWi	crusher work index
CWI	bond crusher work index
D	diameter
DDH	diamond drill hole
DEM	digital elevation model
DFZ	Donchester Fault Zone
DGPS	differential global positioning system
Dmt	dry metric tonnes
DPFZ	Destor-Porcupine Fault Zone
DSO	Deswik stope optimizer
DTH	down the hole
DWT	drop weight index
EA	economic assessment
ECCC	Environment and Climate Change Canada
EEM	environmental effects monitoring
EFE	exceptional forest ecosystems
e.g.	exempli gratia
EGBC	Association of Professional Engineers and Geoscientists of British Columbia
ELOS	equivalent linear overbreak slough
EOY	end of year

Abbreviations	Full Description
ETP	effluent treatment plant
EQA	Québec Environment Quality Act
F	degrees fahrenheit
F_{80}	80% passing: feed
FA	fire assay
Fe	iron
FERLD	Lake Duparquet teaching and research forest
FMG	First Mining Gold Corp.
FS	feasibility study
FW	footwall
G	giga – (000,000,000's)
g	gram
gpt or g/t	grams per tonne
g/L	gram per litre
G&A	general & administration
GESTIM	gestion des titres miniers (the MERN's online claim management system)
GMS	G Mining Services Inc.
gpm	gallons per minute (US)
GHG	greenhouse gas
GPS	global positioning system
ha	hectares
h	hour
h/d	hours per day
h/y	hours per year
h/wk	hours per week
h/round	hours per round

Abbreviations	Full Description
HADD	harmful alteration, disruption, or destruction
HDPE	high-density polyethylene
hp	horsepower
HPGR	high pressure grinding rolls
HW	hanging wall
Hz	hertz
IACC	Impact Assessment Agency of Canada
IA	impact assessment
ICP	inductively coupled plasma
ICP-OES	inductively coupled plasma-optical emission spectroscopy
ICP-MS	inductively coupled plasma- mass spectroscopy
ID2	inverse distance squared
IE	InnovExplo Inc.
IEC	International Electrotechnical Commission
IEQM	ecoforestry inventory of southern Québec
in. wg.	inches of water
IRA	internal ramp angle
IRDA	Institute for Research and Development in Agroenvironment
IRR	internal rate of return
ISO	International Organization for Standardization
ISR	initial settling rate
J	subdrill
k	kilo – (000’s)
kcfm	thousands of cubic feet per minute
kg	kilograms
kg/t	kilograms per tonne
kV	kilovolts

Abbreviations	Full Description
km	kilometre
km/h	kilometre per hour
kPa	kilopascal
kW	kilowatts
kWh	kilowatts hour
kWh/t	kilowatts hour per tonne
L	litre
LDD	Sustainable Development Act
LHD	load haul dump
LOM	Life of Mine
LPC	Cultural Heritage Act
LQE	Environmental Quality Act
M	mega or millions (000,000's)
m	metre
m/d	metre per day
m/d/unit	metres per day per unit
m/min	metre per minute
m/s	metre per second
m^2	square metre
m^3	cubic metre
masl	metres above sea level
MARC	maintenance and repair contract
MD&A	management discussion and analysis
MDMER	Federal Metal and Diamond Mining Effluent Regulations
MELCCFP	Ministry of the Environment, The Fight Against Climate Change, Wildlife and Parks
MERN	Ministère de l'énergie et des ressources naturelles du Québec

Abbreviations	Full Description
	(Québec's Ministry of Energy and Natural Resources)
MFFP	Ministry of Forests, Wildlife and Parks
MMER	metal mining effluent regulations
M+I	measured & indicated
mg/L	milligram per litre
ml	millilitre
mm	millimetre
Mm^3	million cubic metres
MIBC	methyl isobutyl ketone
min	minute
Mg	magnesium
Mo	month
MRNF	Ministry of Natural Resources and Forestry
MRC	Municipalité régionale de comté (Regional County Municipality in English)
MRE	Mineral Resource Estimate
Mt	million tonnes
Mtpa	million tonnes per annum
Mtpd	metric tonne per day
Mtpy	metric tonne per year
MTQ	Ministry of Transport of Québec
MVA	megavolt-ampere
MW	megawatt
MWTP	main water treatment plant
Na	sodium
NAD	North American Datum
NAD83	North American Datum of 1983

Abbreviations	Full Description
NAG	non-acid generating
NAPEG	Association of Professional Engineers and Professional Geoscientists
NI 43-101	National Instruments 43-101- Canadian Standards of Disclosure for Mineral Projects
NN	nearest neighbour
NP	neutralization potential
NPI	net profit interest
NPV	net present value
NQ	nq drill core diameter (47.6 mm)
NSR	net smelter return
NTS	national topographic system
NVZ	northern volcanic zones
Ø	diameter
O	oxygen
OEM	original equipment manufacturer
OGQ	Ordre des géologues du Québec
OIQ	Ordre des ingénieurs du Québec
OK	ordinary kriging
OPEX	operating expenditures
OSA	overall slope angle
oz	troy ounce (31.10348 grams)
OCR	off-channel reservoir
P80	passing 80 mesh
PAG	potentially acid generating
PAX	potassium amyl xanthate
PDA	project development area
Pb	lead

Abbreviations	Full Description
PEA	preliminary economic assessment
PFS	pre-feasibility study
P.Geo	Professional geoscientist
PGO	Association of Professional Geoscientists of Ontario
pH	potential hydrogen
PLC	programmable logic controller
POX	pressure oxidation
PP	pilot plant
P+P	proven & probable
ppb	parts per billion
ppm	parts per pillion
psi	pounds per square inch
QA	quality assurance
QA/QC	quality assurance/quality control
QC	quality control
QP	qualified person
PV	present value
RF	rock fill
RC	reverse circulation
RCM	regional county municipality
Regulation 43-101	National Instrument 43-101 (name in Québec)
RESIE	Québec Regulatory Guidelines for surface water
ROM	run-of-mine
rpm	revolutions per minute
RQD	rock quality designation
RWI	rod mill work index
s	sulphur

Abbreviations	Full Description
S	spacing
SAFA	sandstone-argillite facies association
SAG	semi-autogenous-grinding
SARA	species at risk act
SAPS	sequential alkalinity-producing system
SCC	Standards Council of Canada
SD	standard deviation
Sec	second (time)
SEDAR	system for electronic document analysis and retrieval
SG	specific gravity
SIGÉOM	système d'information géominière (the MERN's online Spatial Reference Geomining Information System)
SMC	sag mill comminution
STP	sewage treatment plant
SPEDE	system for greenhouse gas emission allowances
SVZ	southern volcanic zones
t	tonnes (1,000 kg) (metric ton)
T	stemming
t/y or tpy	tonnes per year
t/d or tpd	tonnes per day
t/h or tph	tonnes per hour
t/m^3	tonnes per cubic metre
t/hole	tonnes per hole
t/m drilled	tonnes per metre drilled
ta	abrasion breakage
TC	transportation costs
TCLP	toxicity characteristic leaching procedure

Abbreviations	Full Description
TDEM	time domain electromagnetic method
TDS	total dissolved solids
THUA	thickener hydraulic unit area
TRS	tailings reclaim sump
TSF	tailings storage facility
TSS	supernatant total suspended solids
TSX	Toronto Stock Exchange
TTP	thickened tailings plant
TUFUA	thickener underflow unit area
TWSP	treated water storage pond
UGAF	fur-bearing animal management units
µm	micrometre
UG	underground
USD	United States Dollar
USGPM	United States gallons per minute
UTM	Universal Transverse Mercator coordinate system
V	volt
VAT	value added tax
VOC	volatile organic compounds
W:MM	waste tonnes per mineralized material tonnes
WBS	work breakdown structure
WC	working capital
wk	week
Wio	operating work index
Wmt	wet metric tonnes
XRD	X-ray diffraction
y	year

Abbreviations	Full Description
$/oz	dollars per troy ounces

3 RELIANCE ON OTHER EXPERTS

This Report has been prepared by GMS for First Mining. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to the QPs at the time of the preparation of the Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Report.
- Data, reports, and other information supplied by the Company and other third-party sources which have been vetted and verified where possible; where it was not possible to confirm past information, this material was taken at a lesser / reduced consideration.

Apart from what listed below, the QPs did not rely on other experts to prepare this Technical Report. The QPs relied on the Issuer's information regarding mining titles, option agreements, environmental liabilities and permits. Neither the QPs, GMS nor InnovExplo are qualified to express any legal opinion with respect to property titles, current ownership or possible litigation.

The following company and consultant have been retained by First Mining to prepare some aspects of this Report. Their involvements are listed below:

- Stantec has relied on Sara Magdouli of BluMetric Environmental for review of previous geochemical testing results, proposed material processing, and potential implications from an environmental and regulatory perspective documented in Section 20.3 of the Technical Report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Property is located in the Abitibi-Témiscamingue administrative region in the western part of the Province of Québec, Canada (Figure 4.1). The centroid of the Property is approximately 26 km north of the city of Rouyn-Noranda and approximately 7 km east of the town of Duparquet, Québec. The Property lies in the Destor and Duparquet townships and falls within the area covered by NTS map sheets 32D06 and 32D10. The approximate longitude and latitude of the centroid are 79.1304°W and 48.4836°N (NAD83), and the UTM coordinates are 638149m E and 5371738m N (NAD83 Zone 17).

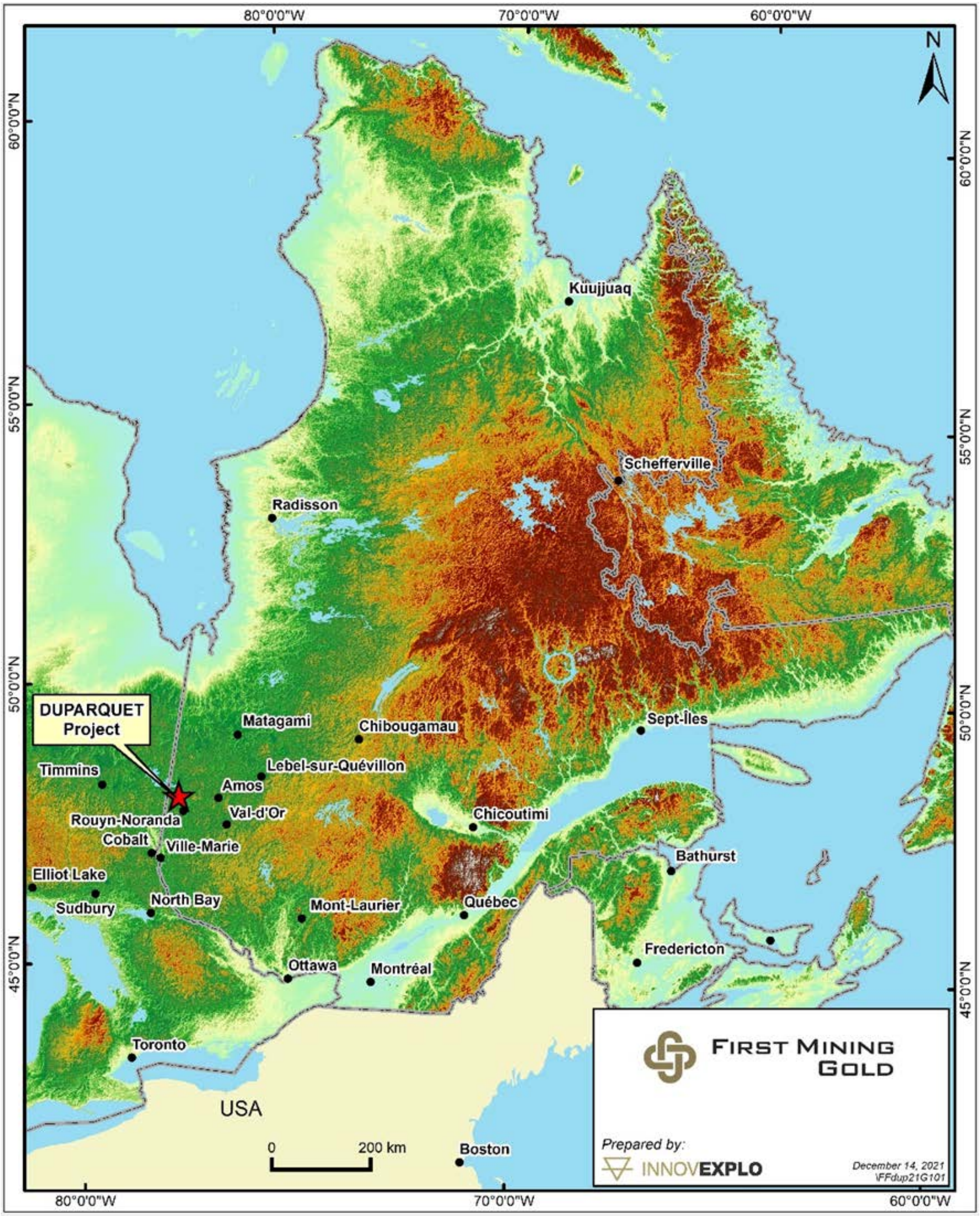
The Property, as defined in this report, consists of the amalgamation of seven contiguous claim blocks (from west to east): Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold, and Duquesne (Figure 4.2). The claim blocks cover an area of 5,804 ha, extending 19 km east-west and 8 km north-south along the Destor-Porcupine Fault Zone. The Beattie, Donchester and Duquesne blocks contain past-producing underground mines. Historical underground workings and a shaft were developed on the Central Duparquet block, but no gold was produced.

The Duparquet Gold Project, as defined in this report, comprises the Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold, and Duquesne claim blocks and the tailings pond area straddling the southwest limit of the Beattie block. The limits of the Beattie mine tailings were determined by Fillion (2009).

The previously registered mining concessions for the Beattie, Donchester and Duquesne properties were voluntarily allowed to lapse in April 2021 and August 2021, respectively, and were converted to mining claims registered to the initial owners. The change from “mining concession” to “claim” resulted from an amendment to the Mining Act (Bill 70 – An Act to Amend the Mining Act) relating to non-mining operational mining concessions.

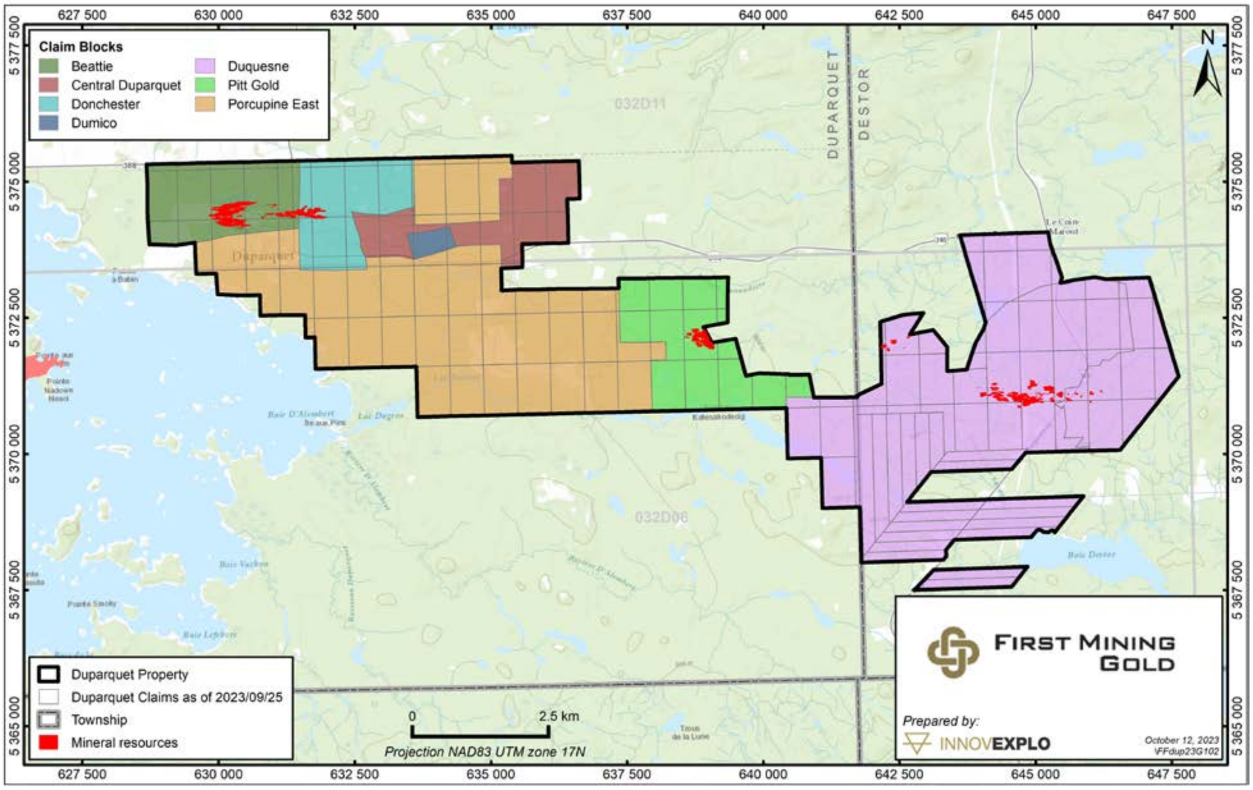
Figure 4.2 illustrates the map of the Duparquet Project detailing the subdivisions of the Beattie, Donchester, Central Duparquet, Dumico, Porcupine East, Pitt Gold and Duquesne claim blocks.

Figure 4.1: Location of the Duparquet Gold Project



Source: InnovExplo, 2021

Figure 4.2: Map of the Duparquet Project Detailing the Subdivisions of the Claim Blocks



Source: InnovExplo, 2023

4.2 Mining Title Status

InnovExplo verified the status of all mining titles using GESTIM, the Government of Québec's online claim management system (gestim.mines.gouv.qc.ca).

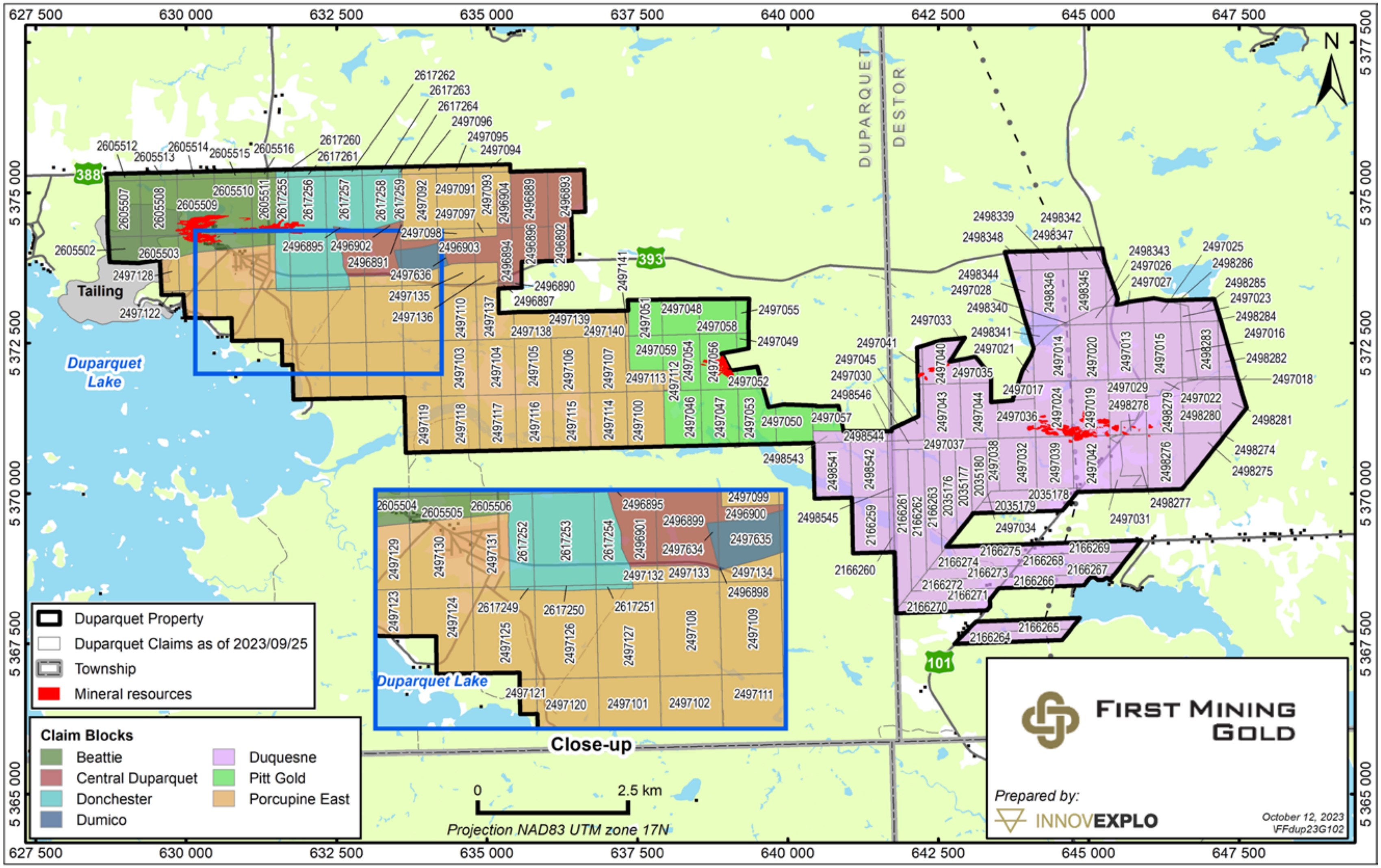
The Project comprises 199 map-designated claims ("CDC") registered under the name "Mines d'Or Duparquet Inc.", a wholly-owned subsidiary held 100% by First Mining. Mines d'Or Duparquet is the surviving entity following an agreement pursuant to which five corporations were amalgamated into a single company: Duquesne Gold Mines Inc., Mines d'Or Duparquet Inc. (formerly Clifton Star Resources Inc.), Beattie Gold Mines Ltd, 173714 Canada Inc., and 14601866 Canada Inc. (amalgamation effective January 1, 2023). Figure 4.3 presents the mining title map, and Table 4.2 presents a detailed list of mining titles with ownership details, work credits expiration dates and royalties.

All claims are in good standing as of September 28, 2023. Since September 25, 2023, all the claims have been registered in GESTIM to Mines d'Or Duparquet Inc. (103268). Before the amalgamation, First Mining had subdivided the mining titles into areas representing the former properties that collectively represent the Duparquet Project (Table 4.1 and Figure 4.2).

Table 4.1: Summary of the Mining Titles Constituting the Mines d'Or Duparquet Project

Claim Block	Number of Mining Titles	Total Area (ha)	Ownership	Royalties
Beattie	15	383.56	Mines d'Or Duparquet	No royalty
Donchester	16	322.62	Mines d'Or Duparquet	No royalty
Dumico	3	34.41	Mines d'Or Duparquet	No royalty
Central Duparquet	16	338.59	Mines d'Or Duparquet	No royalty: Clifton Star acquired 2% NSR royalty from Gesmalar
Porcupine East	51	1,868.85	Mines d'Or Duparquet	IAMGOLD 1.5% NSR
Pitt Gold	14	492.01	Mines d'Or Duparquet	Cotnoir-Beauchemin Group retains a 2% NSR royalty, of which 1% can be bought back by First Mining for $800,000. SOQUEM and Geonova each retain a royalty equivalent to 1% NSR. Half of the royalty (1%) can be bought back from the two parties for $1 million.
Duquesne	84	2,364.31	Mines d'Or Duparquet	Clifton Star purchased 0.5% of the total NSR royalty for $1,000,000, with a 2.5% NSR royalty remaining to Duquesne Gold Mines. The Lepine and Destor claim blocks retain a 2% NSR.
TOTAL	**199**	**5,804.35**		

Figure 4.3: Mining Title and Land Use Map for the Duparquet Project



Source: InnovExplo, 2023

Table 4.2: List of Mining Titles

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2035176	CDC	41.03	27/11/06	26/11/25	Mines d'Or Duparquet	1
2035177	CDC	32.91	27/11/06	26/11/25	Mines d'Or Duparquet	1
2035178	CDC	26.80	27/11/06	26/11/25	Mines d'Or Duparquet	1
2035179	CDC	26.74	27/11/06	26/11/25	Mines d'Or Duparquet	1
2035180	CDC	24.79	27/11/06	26/11/25	Mines d'Or Duparquet	1
2166259	CDC	57.09	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166260	CDC	7.12	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166261	CDC	65.39	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166262	CDC	57.28	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166263	CDC	49.15	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166264	CDC	31.88	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166265	CDC	31.31	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166266	CDC	28.30	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166267	CDC	31.98	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166268	CDC	31.90	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166269	CDC	31.82	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166270	CDC	27.37	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166271	CDC	26.22	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166272	CDC	26.28	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166273	CDC	26.35	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166274	CDC	26.42	21/07/08	20/07/25	Mines d'Or Duparquet	1
2166275	CDC	26.48	21/07/08	20/07/25	Mines d'Or Duparquet	1
2497013	CDC	57.07	30/08/17	15/06/24	Mines d'Or Duparquet	1

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2497014	CDC	48.96	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497015	CDC	57.07	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497016	CDC	18.25	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497017	CDC	9.17	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497018	CDC	1.33	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497019	CDC	57.08	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497020	CDC	57.07	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497021	CDC	7.22	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497022	CDC	13.07	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497023	CDC	3.97	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497024	CDC	57.08	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497025	CDC	22.74	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497026	CDC	12.31	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497027	CDC	21.11	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497028	CDC	0.53	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497029	CDC	43.76	30/08/17	15/06/24	Mines d'Or Duparquet	1
2497030	CDC	8.15	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497031	CDC	23.20	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497032	CDC	53.88	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497033	CDC	0.67	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497034	CDC	0.01	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497035	CDC	18.12	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497036	CDC	38.58	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497037	CDC	9.25	30/08/17	02/03/24	Mines d'Or Duparquet	1

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2497038	CDC	24.35	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497039	CDC	53.57	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497040	CDC	41.93	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497041	CDC	5.36	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497042	CDC	56.58	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497043	CDC	57.07	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497044	CDC	53.69	30/08/17	02/03/24	Mines d'Or Duparquet	1
2497045	CDC	21.68	30/08/17	02/03/24	Mines d'Or Duparquet	1
2498541	CDC	57.08	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498542	CDC	57.08	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498543	CDC	11.63	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498544	CDC	10.65	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498545	CDC	7.12	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498546	CDC	1.26	02/10/17	07/12/25	Mines d'Or Duparquet	1
2498274	CDC	0.68	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498275	CDC	30.51	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498276	CDC	56.92	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498277	CDC	33.88	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498278	CDC	13.32	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498279	CDC	44.01	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498280	CDC	55.74	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498281	CDC	30.36	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498282	CDC	15.99	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498283	CDC	38.82	25/09/17	13/08/24	Mines d'Or Duparquet	2

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2498284	CDC	0.43	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498285	CDC	18.26	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498286	CDC	0.78	25/09/17	13/08/24	Mines d'Or Duparquet	2
2498339	CDC	19.81	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498340	CDC	1.75	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498341	CDC	8.10	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498342	CDC	0.13	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498343	CDC	7.74	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498344	CDC	20.55	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498345	CDC	44.75	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498346	CDC	56.53	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498347	CDC	19.59	25/09/17	24/11/25	Mines d'Or Duparquet	2
2498348	CDC	12.35	25/09/17	24/11/25	Mines d'Or Duparquet	2
2497046	CDC	57.07	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497047	CDC	57.07	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497048	CDC	36.21	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497049	CDC	5.37	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497050	CDC	39.30	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497051	CDC	33.10	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497052	CDC	13.24	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497053	CDC	52.41	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497054	CDC	47.42	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497055	CDC	12.01	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497056	CDC	51.33	30/08/17	27/02/24	Mines d'Or Duparquet	3

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2497057	CDC	19.64	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497058	CDC	35.58	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497059	CDC	32.26	30/08/17	27/02/24	Mines d'Or Duparquet	3
2497091	CDC	57.03	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497092	CDC	53.35	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497093	CDC	41.81	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497094	CDC	7.58	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497095	CDC	7.60	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497096	CDC	7.13	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497097	CDC	5.32	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497098	CDC	9.96	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497099	CDC	9.93	31/08/17	07/01/24	Mines d'Or Duparquet	4
2497100	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497101	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497102	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497103	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497104	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497105	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497106	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497107	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497108	CDC	57.05	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497109	CDC	57.05	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497110	CDC	57.05	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497111	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2497112	CDC	9.36	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497113	CDC	24.80	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497114	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497115	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497116	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497117	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497118	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497119	CDC	57.07	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497120	CDC	57.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497121	CDC	5.90	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497122	CDC	1.84	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497123	CDC	25.51	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497124	CDC	43.39	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497125	CDC	53.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497126	CDC	54.14	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497127	CDC	55.32	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497128	CDC	16.73	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497129	CDC	38.42	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497130	CDC	42.17	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497131	CDC	26.74	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497132	CDC	4.56	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497133	CDC	10.11	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497134	CDC	11.91	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497135	CDC	20.57	01/09/17	19/03/24	Mines d'Or Duparquet	4

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2497136	CDC	13.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497137	CDC	45.06	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497138	CDC	26.99	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497139	CDC	26.61	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497140	CDC	26.16	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497141	CDC	2.55	01/09/17	19/03/24	Mines d'Or Duparquet	4
2497634	CDC	2.65	12/09/17	14/05/24	Mines d'Or Duparquet	5
2497635	CDC	27.17	12/09/17	14/05/24	Mines d'Or Duparquet	5
2497636	CDC	4.59	12/09/17	14/05/24	Mines d'Or Duparquet	5
2605502	CDC	23.77	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605503	CDC	24.98	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605504	CDC	18.63	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605505	CDC	14.87	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605506	CDC	7.74	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605507	CDC	51.11	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605508	CDC	57.03	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605509	CDC	57.03	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605510	CDC	57.03	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605511	CDC	36.87	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605512	CDC	6.75	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605513	CDC	7.55	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605514	CDC	7.56	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605515	CDC	7.58	08/04/21	07/04/24	Mines d'Or Duparquet	5
2605516	CDC	5.06	08/04/21	07/04/24	Mines d'Or Duparquet	5

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2617249	CDC	0.83	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617250	CDC	2.91	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617251	CDC	1.73	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617252	CDC	22.55	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617253	CDC	57.04	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617254	CDC	24.03	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617255	CDC	20.16	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617256	CDC	57.03	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617257	CDC	54.63	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617258	CDC	52.73	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617259	CDC	3.10	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617260	CDC	2.54	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617261	CDC	7.62	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617262	CDC	7.62	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617263	CDC	7.62	18/08/21	17/08/24	Mines d'Or Duparquet	5
2617264	CDC	0.48	18/08/21	17/08/24	Mines d'Or Duparquet	5
2496889	CDC	57.03	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496890	CDC	1.15	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496891	CDC	0.58	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496892	CDC	22.14	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496893	CDC	51.66	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496894	CDC	38.66	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496895	CDC	2.40	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496896	CDC	40.69	18/07/17	24/07/24	Mines d'Or Duparquet	6

Title Number	Title Type	Area (ha)	Registration Date	Expiry Date	Owner	Royalties *
2496897	CDC	2.03	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496898	CDC	0.01	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496899	CDC	44.28	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496900	CDC	8.04	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496901	CDC	28.46	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496902	CDC	4.30	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496903	CDC	21.93	18/07/17	24/07/24	Mines d'Or Duparquet	6
2496904	CDC	15.23	18/07/17	24/07/24	Mines d'Or Duparquet	6

Source: InnovExplo, 2023
*Royalties**

1. *Clifton Star had purchased 0.5% of the total NSR for $1,000,000, with a 2.5% NSR remaining to Duquesne Gold Mines.*
2. *Clifton Star had purchased 0.5% of the total NSR for $1,000,000, with a 2.5% NSR remaining to Duquesne Gold Mines. Lepine and Destor claim blocks retain a 2% NSR.*
3. *Cotnoir/Beauchemin 2% NSR, of which 1% can be bought back by First Mining for $800,000. SOQUEM and Geonova each retain a NSR equivalent to 1%. Half of the NSR (1%) can be bought back from the two parties for $1 million*
4. *IAMGOLD 1.5% NSR*
5. *No royalty*
6. *No royalty or Clifton Star 2% NSR from the Gesmalar*

4.3 Ownership, Royalties and Agreements

The following tables summarize historical ownership of the claim blocks.

Table 4.3: Duparquet Property, Summary of Owners and Acquisitions

Area	Owner	Year
Duparquet	Discovery by John Beattie	1910
Beattie Property	John Beattie	1923
Beattie Property	Victoria Syndicate	1924
Beattie Property	Consolidated Mining and Smelting Company of Canada Ltd.	1925-1927
Beattie Mine (Main or North Zone)	Ventures Limited and Nipissing Mining Company Ltd.	1930
Central Duparquet	Dumico Gold Corp.	1931-1945
Donchester Property	Beattie Gold Mines (Québec) Ltd.	1932
Beattie Mine and Donchester Mine	Consolidated Beattie Mines Ltd.	1946-1956
Beattie Property	No activities	1956-1987
Central Duparquet Property	SOQUEM Inc.	1981
Central Duparquet Property	SOQUEM Inc / Cambior Inc.	1987
Central Duparquet Property	9085-3615 Québec Inc	2004
Beattie and Donchester Properties	Clifton Star	2008
Beattie and Donchester Properties	Clifton Star Resources Inc. / Osisko Mining Corp. Joint Venture	2010
Duparquet Project	Clifton Star Resources Inc.	2011
Duparquet Project	First Mining Finance Corp.	2016

Table 4.4: Duquesne Property, Summary of Owners and Acquisitions

Area	Owner	Year
Duquesne Property	Discovery	1923
Duquesne Property	Eclipse Gold Mines Ltd.	1935
Duquesne Property	Duquesne Gold Mines Ltd.	1941
Duquesne Property	Consolidated Duquesne Mining Limited	1949
Duquesne Property	Duquesne Gold Mining Company Limited	1950
Duquesne Property	Louvem Mining Company	1975
Duquesne Property	Claremont Mines Limited	1978
Duquesne Property	SOQUEM	1980
Duquesne Property	Eldorado Gold Mines Ltd.	1986
Duquesne Property	Radisson Mining Resources Inc.	1987
Duquesne Property	Santa Fe Can. Mining Ltd.	1996
Duquesne Property	Globex Mining Enterp. Inc.	1997
Duquesne Property	Duquesne Gold Mines Ltd.	2000
Duquesne Property	Kinross Gold Corp.	2002
Duquesne Property	Queenston Mining Inc.	2003
Duquesne Property	Duquesne Gold Mines Ltd.	2006
Duquesne Property	Clifton Star Resources Inc.	2010
Duquesne Property	Xmet / Clifton Star Resources Inc.	2012
Duquesne Property	First Mining Finance Corp.	2016

Table 4.5: Pitt Gold Property, Summary of Owners and Acquisitions

Area	Owner	Year
Pitt Gold Property	Discovery by Beattie Gold Mines	1939
Pitt Gold Property	Fleming-Thomson	1944
Pitt Gold Property	Pitt Gold Mining Ltd.	1945-1947
Pitt Gold Property	No Activity	1948-1974
Pitt Gold Property	Louvem	1975
Pitt Gold Property	Cotnoir and Associates	1978
Pitt Gold Property	Camflo Mines Ltd.	1981-1982
Pitt Gold Property	Lacana Exploration	1987-1988
Pitt Gold Property	Santa Fe Canadian Mining Ltd.	1995-1997
Pitt Gold Property	Geonova	1998-1999
Pitt Gold Property	SOQUEM	2000-2004
Pitt Gold Property	Normabec	2004-2008
Pitt Gold Property	Brionor	2009
Pitt Gold Property	Xmet	2012
Pitt Gold Property	First Mining	2016

4.3.1 Beattie, Donchester, Dumico Claim Blocks

On April 8, 2016, First Mining announced the successful completion of the business combination, in which First Mining acquired all issued and outstanding shares of Clifton Star. Clifton Star's shares were de-listed from the TSXV, and it ceased being a reporting issuer under applicable Canadian securities laws.

The registered mining concessions for the Beattie (CM292) and Donchester (CM442) properties were voluntarily allowed to lapse in April 2021 and August 2021, respectively, and have since been converted to mining claims by First Mining as allowed under an amendment to the Mining Act (Bill 70 – An Act to Amend the Mining Act) relating to non-mining operational mining concessions.

In further consolidation of claims in the district, on February 8, 2022, First Mining announced it had acquired from two individuals, an aggregate of 286,904 common shares of Beattie Gold Mines. Together with the 187,839 common shares of Beattie Gold Mines already owned by Clifton Star (a wholly-owned subsidiary of First Mining), First Mining increased its ownership from 10% to 25.3% of the issued and outstanding common shares of Beattie Gold Mines.

On September 15, 2022, First Mining announced it had completed the acquisition of all issued and outstanding common shares of Beattie Gold Mines not directly or indirectly owned by First Mining. In addition, First Mining also concurrently completed the acquisitions of 2699681 and 2588111 (Concurrent Transactions), the two private companies that held the surface rights and mining rights, respectively, to the Duparquet Project as it was defined at the time. As a result, First Mining now owns 100% of the Duparquet Project. The total consideration of the Beattie and Concurrent transactions was $8,727,177 in cash and the issuance of 69,127,820 common shares of First Mining, for a total transaction value of approximately $24 million based on the twenty trading day volume weighted average price ("VWAP") for First Mining's common shares as of the last trading day prior to the Company's initial announcement regarding these transactions on July 18, 2022.

On May 15, 2023, all claims registered to either Beattie Gold Mines (Beattie claim block) or 173714 (Donchester and Dumico claim blocks) were transferred and registered in GESTIM under the name of Mines d'Or Duparquet Inc.

2699681 Canada Ltd, owned, through its wholly owned subsidiary, Eldorado Gold Mines Inc. ("Eldorado"), the surface rights to the previously registered Beattie mining concession #292, including the concentrate roaster located thereon, but excepting land that has been sold for the golf course, the houses near the golf course with their accompanying land, and the northeast part of the previously registered MC#292. Eldorado also owns part of the surface rights to the previously registered Donchester mining concession #384, excepting land that has been deeded to the church for the cemetery, and the northwest part of the previously registered MC#384. Eldorado owns the surface rights to the Dumico Project. Eldorado also owns the mine tailings that originated from the original Beattie, Donchester, Duquesne and Hunter mines.

On September 15, 2022, First Mining acquired all the issued and outstanding shares of Beattie Gold Mines, 2588111, 2699681, as well as Eldorado which owns the surface rights and tailings. Eldorado Gold Mines, owner of the surface rights and tailings, remains a wholly owned subsidiary of First Mining.

For work located outside of the surface rights held by Mines d'Or Duparquet (surface rights owned by "Eldorado"), the Company must obtain all authorizations and permits from the MRNF or the Ministry of the Environment ("MELCCFP") when applicable.

4.3.2 Central Duparquet Claim Block

On February 10, 2017, First Mining acquired the eighteen claims at Central Duparquet from a private individual in exchange for $250,000 and 2,500,000 First Mining shares.

The mining titles of the Central Duparquet claim block have since been converted from claims (“CL”) to map-staked mining claims (“CDC”), and the block now includes 16 CDC (338.6 ha) registered to Mines d’Or Duparquet in GESTIM (effective May 15, 2023).

4.3.3 Duquesne Claim Block

The optionor retains a 3% NSR royalty, while Clifton Star has the option to purchase from the optionor the 3% NSR royalty in consideration for the sum of $1,000,000 for each 0.5% at any time for a total of $6,000,000. As of the effective date of this report, Clifton Star had purchased 0.5% of the total NSR for $1,000,000, with a 2.5% NSR remaining to the optionor. During the fiscal year ended June 30, 2009, Clifton Star acquired additional claims totalling 964 ha, known as the Duquesne Extension, for $35,000. The Duquesne Extension adjoins the Duquesne Property to the south and southwest. In addition, Clifton Star paid $250,000 to acquire claims totalling 525 ha, known as the Lepine and Destor properties. These claims are contiguous to the northwest and east, respectively, of the Duquesne Property. The optionor retains a 2% NSR royalty.

On April 8, 2016, First Mining acquired all of the issued and outstanding shares of Clifton Star. To the extent known, no significant factors or risks affect the access, title or right to the Duquesne claim block or the ability to perform work on the claim block.

The mining concessions for the previously registered Duquesne (CM377) property were voluntarily allowed to lapse in October 2021 and have since been converted to CDC by the owners. The conversion was allowed under an amendment to the Mining Act (Bill 70 – An Act to Amend the Mining Act) relating to non-mining operational mining concessions.

On May 15, 2023, the claims in the Duquesne claim block that were registered to either Mines d’Or Duquesne or Clifton Star Resources were transferred in GESTIM to Mines d’Or Duparquet.

4.3.4 Pitt Gold Claim Block

On March 7, 2016, First Mining issued a press release to announce that they had entered into an agreement to purchase the Pitt Gold property from Brionor Resources Inc. ("Brionor"). In exchange for 100% ownership of the Pitt Gold Property, First Mining agreed to pay Brionor an aggregate purchase price of $1,250,000, of which $1,000,000 was to be satisfied by the issuance of 2,535,293 common shares of First Mining and the remaining $250,000 was to be paid in cash.

On April 28, 2016, First Mining announced that it had purchased the Pitt Gold Property from Brionor. On May 15, 2023, the claims were transferred in GESTIM and registered under the name Mines d'Or Duparquet.

The original owners, the Cotnoir-Beauchemin Group (Jeanne Cotnoir, Maude Cotnoir, Alain Cotnoir and Jacques Beauchemin), staked the mineral claims in 1978. The Cotnoir-Beauchemin Group continues to hold a royalty equivalent to 2% NSR, of which 1% can be bought back by First Mining for $800,000. In addition, any mining operation on the property is to be called the Gaston Cotnoir mine.

Two other previous owners, SOQUEM Inc. ("SOQUEM") and Geonova Exploration Inc. ("Geonova"), each retain a royalty equivalent to 1% NSR. Half of the royalty (1%) can be bought back from the two parties for $1 million.

4.3.5 Acquisition of the Porcupine East Claim Block

On January 30, 2023, First Mining announced that it had entered into an agreement with IAMGOLD Corp. ("IAMGOLD") through its wholly-owned subsidiary, Mines d'Or Duparquet, to acquire the Porcupine East Property (the "Transaction"). The Porcupine East Property joins First Mining's Beattie-Donchester-Dumico-Central Duparquet land package to its Pitt Gold and Duquesne projects to the east. The terms of the agreement stipulated a total consideration of:

- 2.5 million First Mining common shares upon closing of the Transaction;
- The granting of a 1.5% NSR royalty on the Porcupine East Property to IAMGOLD upon closing the Transaction;
- A future contingent payment of $500,000, in cash or First Mining shares, on the declaration of a minimum of 350,000 koz gold resource on the Porcupine East Property; and
- A future contingent payment of $1,000,000, in cash or First Mining shares, to be paid within 12 months of commercial production being declared at the Duparquet Project, as long as any

major surface infrastructure related to the Duparquet Project is constructed on the Porcupine East Property.

The Transaction closed in February 2023.

4.4 Socio-Environmental Responsibilities

The Project is located within the urban perimeter of the municipality of Duparquet (Figure 4.4) but is not affected by restrictions on exploration and mining activities under Québec's *Mining Act* or the *Act respecting Land Use Planning and Development.*

According to the *Mining Act*, any mineral substance forming part of the domain of the State and found in an urban perimeter shown on maps kept at the registrar's office, except mineral substances found in a territory subject to a mining right obtained before December 10, 2013, is withdrawn from prospecting, mining exploration and mining operations as of that date, until the territories provided for in section 304.1.1 of the *Mining Act* and section 6 (par. 7) of the *Act respecting Land Use Planning and Development* (mining-incompatible territories) are determined by decision of the Regional County Municipality ("RCM"). A mining-incompatible territory is a territory in which the viability of activities would be compromised by the impacts of mining. As the RCM did not define CM292 or CM384 as a mining-incompatible territory before December 14, 2016, the date on which the Act respecting Land Use Planning and Development came into force, First Mining is allowed to carry out exploration and mining activities on the Beattie and Donchester mining concessions or their derivatives.

The area covered by tailings (the original tailings and waste rock management area plus subsequent tailings spread) partially overlies Crown land (per. comm. with Bryan Goulet of the Abitibi-Ouest RCMC on February 26, 2013). The Ministry of Natural Resources and Forests of Québec ("MRNF") possesses the clearing rights. First Mining must purchase the surface rights from the MRNF if they want to recover the portion of the tailings outside the Project. There is a risk that the MRNF will not allow First Mining to recover the mineral resource contained in the tailings that have spread beyond the Project; however, this amount represents a negligible portion of the Project's total mineral resources. It would have no material impact on the MRE and would not affect the potential viability of the Project.

InnovExplo is not aware of any environmental liabilities, permitting issues or municipal social issues concerning the Project. All exploration activities conducted on the Project comply with the relevant environmental permitting requirements.

4.5 Permits

The Project is located in the Abitibiwinni First Nation territory (Figure 4.4). Claim holders within this territory are bound by the Agreement on Consultation and Accommodation between the Abitibiwinni First Nation Council and the Government of Québec.

Parts of the Project are located inside the municipal limits of Duparquet. The Company is required to advise the municipality prior to undertaking exploration work.

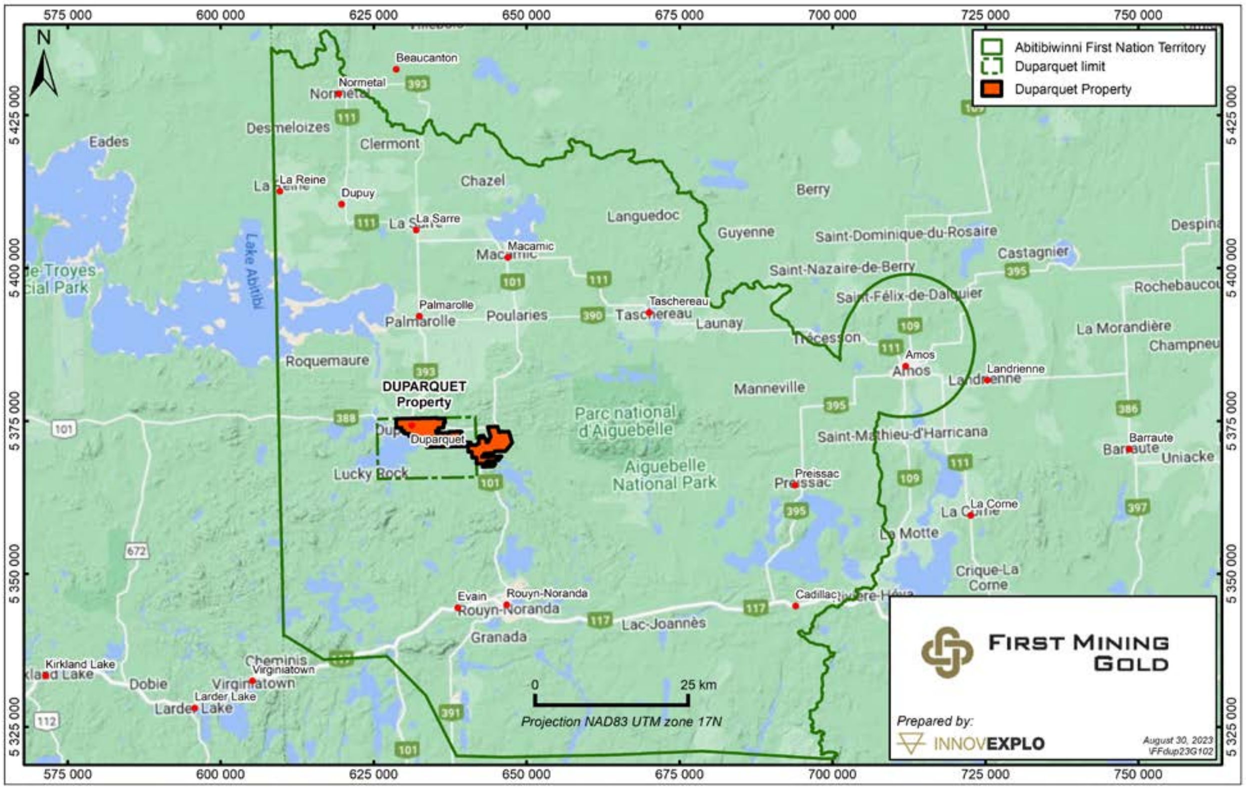
Some parts of the Project are located on private lands with houses and a golf course and clubhouse.

In general, the recommended work program in this report requires minimal permitting. For any drilling to take place however, First Mining must obtain specific permits and authorizations from the relevant government agencies, including a timber permit (*Autorisation de coupe de bois sur un territoire du domaine de l'État où s'exerce un droit minier*) from the MRNF.

For work located outside of the surface rights held by Mines d'Or Duparquet (surface rights owned by "Eldorado"), the Company must obtain all authorizations and permits from the MRNF or the Ministry of the Environment ("MELCCFP") when applicable.

Diamond drilling on the tailings also requires a permit from the MRNF, which must be accompanied by a reclamation plan and bond.

Figure 4.4: Duparquet Project Location in the Abitibiwinni First Nation Territory



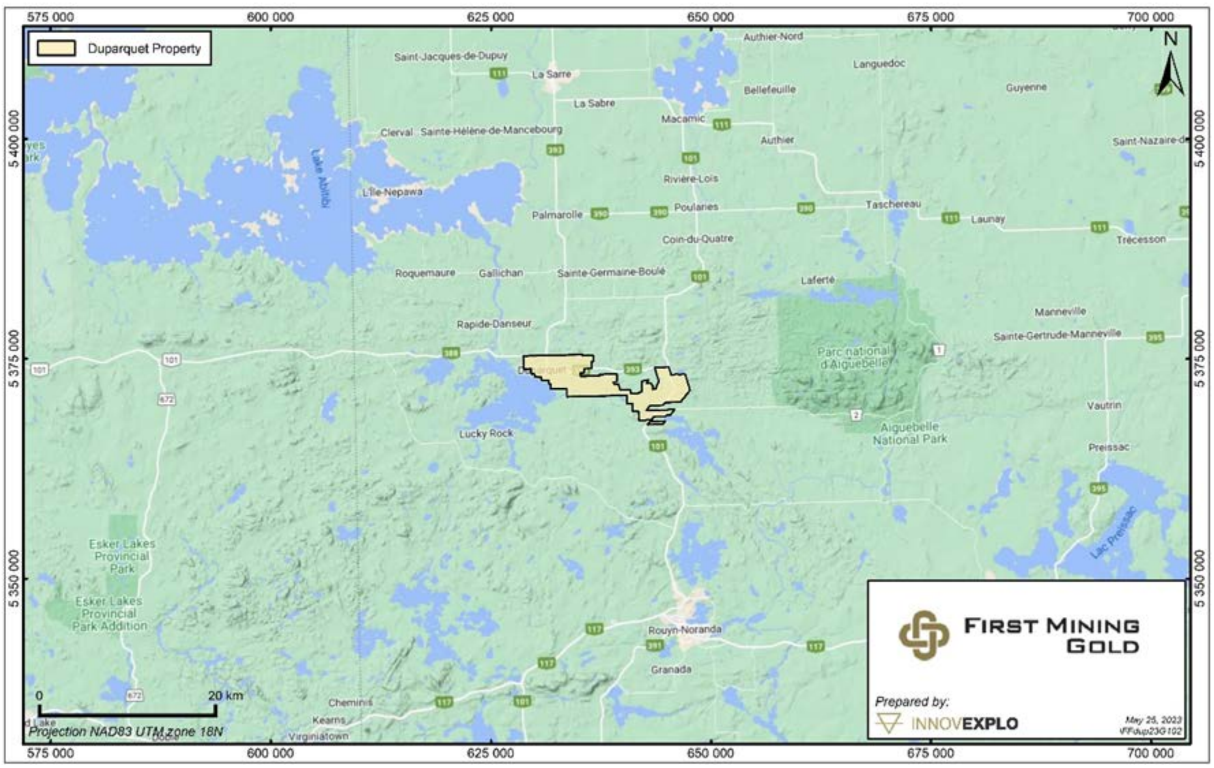
Source: InnovExplo, 2023

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Project can easily be reached via the all-season, paved, two-lane provincial road 101 from Rouyn-Noranda, which heads north to La Sarre over approximately 30 km, then turns westward onto provincial road 393 for approximately 15 km to Duparquet. Both roads cross through the Property, and several gravel roads also lead onto it (Figure 5.1).

Figure 5.1: Access to the Duparquet Property



Source: InnovExplo, 2023

5.2 Climate

The climate is continental, with cold, dry winters and warm summers. Winter temperatures average -17°C with lows down to -40°C in January, whereas summer temperatures average 17°C with highs up to 35°C in July. Annual precipitation is around 900 mm. Snow falls from mid-November to mid-April.

Mining and drilling operations can be conducted year-round. Surface exploration work, such as mapping and channel sampling, can generally only be carried out from mid-April to mid-November.

5.3 Local Resources

Rouyn-Noranda is the nearest major city with a specialized workforce and facilities for obtaining mining / exploration services and supplies. The town of Duparquet currently has a population of about 700 residents. Skilled workers and housing are available in the municipality. Water is available from the town's water supply or water bodies on the Project.

Electric power is available at the Beattie mine site. In 2013, Hydro-Québec completed an exploratory study to verify its capacity to supply electric power to the Project (Williamson et al., 2013a). Supplying the Project from the Renaud substation is possible, with a new 14.5-km-long 120 KV line to be built and an estimated completion schedule of 36 months. An existing power line passes through the Duquesne claim block.

5.4 Infrastructure

Most of the mine buildings have been demolished. The shafts and vent raises have been capped and allowed to flood naturally. The existing connection from surface to the underground workings has also flooded. The only remaining buildings are the roaster, smokestack, and water tower on the Beattie mine site.

Parts of the roaster building were previously used as an office, core shack, and for pulp and reject storage. The existing infrastructure is in a poor state of repair, and its demolition and remediation is expected as part of the development work. Yard access is restricted with a locked gate and holds numerous core racks, serving as a storage area for cores, pulps, and rejects which will ultimately be removed and relocated.

5.5 Physiography

The terrain is flat to gently undulating. The topography is characteristic of the southern Canadian Shield, with rolling glacial hills and intervening lowlands with lakes and swamps. The area is covered with an immature to semi-mature poplar forest with some birch, balsam, spruce, and jack pine interspersed on well-drained higher ground. The area is also characterized by dense and thick undergrowth consisting mainly of tag alders, scrub maple, and willow. Outcrop density varies from 20% to 50% but up to 80% in certain areas. The overburden can range from a few metres thick to several tens of metres and consists of sandy soil or till, with occasional gravel portions. The mean elevation of the Project is approximately 300 masl.

6 HISTORY

Mining exploration in the Duparquet area started in the early 1930's and reached its peak between the mid 1930s and mid 1950s after the discovery of the deposits that became the Beattie and Donchester mines near Duparquet and the Duquesne mine approximately 16 km to the east.

The current Duparquet Project consists of seven claim blocks: Beattie, Donchester, Dumico, Central Duparquet, Porcupine East, Pitt Gold and Duquesne. It covers and overlaps many historical mining and exploration properties, the boundaries and names of which have changed over time following ownership (and/or option) changes, the abandonment and/or addition of claims, or modifications to mining title status when claims were converted into mining leases and then into mining claims.

All the claim blocks have been the subject of multiple exploration programs carried out by a variety of exploration companies. The work included prospecting and geological mapping, geophysics, geochemistry and drilling, the latter ranging from exploration-stage to mineral resource definition. The drilling programs at Beattie, Donchester, Central Duparquet, and Duquesne were conducted from both surface and underground. The claim blocks have been the subject of various geological studies and reports covering a wide array of topics, from local mineral resource and mineral reserve estimates, engineering studies, regional geological surveys and synthesis (Table 6.1).

Historical work programs are summarized in Table 6.2 through to Table 6.7, and historical mineral resource estimates are presented in Section 6.7. The First Mining exploration work and drilling are presented in Sections 9 and 10, respectively.

The documents used to compile the information below were obtained from the SIGÉOM database of the Government of Québec and technical reports filed by past owners.

6.1 Beattie Claim Block

This section summarizes all work and activities completed on the Beattie claim block by previous owners. Most of the information in this section was obtained from Iund et al. (2022). A summary of the work is presented in Table 6.2.

6.2 Donchester Claim Block

This section summarizes all work and activities completed on the Donchester claim block by previous owners. Most of the information in this section was obtained from Iund et al. (2022). A summary of the work is presented in Table 6.3.

6.3 Dumico and Central Duparquet Claim Blocks

This section summarizes all work and activities completed on the Dumico and Central Duparquet claim blocks by previous owners. Most of the information in this section was obtained from Iund et al. (2022). A summary of the work is presented in Table 6.4.

6.4 Porcupine East Claim Block

The significant historical exploration work on the Porcupine East claim block consists of geophysics, geological surveys, and drilling. A summary of the work extracted form SIGEOM-Examine is presented in Table 6.5.

The most recent exploration activity at the Duparquet Project was on Porcupine East, where Geo Data Solutions GDS Inc. carried out work for the previous owner, IAMGOLD.

6.5 Duquesne Claim Block

This section summarizes all work and activities conducted on the Duquesne claim block by previous owners. A summary of the work, largely taken from Rioux (2016), is presented in Table 6.7.

6.6 Pitt Gold Claim Block

This section summarizes all work and activities conducted on the Pitt Gold claim block by previous owners. A summary of the work, largely taken from information in Lewis and San Martin (2017), is presented in Table 6.6.

6.7 Historical Resource and Reserve Estimates

The following table presents the historical resource estimates on the project.

Table 6.1: Summary of the Historical Resource and Reserve Estimates for the Duparquet Project

Year	Company	Work
1987	SOQUEM Inc. Cambior Inc.	Reserve estimates
2005	Golder Associates Inc. Beattie Gold Mines Ltd	Resource estimate for Central Duparquet Project
2009	Genivar Inc. Clifton Star Resources Inc.	Unpublished MRE for the tailing ponds (Fillion, 2009)
2011	SGS Canada Inc. (Geostat) Osisko Mining Inc. and Clifton Star Resources Inc.	NI 43-101 MRE on the Beattie Project only
2011	Genivar Clifton Star Resources Inc.	NI 43-101 MRE on the Duquesne Project
2012	InnovExplo Inc. Clifton Star Resources Inc.	Maiden NI 43-101 MRE for the Duparquet Project (includes the tailings resource from the 2009 Genivar report)
2012	InnovExplo Inc. Clifton Star Resources Inc.	Updated NI 43-101 MRE for the Duparquet Project (including the Genivar 2009 tailings resource) NI 43-101 PEA
2013	InnovExplo Inc. Clifton Star Resources Inc.	NI 43-101 MRE for the Duparquet Project (includes the 2009 Genivar tailings resource and the addition of Dumico DDHs)
2013	InnovExplo Inc. Clifton Star Resources Inc.	NI 43-101 MRE with PEA for the Duparquet Project (including the 2009 Genivar tailings resource)
2014	InnovExplo Inc. Clifton Star Resources Inc.	NI 43-101 technical report and PFS (includes the 2009 Genivar tailings resource)
2016	WSP Canada Inc. First Mining Finance Corp.	NI 43-101 MRE on the Duquesne Project
2016	Micon International Ltd. First Mining Finance Corp.	NI 43-101 technical report and review of the preliminary MRE for the Pitt Gold Project
2017	Micon International Ltd. First Mining Finance Corp.	NI 43-101 technical report and review of the preliminary MRE for the Pitt Gold Project (amended report)
2022	InnovExplo Inc. First Mining Gold Corp.	NI 43-101 MRE update for the Duparquet Project

Source: InnovExplo, 2023

Table 6.2: Review of Historical Exploration Work Performed on the Beattie Claim Block

Year	Company	Work Description	Other Records	References
1910	John Beattie	First gold discovery in Duparquet Township		RASM-1932-C1
				RG 061
				Iund and al,2022
1923		Staking of the Beattie Project		
1924	Victoria Syndicate	Trenching	No significant results	Iund and al,2022
1925-1927	Consolidated Mining and Smelting Company of Canada Ltd	Optioning of claims	No significant results	GM 09901
		Exploration and prospecting of claims		RASM-1932-C1
		Trenching		Iund and al,2022
		Drilling program		
1930			Dropped option	
1930	John Beattie	Exploration	Discovery of "North" mineralized zone	GM 09926
	Ventures Limited and Nipissing Mining Company Ltd.	Drilling program	Discovery of "A" mineralized zone	RASM-1932-C1
		Sinking of shaft to 67 m		Iund and al,2022
1932	MRN	Geological survey	No significant results	RASM 1932-C1(A)
		17 DDH (#1, 6,7,12-14,18,19,21,23,24,30-32,		RASM 1932-C1

Year	Company	Work Description	Other Records	References
		35,37,39: 1,257 m)		RASM 1933-C2
1932	Beattie Gold Mines Ltd	Development starts at the Beattie mine:		RASM-1932-C1
		6-compartment shaft sunk to 442 m		RP 116
		Development of 9 levels at 46-m intervals		GM 14418
				GM 14419
				GM 14420
				GM 14421
				GM 14435
1933		Production starts at the Beattie mine:	Concentrate shipped to smelter in Tacoma, Washington	GM 15525
		Flotation process set-up		
1934-1937		Cyanidation plant installed (1935)	Initial production at 800 short tons per day	lund and al,2022
		Roaster added to improve recoveries (1937)	Maximum production of 1,900 short tons per day	
1937		Compartment winze sunk from level 5 (244 m) down to level 13 (610 m)		

Year	Company	Work Description	Other Records	References
1934	Mines Development Corporation	Geological survey	Entire Duparquet project	GM 12961
1938-1940	Beattie Gold Mines (Québec) Ltd	Drift driven from the third level of the Beattie mine across the boundary with the Donchester Project		MF 0103
				MF 0102
				GM 15525
1941		Development of drift from the Beattie shaft (6th level) to Dumico shaft on Central Duparquet Project	9 DDH Intersections ranging from 0.15 to 0.40 oz/t Au	GM 68041
			Vein identified with 792 m strike length at 0.28 oz/t Au over an average width of 2 m	Iund and al,2022
1943		Cave-in at Beattie mine: failed main crown pillars	Rehabilitation work	GM 09878-A
			Production drops	
1943-1950		Beattie mine stays open during post-war years	Production loss	
1946-1956	Consolidated Beattie Mines Limited	Company re-organization; name change (1946)	Total production of the Beattie mine:	MF 0103

Year	Company	Work Description	Other Records	References
		Production ceased (1956)	10,614,421 t with an average grade of 0.12 oz/t Au. From that total, 1,350,000 t at 0.14 oz/t Au were from the Donchester section	MF 0059
				MF 0058
				MF 0102
				GM 03069-A
				GM 03069-B
				GM 15525
				GM 68041
				Iund et al., 2022
1947	MRN	General geology report	West part of the Duparquet township (covers the entire claim block)	RP 206
1950		Geological compilation	Entire claim block	GM 00712
		Map at a scale of 1 feet = 1 Mile		
1957		Geological survey	Rouyn-Bell area	GM 20816
		Map at a scale of 1:253,440	Entire claim block	
1966	Beattie-Duquesne Mines Ltd.	3 DDH (B-1 to B-3: 316 m)		GM 22285
				GM 22286

Year	Company	Work Description	Other Records	References
1956-1987	Beattie-Duquesne Mines Ltd	Exploration program including line cutting, EM survey and drilling (259 m) to test an EM anomaly	EM anomaly found to be caused by graphite	MF 0055
		Project dormant	Old mine records destroyed by fire and affected by water damage. The latest complete records of reserves and production (stope outlines) are those on a longitudinal section dated January 1, 1954.	MF 0058
				MF 0102
				GM 22286
				GM 68041
1969	MRN	Airborne EM-MAG-radiometric survey	Entire claim block	DP 036
		INPUT survey		DP 034
		Graphite occurrences compilation		DP 040
1971		INPUT survey	Rouyn-Noranda and Amos Areas	DP 762
			Entire claim block	DP 066
1972		Till survey	Entire claim block	DP 308

Year	Company	Work Description	Other Records	References
				DP-87-22
1974	Société Minière Laurent	Geological interpretation of compiled aeromagnetic data	Identify prospective for base metals exploration Entire claim block	GM 30141
1977	MRN	Stream sediment data survey	Rouyn-Noranda area Entire claim block	DPV 502
1979		Gravimetric survey	Abitibi Lake area Entire claim block	DP 713
1980		Airborne EM-MAG survey	32D area	DP 754
			Entire claim block	DP 728
				DP-96-02
1981		Mo, U, Li, Hg, As Stream sediment survey	Entire claim block	DPV 840
1983		Compilation report	Reserve No.13 Duparquet Entire claim block	GM 40552
1984		Gravimetric survey	Entire claim block	DP-84-36
1993				MB 93-61X
1985		Airborne MAG survey 1:20,000 maps	Entire claim block	DP-85-16

Year	Company	Work Description	Other Records	References
		Compilation of mineral concentrations on the territory of Québec		DV 85-08
1986-1987		Till survey	Entire claim block	DP-87-22
				MB 85-29
1992		Geological survey	Destor and Duparquet townships	MB 92-06
			Entire claim block	
1981	Ressources Goldfields Canada Ltd.	Airborne EM-MAG (DGHEM II) survey	Duparquet Lake	GM 37761
			Entire claim block	
1985	SOQUEM	Data compilation, sampling, trenching	Porcupine project	GM 42537
			Entire claim block	
1987	Cogema Canada Limited / Cambior Inc.	Airborne EM-MAG survey (3,995 km) DIGHEM III system	Duparquet area	GM 44433
			Entire claim blockEntire claim block	
1988	Beattie Gold Mines Ltd.	12 DDH (1,939 m) targeting the “A”, South and North Zones		Bevan 2008, 2009
1989-1994		23 DDH (2,077 m) on the South Zone		GM 49320
		Stripping (shaft area)		GM 50196

Year	Company	Work Description	Other Records	References
				GM 51014
				GM 51558
				GM 52790
				Bevan 2008, 2009
1995		3 DDH (284 m) on the South Zone and at depth		GM 53848
				Bevan 2008, 2009
1996		7 DDH (626 m) on the North Zone-East Extension and 2 DDH (62.9 m) on the South Zone D-vein	5 DDH on the claim block	GM 56941
				GM 58198
				GM 58619
1997-2001		9 DDH with one extension (1,815 m) on the North Zone of the Beattie and Donchester properties	5 DDH on the claim block	Bevan 2008, 2009
2002-2003		6 DDH (839 m) on the South Zone veins A, C, D and E		GM 65858
				Bevan 2008, 2009
2004		Extension of 2 DDH drilled in 2002 and 2003 (246 m)	No significant results	GM 62195
				Bevan 2008, 2009

Year	Company	Work Description	Other Records	References
2005		1 DDH (313 m) on the South Zone		GM 65858 Bevan 2008, 2009
2006-2007		6 DDH (578 m) on the South Zone		GM 62684 GM 63385 Bevan 2008, 2009
2001	Consorem	Beattie deposit		GM 60082
2001	Geonova Exploration Inc.	Geophysical compilation	Pitt Gold Project Entire claim block	GM 59030
2008-2009	Clifton Star Resources Inc.	209 DDH (58,053 m)		GM 65858 GM 63981 GM 64799 Bevan 2008, 2009
2009	Commission Géologique du Canada	Airborne EM-MAG (MEGATEM II) and geochemistry surveys	Entire claim block	DP 2008-41 DP 2008-14

Year	Company	Work Description	Other Records	References
2010	Osisko Mining Corp. / Clifton Star Resources Inc.	JV agreement with Osisko Mining Corp.		GM 65858
		314 DDH (102,529 m) on the Donchester and Beattie properties		GM 65299
		Channel sampling (220 channels: 460 m)		
2010		Comminution testwork and preliminary cyanidation and flotation tests	Abrasion index moderate to high	Iund et al., 2022
			Maximum gold recovery of 41.6%	
2011		Helicopter-borne Mag and TDEM geophysical survey	Entire claim block	Iund et al., 2022
2011	SGS Geostat	NI 43-101 Technical Report Mineral Resource Estimation Duparquet – Beattie Property		Dupéré et al., 2011
2011	Clifton Star Resources Inc.	46 DDH (28 extension DDH) (17,565 m) on the Beattie, Donchester and Central Duparquet properties		GM 66288
	173714 Canada Inc.			
	Beattie Gold Mines Ltd	4 DDH (11-329, 11-332, 11-333 and 11-334M: 533.6 m)		GM 66207

Year	Company	Work Description	Other Records	References
2012	Clifton Star Resources Inc.	Mechanical stripping of 19 outcrops	Primary goal was to test and verify gold mineralization continuity up to the surface.	Iund et al., 2022
	Clifton Star Resources Inc.	Channel sampling (719 samples)		
2012	Clifton Star Resources Inc.	Re-sampling of 50 DDH for untested shoulders adjacent to mineralized zones (4,025 new samples)		Iund et al., 2022
2012	Clifton Star Resources Inc.	35 DDH and 8 DDH extensions (12,471 m)		Iund et al., 2022
	Clifton Star Resources Inc.	Drilling program (53 new DDH: 15,901 m and 18 extensions of older DDH) on Beattie, Donchester and Central Duparquet properties		

Year	Company	Work Description	Other Records	References
2012	Clifton Star Resources Inc.	Preliminary CAPEX and OPEX costs for the construction and operation of a mineral processing plant to process mineralized material from the Project to produce gold doré	Pre-production capital and sustaining costs for the Project estimated at $370 M and $144 M, respectively, excluding $22.6 M for closure costs. Average operating cash cost estimated at USD 726/oz Au	Iund et al., 2022
2012	Clifton Star Resources Inc.	Metallurgical study: flotation, pressure oxidation and cyanidation test work to investigate the recovery of gold from ore and tailings samples.	Bond work index of ore samples from 17.2 kWh to 20.2 kWh/t, classifying them as hard to very hard	Iund et al., 2022
	Clifton Star Resources Inc.		Preliminary gravity separation tests yielded gold recoveries from 3.7 to 14.9%, averaging 8.6%	
	Clifton Star Resources Inc.		Gold recovery for bulk sulphide concentrate by flotation greater than 90%	
	Clifton Star Resources Inc.		Overall gold recoveries from 83.5% to 93.3% for tailings samples	
2013	Clifton Star Resources Inc.	Metallurgical and environmental pilot tests on a 12 t composite drill core bulk sample from the mineralized zones	With one cleaning stage, gold recovery was 91.7% in a concentrate assaying 26.8 g/t Au and 16.1% S	Iund et al., 2022

Year	Company	Work Description	Other Records	References
	Clifton Star Resources Inc.	A pilot plant went into operation to generate a bulk sulphide flotation concentrate analyzing 15-18% S for a subsequent pressure oxidation pilot plant to recover gold	Overall gold recovery was 95.4% with one cleaning stage and 91.9% with two cleaning stages	
2013	Clifton Star Resources Inc.	41 outcrops stripped		GM 67658
	Clifton Star Resources Inc.	Channel sampling (1,001 samples)		
	Clifton Star Resources Inc.	Re-sampling of 8 of the company's DDH for untested shoulders adjacent to mineralized zones (397 new samples)		
	Clifton Star Resources Inc.	Drilling program (92 DDH: 16,773.5 m) on Beattie, Donchester and Central Duparquet properties		
2014	Clifton Star Resources Inc.	Technical report and PFS	Entire claim block	GM 68572
	Clifton Star Resources Inc.	Duparquet project		
2012	Beattie Gold Mines Ltd.	1 DDH (BD-12-01: 784.3 m)		GM 66799
2014	Beattie Gold Mines Ltd.	1 DDH (BD14-01: 213 m)		GM 68575
	Beattie Gold Mines Ltd.			

Year	Company	Work Description	Other Records	References
2015		2 DDH (BD15-01, BD16-01: 294.9 m)		GM 69180
	Beattie Gold Mines Ltd.			GM 69759
2017	Beattie Gold Mines Ltd.	1 DDH (BD17-01: 240 m)		GM 70417

Source: InnovExplo, 2023

Table 6.3: Review of Historical Exploration Work on the Donchester Claim Block

Year	Company	Work Description	Other Records	References
1910	John Beattie	First gold discovery in Duparquet Township		RASM-1932-C1
				Bevan 2009, 2011
				Iund et al., 2022
1923		Staking of the first claim		RG 061
1934	MRN	Geological survey		RASM-1932-C1
				RASM 1933-C2
1934	Mines Development Corporation	Geological survey	Entire Duparquet Block	GM 12961
1938-1940	Beattie Gold Mines (Québec) Ltd.	Drift driven from the third level of the Beattie mine across the boundary with the Donchester Project	Discovery of the Donchester showing	RG 061
				GM 15525
				MF 0102

Year	Company	Work Description	Other Records	References
				GM 68041
1941		Drilling program on Donchester Project	9 DDH intersections ranging from 0.15 to 0.40 oz/t Au	GM 15496-B
		Donchester mine purchased	Vein identified with 792 m strike length at 0.28 oz/t Au over an average width of 2 m	Bevan 2009, 2011
1943-1944		Shaft sunk on Donchester Project to 6th level		Iund et al., 2022
1943-1950		Production commenced on Donchester section	Production loss	GM 09878-A
		Beattie mine stays open during post-war years		
1945		Donchester shaft deepened to 9th level	At least 4 levels driven across to the North Zone deposit	
		(457 m)		
		Development of seven levels		
1946-1956	Consolidated Beattie Mines Limited	Company re-organization; name change (1946)	Total production of the Beattie mine: 10,614,421 t with an average grade of 0.12 oz/t Au. Of that total, 1,350,000 t at 0.14 oz/t Au were from the Donchester section	GM 03069-A
		Production ceased (1956)		GM 03069-B

Year	Company	Work Description	Other Records	References
				GM 15525
				GM 15496-B
				MF 0055
				MF 0102
				MF 0059
				GM 68041
				Bevan 2009, 2011
				Iund et al., 2022
1947	MRN	General geology report	West part of the Duparquet township	RP 206
1950		Geological compilation	Entire claim block	GM 00712
		Map at a scale of 1 ft = 1 mile		
1954		Geological survey 1944-1948	Entire claim block	RG 061
		Map at a scale of 1:12,000		
1957		Geological survey	Rouyn-Bell area	GM 20816
		Map at a scale of 1:253,440	Entire claim block	
1956-1987		The property remains dormant from 1956 to 1987		MF 0055
				MF 0058

<table>
<tr><th>Year</th><th>Company</th><th>Work Description</th><th>Other Records</th><th>References</th></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td>GM 22286</td></tr>
<tr><td>GM 68041</td></tr>
<tr><td rowspan="4">1969</td><td rowspan="7">MRN</td><td>Airborne EM-MAG-radiometric survey</td><td>Rouyn-Noranda area</td><td>DP 036</td></tr>
<tr><td>INPUT survey</td><td>Entire claim block</td><td>DP 034</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Graphite occurrences compilation</td><td></td><td>DP 040</td></tr>
<tr><td rowspan="2">1971</td><td rowspan="2">INPUT survey</td><td>Rouyn-Noranda and Amos Areas</td><td>DP 762</td></tr>
<tr><td>Entire claim block</td><td>DP 066</td></tr>
<tr><td>1972</td><td>Till survey</td><td>Entire claim block</td><td>DP 308
DP-87-22</td></tr>
<tr><td rowspan="2">1974</td><td rowspan="2">Société Minière Laurent</td><td rowspan="2">Geological interpretation of compiled aeromagnetic data</td><td>Identify prospects for base metal exploration</td><td rowspan="2">GM 30141</td></tr>
<tr><td>Entire claim block</td></tr>
<tr><td>1974</td><td>Société Minière Louvem Inc.</td><td>Ground IP+MAH surveys</td><td>Covers ¾ of the claim block</td><td>GM 30557</td></tr>
<tr><td rowspan="2">1977</td><td rowspan="3">MRN</td><td rowspan="2">Stream sediment data survey</td><td>Rouyn-Noranda area</td><td rowspan="2">DPV 502</td></tr>
<tr><td>Entire claim block</td></tr>
<tr><td>1979</td><td>Gravimetric survey</td><td>Abitibi Lake area</td><td>DP 713</td></tr>
</table>

Year	Company	Work Description	Other Records	References
			Entire claim block	
1980		Airborne EM-MAG survey	32D area	DP 754
			Entire claim block	DP 728
				DP-96-02
1981		Mo, U, Li, Hg, As stream sediment survey	Entire claim block	DPV 840
1983		Compilation report	Reserve No.13 Duparquet	GM 40552
			Entire claim block	
1984		Gravimetric survey	Entire claim block	DP-84-36
1993				MB 93-61X
1985		Airborne MAG survey 1:20,000 maps	Entire claim block	DP-85-16
		Compilation of mineral concentrations on the territory of Québec		DV 85-08
1986-1987		Till survey	Entire claim block	DP-87-22
				MB 85-29
1992		Geological survey	Destor and Duparquet townships	MB 92-06

Year	Company	Work Description	Other Records	References
			Entire claim block	
1981	Ressources Goldfields Canada Ltee.	Airborne EM-MAG (DGHEM II) survey	Duparquet Lake Entire claim block	GM 37761
1985	SOQUEM	Data compilation, sampling, trenching	Porcupine project Entire claim block	GM 42537
1987	Cogema Canada Limited / Cambior Inc.	Airborne EM-MAG survey (3, 995 km) DIGHEM III system	Duparquet area Entire claim block	GM 44433
1989	Mines D'Or Eldorado Inc.	Geological survey	South part of the claim block	GM 49071
1990	173714 Canada Inc.	Geological survey	NW part of the claim block	GM 50121
1991	Beattie Gold Mines Ltd.	Geological survey, line cutting (12.84 km)	NE part of the claim block	GM 50889
1992	173714 Canada Inc.	Ground EM-MAG surveys	West part of the claim block	GM 51549
1993	173714 Canada Inc.	Ground EM-MAG surveys	Entire claim block	GM 52230
1994		2 DDH (DON 94-01 & 02: 182.9 m)	South of the claim block	GM 52707
1995	173714 Canada Inc.	1 DDH (DON 95-01: 91.44 m)	(Donchester shaft area)	GM 53843
1996	173714 Canada Inc.	4 DDH (DON 96-1 to 4: 332 m)		GM 54532
1997	173714 Canada Inc.	2 DDH (D97-1 & 2: 224.35 m)		GM 55680

Year	Company	Work Description	Other Records	References
1998	173714 Canada Inc.	2 DDH (D98-1 & 2: 252 m)		GM 58206
2004-2005	173714 Canada Inc.	3 DDH (D04-01 & 02, D05-01: 630 m)		GM 62197
				GM 62175
2008-2009		1 DDH (D08-01, D09-01B: 1,184 m)		GM 63980
				GM 64800
2010	173714 Canada Inc.	1 DDH (DON10-68: 413 m)		GM 65298
2001	Geonova Exploration Inc.	Geophysical compilation	Pitt Gold Project	GM 59030
			Entire claim block	
2008-2009	Clifton Star Resources Inc.	99 DDH (58,053 m)		GM 65858
				Iund et al., 2022
2009	Commission Géologique du Canada	Airborne EM-MAG (MEGATEM II) Geochemical surveys	Entire claim block	DP 2008-41
				DP 2008-14
2010	Osisko Mining Corp. / Clifton Star Resources Inc.	JV agreement with Osisko Mining Corp.		GM 65858
		314 DDH (102,529 m) on the Donchester and Beattie claim blocks		Iund et al., 2022
		Channel sampling (220 channels: 460 m)		

Year	Company	Work Description	Other Records	References
2011		Helicopter-borne Mag and TDEM geophysical survey	Entire Duparquet Project covered by the survey	Iund et al., 2022
2011	Clifton Star Resources Inc.	46 DDH (17,565 m) on the Beattie, Donchester and Central Duparquet properties		GM 66288 Iund et al., 2022
2012	Clifton Star Resources Inc.	Mechanical stripping of 19 outcrops	9 outcrops on the claim block	Iund et al., 2022
		Channel sampling (719 samples)	Primary goal was to test and verify gold mineralization continuity up to the surface.	
2012	Clifton Star Resources Inc.	Drilling program (53 new DDH: 15,901 m and 18 extensions of older DDHs) on Beattie, Donchester and Central Duparquet properties		Iund et al., 2022
2013	Clifton Star Resources Inc.	Drilling program (92 DDH: 16,773.5 m) on Beattie, Donchester and Central Duparquet properties		GM 67659 Iund et al., 2022
2014	Clifton Star Resources Inc.	Technical report and PFS Duparquet project	Entire claim block	GM 68572
2007	173714 Canada Inc.	2 DDH (D07-01 & 02: 107.65 m)		GM 63392
2011	Beattie Gold Mines Ltd	3 DDH (11-146, 11-147, 11-149: 325.5 m)		GM 66205

Year	Company	Work Description	Other Records	References
2012		1 DDH (DON12-01: 881.7 m)		GM 66798
2014		1 DDH (D-14-01: 206.7 m)		GM 68576
2015	Clifton Star Resources Inc.	Technical report PFS	Duparquet Project	GM 68572
2015		1 DDH (DON15-01: 202 m)		GM 69179
2016		1 DDH (DON16-01: 207.4 m)		GM 69760
2017		1 DDH (DON17-01: 192.1 m)		GM 70404
2018		1 DDH (DON18-01: 201 m)		GM 70976
2018		1 DDH (BD18-01: 222 m)		GM 70975
2022	IAMGOLD	High-resolution heliborne magnetic survey	South limit of the claim block	GM 72660

Source: InnovExplo, 2023

Table 6.4: Review of Historical Exploration Work Performed on the Dumico and Central Duparquet Claim Blocks

Year	Company	Work Description	Other Records	References
1910	John Beattie	First gold discovery in Duparquet Township		
1925	Claims Kellar	4 DDH (#1 to 4: 342.3 m)	Kellar Group	GM 09923-B
		Geological survey	(no exact location but seems to overlap the Dumico and Central Duparquet claim blocks)	GM 09922
1928-	Duparquet Mining Co. Ltd.	Geological survey	Dumico and Central Duparquet claim blocks	GM 09911
1929				GM 09913
1931-	Dumico Gold Corp.	Central Duparquet claim block:	Central Duparquet claim block:	GM 09909
1945		52 DDH to define the mineralized zone	Sinking of exploration shaft	GM 09907
		Dumico claim block	Driving of 5 levels	MF 0077
		DDH logs and geochemical data (DDH and trenches)		
		Underground works		
1934	MRN	Geological survey	Dumico and Central Duparquet claim blocks	RASM 1933-C2
1934	Mines Development Corporation	Geological survey	Entire Duparquet Project	GM 12961
1941	Beattie Gold Mines (Québec) Ltd.	Development of drift from the Beattie shaft (6th level) to Dumico shaft on Central Duparquet Project	Dumico and Central Duparquet claim blocks	lund and al,2022

Year	Company	Work Description	Other Records	References
1943	Central Duparquet Gold Mines Ltd.	Maps of underground workings of the Central Duparquet Mine	Central Duparquet claim block	MF 0071
1946	Ottman Gold Mines Ltd. / Teck Explorations Ltd.	2 DDH (#35, #36: 644 m)	Centre of the Duparquet claim block	GM 09932
1946-	MRN	Geological survey	Dumico and Central Duparquet claim blocks	RP 206
1947				RP 193
1950		Geological survey	Dumico and Central Duparquet claim blocks	GM 00712
1954		Geological survey 1944-1948	Dumico and Central Duparquet claim blocks	RG 061
		Map at a scale of 1:12,000		
1957		Geological survey	Rouyn-Bell area	GM 20816
		Map at a scale of 1:253,440	Dumico and Central Duparquet claim blocks	
1955	Beattie Gold Mines Ltd.	Plans showing levels of underground workings	Donchester and Dumico shafts	GM 15525
			Dumico and Central Duparquet claim blocks	
1950	Canadian Malartic Gold Mines	2 DDH (V-2, V-4: 93 m)	SW of the Central Duparquet claim block	GM 00842
1957	Consolidated Beattie Mines Limited	Mining plans of Beattie, Donchester, Central Duparquet mines and some of the Hunter mines	Dumico and Central Duparquet claim blocks	MF 0055
1969	MRN	Airborne EM-MAG-radiometric survey	Dumico and Central Duparquet claim	DP 034

Year	Company	Work Description	Other Records	References
		INPUT survey	blocks	DP 036
		Graphite occurrences compilation		DP 040
1971		INPUT survey	Rouyn-Noranda and Amos Areas	DP 762
			Dumico and Central Duparquet claim blocks	DP 066
1972		Till survey	Dumico and Central Duparquet claim blocks	DP 308
1973-	Claims Bedard	Ground MAG survey	West part of the Central Duparquet claim block	GM 29049
1974				GM 29801
1974	Société Minière Laurent/ Louvem Mining Co. Inc.	Geological interpretation of compiled aeromagnetic data	Aiming to identify prospects for base metal exploration	GM 30141
			(Dumico and Central Duparquet claim blocks)	
1974	Claims Bischoff, Claims Thompson	Soil geochemistry survey	A and B horizon samples were taken over the gold zones and analyzed for Cu, Pb, Zn, Ag, As and Au	GM 30490
		Geological survey		GM 30489
			Suites of rocks also collected and analyzed for Cu, Pb, Zn, Ag, As, Sb, Hg and Au (West part of the Central Duparquet claim block)	
1974	Louvem Mining Co. Inc.	Ground IP+MAG surveys	Dumico and Central Duparquet claim	GM 30557

Year	Company	Work Description	Other Records	References
			blocks	GM 30342
		Ground IP survey	East part of the Central Duparquet claim block	GM 30187
1975		Soil geochemistry survey	Dumico and Central Duparquet claim blocks	GM 32061
				GM 31999
		Ground IP+EM+MAG surveys	SW part of the Central Duparquet claim block	GM 32063
1976		5/38 DDH (D-3 to D-6, D-22 :982 m)	Central Duparquet claim block	GM 32062
			Best result: 1400 ppb / 7.6 m (D-22)	
1977	MRN	Stream sediment data survey	Rouyn-Noranda area	DPV 502
			Dumico and Central Duparquet claim blocks	
1979		Gravimetric survey	Abitibi Lake area	DP 713
			Dumico and Central Duparquet claim blocks	
1980		Airborne EM-MAG survey	32D area	DP 754
			Dumico and Central Duparquet claim blocks	DP 728

Year	Company	Work Description	Other Records	References
				DP-96-02
1981	SOQUEM Inc.	11 DDH (906-81-14 to 906-81-24: 2,076 m)	West part of the Central Duparquet claim block	GM 38302
		13 DDH (81-1 to 81-13: 1,977 m)		GM 37199
		Ground EM-MAG-IP surveys		GM 38122
		Geological report		GM 37714
				GM 37350
1981	Ressources Goldfields Canada Ltee.	Airborne EM-MAG (DGHEM II) survey	Duparquet Lake	GM 37761
			(Entire Dumico claim block and west part of the Central Duparquet claim block)	
1981	MRN	Mo, U, Li, Hg, As Stream sediment survey	Dumico and Central Duparquet claim blocks	DPV 840
1983		Compilation report		GM 40552
		Reserve No.13 Duparquet		
1984		Gravimetric survey		DP-84-36
1993				MB 93-61X
1985		Airborne MAG survey 1:20,000 maps		DP-85-16
1986-1987		Till survey		DP-87-22
				MB 85-29
1992		Geological survey	Destor and Duparquet townships	MB 92-06

Year	Company	Work Description	Other Records	References
			Dumico and Central Duparquet claim blocks	
1987	SOQUEM Inc.	Central Duparquet claim block:	Central Duparquet claim block:	GM 46478
	Cambior Inc.	Mapping	Re-definition of Project reserves	
		Lithogeochemical survey	Various feasibility studies: open pit methods suggested	
		Geophysical survey		
		18 surface trenches		
		3 drilling programs		
1987	Cogema Canada Limited / Cambior Inc.	Airborne EM-MAG survey (3,995 km) DIGHEM III system	Duparquet area	GM 44433
			Dumico and Central Duparquet claim blocks	
1988		Technical property evaluation		GM 58879
1989	Cambior Inc.	Geological, structural and geophysical compilation	Dumico and Central Duparquet claim blocks	GM 49436
1989-1990	Forbex Mining Resources Inc.	Reserves update	Central Duparquet claim block	GM 49711
		11 DDH west of known mineralized zones		
1994-1995	Fieldex Inc.	6 DDH (CD-95-94 to CD-95-99: 1,470 m)	Centre portion of Central Duparquet claim block	GM 53555
2001	Geonova Exploration Inc. /	Geophysical compilation	Pitt Gold project	GM 59030

Year	Company	Work Description	Other Records	References
	SOQUEM		(Dumico and Central Duparquet claim blocks)	
2004	9085-3615 Québec Inc.	Pilot project for mining the Central Duparquet claim block	Central Duparquet claim block	Iund et al., 2022
2008-2009	Clifton Star Resources Inc.	19 DDH (4,818 m)	Dumico claim block	GM 64140
				GM 65358
2008-	Commission Géologique du Canada	Airborne EM-MAG (MEGATEM II)	Dumico and Central Duparquet claim blocks	DP-2008-39
2010		Geochemical surveys		DP 2008-41
		Ground gravimetric survey		DP 2008-14
				DP 2010-05
				DP 2010-09
2010-	Osisko Mining Corp. and Clifton Star Resources Inc.	Helicopter-borne Mag and TDEM geophysical survey	Dumico and Central Duparquet claim blocks	GM 65858
2011				Iund et al., 2022
		314 DDH (102,529 m)	15/314 DDH (4,586 m) on the Central Duparquet claim block	GM 65858
2011	Clifton Star Resources Inc.	11 DDH (2,606.54 m)	9/11 drilled on the west part of the Central Duparquet claim block	GM 66288
2012		15 of the 19 DDH on the Dumico Project were entirely resampled and/or downhole surveys performed	Dumico claim block	GM 68572

Year	Company	Work Description	Other Records	References
2012-2013		26 DDH (5,521 m)	Central Duparquet claim block	Iund et al., 2022
		6 DDH (817 m)		Iund et al., 2022
2012		Stripping of 19 outcrops	1 on Central Duparquet claim block	Iund et al., 2022
		Channel sampling (719 samples)		
2013		92 DDH (16,773.5 m)	Beattie, Donchester and Central Duparquet claim blocks	Iund et al., 2022
2022	IAMGOLD	High-resolution heliborne magnetic survey	Porcupine East project	GM 72660
			(center of Dumico and Central Duparquet claim blocks)	

Source: InnovExplo, 2023

Table 6.5: Review of Historical Exploration Work on the Porcupine East Claim Block

Year	Company	Work Description	Other Records	References
1934	MINES DEVELOPMENT CORPORATION	Geological survey		GM 12961
1945		Composite Geological Map	Southwestern Abitibi	GM 00318
1945		Mineral Occurrences	Abitibi Territory	GM 35597
1950	M R N	Geological Compilation	Noranda District	GM 00712
1950		Diamond Drill Log		GM 01171-B
1960	COGEMA CANADA LIMITEE	Magnetometer Survey		GM 10202
1960	AVA GOLD MINING CO LTD	4DDH		GM 10203
1974	Société Minière Laurent	Aeromagnetic Interpretation		GM 30141
1974	LOUVEM	Geophysical survey		GM 30557
1975	BONDAR-CLEGG & CO LTD,	Soil geochemestry	Duparquet project	GM 31399
1975	Louvem Mining Co.	Geochemical Report	Duparquet project	GM 32061
1981	COGEMA CANADA LIMITED	Dighem III Survey	Lake Duparquet Area	GM 37761
1981-1983	Goldfields	37 DDH, Line cutting, Mag, EM, VLF, IP, trenching		
1982	LES RESSOURCES GOLD FIELDS CANADA LTEE	Geochemistry Survey		GM 39645
1985	SOQUEM	Compilation, Sampling, Trenches	Porcupine Project	GM 42537
1985-1986	Soquem	Trenching, Mag, HEM, IP		
1986	COGEMA CANADA LIMITEE	Geological survey	Porcupine East	GM 44432

Year	Company	Work Description	Other Records	References
1986	COGEMA CANADA LIMITEE		Porcupine West	GM 45122
1986-1987	Cogema-Cambior	Airborne Mag, EM, 242 Reverse Circulation drill holes, 77 DDH		
1987	COGEMA CANADA LIMITED	Dighem III Survey	Duparquet project	GM 44433
1987	CAMBIOR INC.	Lithogeochemical survey	Porcupine West	GM 44516
1987		Magnetics & V.L.F. Electromagnetics	Wettring Claim Group	GM 45130
1987	COGEMA CANADA LIMITEE	Geological report		GM 47063
1988	COGEMA CANADA LIMITEE	Geological report		GM 48561
1988	COGEMA CANADA LIMITES	Geological report		GM 48562
1989	EXPLOREX INC	Geochemical survey	Roquemaure	GM 49346
1989	ECOLE POLYTECHNIQUE,I R E M	Geological Compilation	Porcupine West	GM 49436
1992	GESTION S.R.C. Inc.	Exploration report	Porcupine Project	GM 52668
1995-1996	Cambior	7 DDH (3,594 m)		
1997	Cambior	Compilation, 26 km of line cutting and IP, 10 DDH		
1998	Cambior	Lithogeochem, line cutting and 63.8 km of IP		
1999	GESTION ALINE LECLERC INC	Exploration report		GM 59294
1999	Cambior EXPLORATION Canada	Geological report		GM 56515
1999	Cambior EXPLORATION Canada	Geological report		GM 56323
1999	CAMBIOR Inc.	Induced Polarization (IP)	Porcupine East	GM 56514

Year	Company	Work Description	Other Records	References
2000	Cambior EXPLORATION Canada	Exploration report	Porcupine Project	GM 58080
2000	Cambior	Mineral Potential Evaluation		
2001	FRANCAUMAQUE EXPLORATIONS	Valuation Report	Marymac and Abitibi Properties	GM 61146
2002	Cambior	9 DDH (4,554.3 m)		
2003	Cambior	Compilation report		
2003	Cambior	3 DDH (124 m)		
2005	Cambior	3 DDH (1,503 m) on the Touriet, Peacock and Nemrod areas	Porcupine	GM 61871
2006	Cambior	Drilling Report		
2007	Xstrata Copper	1 DDH (1,112)		GM 63303
2012	IAMGOLD	IP Survey: 2012 (17 lines)		
2012-2013	IAMGOLD	6 DDH (3,347 m)		GM 69193
2013	EXPLOR RESOURCES INC.	Drilling Report	East Bay Project	GM 67724
2015	IAMGOLD	2013 technical report		GM 69193
2017	Explor Resources Inc	Survey Processing Report, Quadrimag and Vlf Geophysical Survey	East Bay Property	GM 70271
2021	DYNAMIC DISCOVERY GEOSCIENCE	High-Resolution Heliborne Magnetic Survey, Duparquet Property	Duparquet Property	GM 72489
2022	IAMGOLD	High resolution helicopter-borne magnetic survey	Porcupine East	GM 72660

Table 6.6: Review of Historical Exploration Work on the Pitt Gold Claim Block

Year	Company	Work Description	Other Records	References
1910	John Beattie	First gold discovery in Duparquet Township		
1925	Anglo-French Exploration Co.	Geological survey	SE part of the claim block	GM 09877
1934	MRN	Geological survey		RASM 1933-C2
1937		Mining properties Rouyn-Bell River area		RP 116
1934	Mines Development Corporation	Geological survey		GM 12961
1939	Duquesne Mining Co. Ltd. / Galatea Gold Mines Ltd.	Property report		GM 00087-A
		Geological survey		GM 09914
1939	Beattie Gold Mines	Drilling	The first showing was discovered in a drill hole	Lewis and San Martin (2017)
1944	Fleming-Thomson	Property was acquired	Center of the claim block	GM 09914
		19 DDH totalling 3,152 m (FT-7 to FT-25).		
1945	Nipissing Gold Co. Ltd.	8 DDH (ED-1 to ED 8: 1,583 m)	West part of the claim block	GM 09930-B
1945-1947	Pitt Gold Mining Ltd.	Geological survey	Centre of the claim block	GM 00087-B
		43 additional holes for 13,432 m (P-26 to P-71)	Led to the discovery of the Pitt Gold showing close to the Porcupine-Destor break	GM 09914
				GM 09928
				GM 09929-A

Year	Company	Work Description	Other Records	References
				GM 09929-B
				GM 09928
1946	MRN	Geological compilation	Entire claim block	RP 193
1950			Entire claim block	GM 00712
1952			South part of the claim block	RP 275
1954			Entire claim block	RG 061
1957		Geological compilation	Entire claim block	GM 20816
		Economic geology		GM 05953
1969		Airborne EM-MAG-radiometric survey	Entire claim block	DP 034
		INPUT survey		DP 036
		Graphite occurrences compilation		DP 040
1971		INPUT survey	Rouyn-Noranda and Amos Areas	DP 762
			Entire claim block	
1972		Till survey	Entire claim block	DP 308
1948-1974		No activity recorded for the period		
1973-	Louvem Mining	Geological interpretation of compiled aeromagnetic data	Identify prospects for base metal exploration	GM 30141
1975		Property acquisition	Entire claim block	GM 28710

Year	Company	Work Description	Other Records	References
		Geological survey	No significant result	GM 30873
		IP+MAG+EM surveys		GM 30557
		Pedogeochemical surveys		GM 30075
		3 DDH (D-18, D-36, D-37: 492 m)		GM 29782
				GM 32063
				GM 32061
				GM 31399
				GM 32062
				GM 30490
1977	MRN	Stream sediment data survey	Entire claim block	DPV 502
1979		Airborne EM-MAG survey		DP 728
				DP-96-02
1981		Mo, U, Li, Hg, As Stream sediment survey		DPV 840
1978	Cotnoir and associates	Claims staked by Cotnoir and associates	Cotnoir-Beauchemin Property	
1981-1982	Camflo Mines Ltd.	Property optioned	Cotnoir-Beauchemin Property	GM 38401
		Line cutting	Entire claim block	GM 36925
		Mapping		
		Ground IP+MAG-VLF surveys		
		3 DDH (CB-81 to CB-81-3: 832 m)		

Year	Company	Work Description	Other Records	References
1983	SOQUEM	1/17 DDH (943-83-15: 70 m)	One hole drilled in eastern part of the claim block	GM 40281
1983-1984	MRN	Gravimetric survey	Entire claim block	DP-84-36
				MB 93-61X
1985		Airborne MAG survey 1:20,000 maps		DP-85-16
		Gravimetric survey 1:250,000 map		ET 85-02
1986		Airborne EM INPUT MK VI survey		DP-86-17
1986-1987		Till survey		DP-87-22
				MB 85-29
1992		Geological survey	Destor and Duparquet townships	MB 92-06
			Entire claim block	
1987	Cogema Canada Limited / Cambior Inc.	Airborne EM-MAG survey (3, 995 km) DIGHEM III system	Duparquet area	GM 44433
			Entire claim block	GM 44431
1987-1988	Lacana Exploration	Property optioned		GM 48541
		line cutting		GM 46333
		MAG-VLF surveys		
		14 DDH (CT-88-01 to CT-88-14: 2,607 m)		
1988	Eldorado Gold Mines Inc.	Geological survey	Destor Property	GM 47644
			(SE limit of the property)	
1995-	Santa Fe Canadian	Property optioned	Centre of the claim block	GM 53986

Year	Company	Work Description	Other Records	References
1997	Mining Ltd.	9/24 DDH (16,692 m)	Preliminary mineral inventory in 1997 for the Pitt Gold Property (no technical report)	GM 54724
		13/15 DDH (8,701.65 m)		GM 54920
		4 DDH (3,009 m)		
1998-1999	Geonova	Property optioned		
2000-2004	SOQUEM	Property optioned		GM 59029
		Line cutting (25 km)		GM 58242
		IP survey		GM 59030
		Prospecting		GM 60246
		2 DDH (514 m)		
		6 DDH (1,707 m)		
		Geophysical compilation		
		4 DDH (1,047 m)		
2003-2004	Queenston Mining Inc.	4/8 DDH (3,790 m)	SE part of the claim block	GM 61537
		3/6 DDH (3,843 m)		GM 61538
2004-2005	Normabec	Data compilation of the property	Limited survey to ensure all mineralized zones being drilled were within the property boundaries	GM 63877
			Permanent bridge built over the Lanaudière River	

Year	Company	Work Description	Other Records	References
2005-2006		19 DDH (10,761 m) in the main mineralized area of the Pitt Gold Property	Centre of the claim block	GM 63877
2007		11 DDH (7,129 m)	Centre of the claim block	GM 63723; GM 64661
2008		16 DDH (10,160 m)	Centre of the claim block	GM 64661
2008-	Commission Géologique du Canada	Airborne EM-MAG (MEGATEM II) and geochemistry surveys	DP 2008-14 covers the northern part of the claim block	DP-2008-39
2010		Ground gravimetric survey	DP 2010-05, 09 & 39 covers the entire claim block	DP 2008-14
				DP 2010-05
				DP 2010-09
2009-2010	Brionor	Successor to Normabec	East part of the claim block	GM 65388
		6/7 DDH (2,655 m)		
2011		NI 43-101 Technical report and audit of the preliminary MRE		Lewis and San Martin, 2011
2012		2010-2011 Technical report	1/70 DDH totalling 22,000 m (DQ04-23: 834 m) drilled on the property	GM 66787
		(resampling, stripping, drilling)		
		Xmet announced that it had entered into a purchase agreement with Brionor to acquire 24 contiguous mineral claims which comprise the Pitt Gold Property	Xmet unable to complete the purchase and property returned to Brionor	
2016	First Mining	Entered into an agreement to purchase the Pitt Gold property from Brionor	On April 28, 2016, First Mining announced it had purchased the Pitt Gold Property from Brionor.	

Year	Company	Work Description	Other Records	References
2016		NI 43-101 technical report and review of the preliminary MRE		Lewis and San Martin, 2016
2017		NI 43-101 technical report and review of the preliminary MRE (amended report)		Lewis and San Martin, 2017

Source: InnovExplo, 2023

Table 6.7: Review of Historical Exploration Work on the Duquesne Claim Block

Year	Company	Work Description	Other Records	References
1910	John Beattie	First gold discovery in Duparquet Township		Rioux, 2011,2016
1923		Overburden removal and trenching		Rioux, 2011,2016
1925	Anglo-French Exploration Co.	Geological survey	SW part of the claim block	GM 09877
1926	Claims Fortin	Geological survey	SW part of the claim block	GM 09676
1932	Galatea Gold Mines Syndicate	Property report	West part of the claim block	GM 09916
		Trenching		GM 09912
		Prospecting		
1934	MRN	Geological survey	Entire claim block	RASM 1933-C2
1937		Mining properties Rouyn-Bell River area		RP 116
1939-1940		Geological survey	East part of the claim block	RP 129
				RG 004
1933-1934	Engineers Exploration Co. Ltd.	Inspection report	SE part of the claim block	GM 09673-B
		Stripping, trenching		GM 09673-A
1934	Del Rio Mining Co. Ltd.	Inspection report	NE part of the claim block	GM 09663
		Stripping, trenching		

Year	Company	Work Description	Other Records	References
1934	Mines Development Corporation	Geological survey		GM 12961
1935-1936	Eclipse Gold Mining Ltd.	Ground IP-MAG surveys	NE part of the claim block	GM 00704-A-B
		Geological survey		GM 09677
		Trenching		
		Magnetic surveys		
1936-1938	Big Four Mining Syndicate Limited	Geological survey	NW part of the claim block	GM 06158-B
				GM 06158-A
				GM 06158-C
1936	Duquesne Mining Co. Ltd.	Property report	Centre of the claim block	GM 00087-A
		Geological survey		GM 09914
		Drilling		GM 00088-D
1937		Level plans and sections		GM 00088-C
		Drilling		GM 00088-A
1938		Reorganization		GM 07474
1939		DDH (7,620 m)		Rioux, 2011,2016
1941		Shaft construction (152.4 m)		
1942		Underground drilling		

Year	Company	Work Description	Other Records	References
1945		Shaft at 190.5 m		
1946		Drilling U6-77 to U-082 (177.4 m)		
		Drilling U7-1 to U7-25 (1,405.13 m)		
1947		Drilling U12-1 to U12-17 (907.1 m) and		
		U8-1 to U8-25 (1,237.5 m)		
		Plans and sections form DDH for levels 250, 375, 500, 750		
1945	MRN	Geological survey		RP 189
1946				GM 09667
1950				GM 00318
1952				GM 00712
1954				RP 193
				RP275
				RG 061
				GM 20816
1957		Geological compilation		GM 05953
		Economic geology		

Year	Company	Work Description	Other Records	References
1949	Consolidated Duquesne Mining Limited / Duquesne Mining Co. Ltd	Work progress report	By 1949, the Duquesne Mine had developed a total of nine levels down to a depth of 390 m	GM 03070
				MF 0078
			Pre-production yielded 21,954 t at an average mill head grade of 9.48 g Au/t for about 6,500 oz	GM 07868
1950		Deposit description		GM 00088-B
		Geological survey		Rioux, 2011, 2016
		Underground Drilling		
1951		Activity report		
1951-1952		Merger of Consolidated Beattie with Consolidated Duquesne Mining Co.	Commercial production from 1949 to 1952 totalled about 81,929 t at an average grade of 10.46 g Au/t for more than 23,250 oz and 72 kg Ag milled	
		Mine inspection report	No production from the four lowest levels of the mine, between 229 m and 393 m	
			1949-1952: some 103,883 t averaging 10.25 g/t Au extracted down to the 228 m level	
			1951: underground development covered nine levels with spacing of 38 m each and the shaft reached a depth of about 393 m	
			Mining operations suspended in 1952	
1946	Nipissing Mines Co. Ltd.	5 DDH (N-11 to N-15:	East part of the claim block	GM 09930-A

Year	Company	Work Description	Other Records	References
		1,923 m)		
1946	Independent Mining Corp. Ltd.	Geological survey	SW part of the property	GM 06133
1948	Lepine Lake Gold Ltd.	Geological report		GM 09679
1954	Beattie-Duquesne Mines Ltd.	Geological report 61		Rioux, 2011,2016
1956		Ground EM survey	SE part of the claim block	GM 04071-A
				GM 05388
1961		1 DDH (#2: 152.4 m)	South part of the claim block	GM 13899
1963-1964		Level plans, Duquesne shaft	Centre of the claim block	GM 15773
		planned reopening		GM 16638
		2 DDH (R-91-92: 913 m)		
		7 DDH (1,142.4 m)		
1966		Surface geophysics		
1960	Elk Lake Mines Limited	1 DDH (MX-1: 182.88 m)	East limit of the claim block	GM 10199-A
		Geological survey		
1961		2/6 DDH (MX-3, MX-7: 534 m)		GM 10199-B
1961	MacDonald Mines Ltd.	3 DDH (#1 to 3: 304 m)		GM 11663
1961	Ajax Minerals Ltd.	Geological survey	SW part of the claim group	GM 11676

Year	Company	Work Description	Other Records	References
1962	Patino Mining Corp.	1 DDH (N-16:136 m)	East part of the claim block	GM 12653
1965		IP survey	North part of the property	GM 25465
		MAG survey		GM 25464
1964	Colonisation / MRN	1 DDH (EAU-1: 96.01 m)	South part of the claim block	GM 16131
		1 DDH (#1: 35.05 m)		GM 14413
1965		1DDH (#1: 105.46 m)	Centre of the claim block	GM 16926
1966	Duquesne Gold Mines Ltd.	Bought the property including		Rioux, 2011,2016
		55 mining claims and one mining concession, and carried out surface geophysical surveys		
1968	SOQUEM	Airborne radiometric survey	South part of the claim block	GM 22663
1969	MRN	Airborne EM-MAG-radiometric survey	Entire claim block	DP 034
		INPUT survey		DP 036
1969	Claims Campbell	1 DDH (#1: 35.97 m)	South part of the claim block	GM 25454
1969-1970	Carmont Mines Ltd.	Airborne MAG-radiometric survey	SE part of the claim block	GM 24949
				GM 26383
1971	MRN	INPUT survey	Entire claim block	DP 762

Year	Company	Work Description	Other Records	References
1972		Till survey	Entire claim block	DP 308
1974	Saxony Mines Limited	1 DDH (S-3: 91 m)	Southwestern part of the block	GM 30461
		Ground EM-MAG	(Destor Lake)	
		Geological survey		
1974-1975	Louvem Mining Company	Geological interpretation of compiled aeromagnetic data	North and east parts of the claim block	GM 30557
		Ground IP-MAG-EM surveys	5/27 DDH (D-28 to D-30, D-32, D-33: 773 m) drilled on north and east parts of the claim block	GM 30119
		Geological survey		GM 32063
		Pedogeochemical surveys		GM 30953
		27 DDH totalling 2,030 m		GM 30141
				GM 30490
				GM30488
				GM 30193
				GM 32062
				GM 32061
				GM 31399

Year	Company	Work Description	Other Records	References
1977	MRN	Stream sediment data survey	Entire claim block	DPV 502
1979		Airborne EM-MAG survey		DP 728
				DP-96-02
1980		1 DDH (#1: 37.19 m)		GM 38676
1981		Mo, U, Li, Hg, As Stream sediment survey		DPV 840
1981-1982		2 DDH (106.89 m)	Drilling on water south part of the claim block	GM 38678
				GM 39575
1978	Claremont Mines Limited	17 DDH (2,252 m)		Rioux, 2011,2016
1979	Claims Bischoff	1 DDH (DW-1: 23.16 m)	NE end of the claim block	GM 35565
1980	SOQUEM	Airborne MAG-EM surveys		GM 36344
		Geological survey		GM 39294
1981-1982	Ressources Gold Fields Can. Ltd./ Exploration Aiguebelle Inc	Airborne EM-MAG survey	NE and east parts claim block	GM 37762
		Ground IP surveys		GM 39973
		Geological survey		GM 38282
		Lithogeochemistry survey		GM 40482
				GM 40229
				GM 40180

Year	Company	Work Description	Other Records	References
				GM 38534
				GM 40249
				GM 40182
1983		16 DDH (A 83-1 to A 83-8, A 83-12, A 83-16 to A 83-22: 3,502 m)		GM 40928
1984		Geological survey		GM 41705
		6 DDH (A 83-3, A 83-4, A 83-23 to A 83-26: 1,368 m)		GM 41366
1985		Ground EM-MAG-IP surveys		GM 42619
		Humus survey		GM 42618
		Prospecting		GM 42617
		6 DDH (85-13 to 85-15, L85-16 to L85-18:1,268 m)		GM 42616
				GM 43375
1986		6 DDH (D 86-1 to D 86-6: 932 m)		GM 43403
		Geological survey		GM 43025
1980-1981	Bavard Resources Ltd.	Geological survey	North part of the claim block	GM 36926
		6 DDH (B-1 to B-6: 605 m)		GM 37250
1983-1984	MRN	Gravimetric survey	Entire claim block	DP-84-36

Year	Company	Work Description	Other Records	References
				MB 93-61X
1985		Airborne MAG survey 1:20,000 maps		DP-85-16
		Gravimetric survey 1:250,000 map		ET 85-02
1986		Airborne EM INPUT MK VI survey		DP-86-17
1986-1987		Till survey		DP-87-22
				MB 85-29
1986-1987	Duquesne Gold Mines Ltd.	Geological survey	North part of the claim block to outline west extensions and parallel zones north of the Duquesne Mine workings	GM 45273
		Basal till sampling surveys		GM 43913
		Ground VLF-EM-MAG survey		GM 43912
		20 DDH (3,048 m)		GM 43842
				GM 45275
				GM 47523
				GM 45274
				MF 0079
1987	Ressources Pionnier Ltee.	2 DDH (PD 87-7, PD 87-12: 355 m)	NW part of the claim block	GM 47272
		IP survey		GM 47271

Year	Company	Work Description	Other Records	References
1987-1988	Mines D'Or Eldorado Inc.	Ground MAG survey	SW part of the property	GM 46077
		Geological survey	(Destor Lake area)	GM 47644
				GM 46915
1987	Cogema Canada Limited / Cambior Inc.	Airborne EM-MAG survey (3,995 km) DIGHEM III system	Duparquet area	GM 44433
			(West part of the claim block)	GM 44431
1987	Cambior Inc.	5 DDH (L 87-46 to L 87-50: 1,026 m)	East part of the claim block	GM 46977
1990		1 DDH (90-134: 100 m)		GM 50255
1987-1988	Radisson Mining Resources Inc.	Surface and UG exploration program	UG workings: total of 1,540 m of crosscuts opened with 490 m of sub-levels and 630 m of raises in 15 stopes. The work was undertaken to support the extraction and processing of a bulk sample.	GM 47523
		Shaft dewatering and rehabilitation		GM 47396
		Resource calculations		MF 0079
		Geological mapping and sampling		GM 50978
		IP survey		Rioux, 2011,2016
		59 DDH totalling 55,869 m		
		21 surface drill holes totalling 10,907 m		
1990		Ground IP-MAG surveys	North part of the claim block	GM 49831

Year	Company	Work Description	Other Records	References
				GM 49830
1990-1991			Processed 93,156 t of material averaging 9.40 g/t Au (totalling 26,600 oz Au) at Aurizon Mines Inc. (Giant Mill) and Deak Resources, Virginiatown (Kerr-Addison Mill), where 91.0% and 96.0% gold recoveries were obtained respectively	Rioux, 2011, 2016
			Mining operations ceased on May 10, 1991.	
1992		5 DDH (LPN-92-01-02-02A to 22C: 2,620 m)	Centre of the claim block	GM 52120
		1 DDH (92-140: 976.27 m)		GM 51773
1993		3 DDH (LP-93-03 to L-93-05: 828 m)	East part of the claim block	GM 52159
1991	MRN	Geological survey	Mine Duquesne	MB 91-06
			Centre of the claim block	
1992		Geological survey	North part of the claim block	MB 92-06
1990-1991	Noranda Exploration	13 DDH (DQ90-1 to 6 and D91-7 to 13: 3,244 m)		Rioux, 2011, 2016
	Company Limited (Hemlo Gold Mines Inc)			
1992		4 DDH s (DUM 92-137 to 92-140: 2,172 m)	Below Zone 74 and west extension of Vein 20	
			Hole drilled into the west extension of Vein 20 intersected 76.6 g/t over 1.50 m	

Year	Company	Work Description	Other Records	References
1993		7 DDH (93-01 to 93-07: 2,631 m)		
1994	Explorations Noranda Ltee	20 DDH (DUM94-08 to 94-28: 7,173 m)		GM 53052
	Hemlo Gold Mines Inc.			GM 53116
1995	Hemlo Gold Mines Inc.	3 DDH (DM-95-20 to DM-95-22: 1,771 m)	To test areas of the west end of the	GM 53561
	Hemlo Gold Mines Inc.		property, which has provided the most encouraging mineralized alteration zones outside of the original area of underground workings	
1995-1996	Santa Fe Mining Ltd. / Radisson Mining Resources	16 DDH (7,906 m)		Rioux, 2011, 2016
		23 DDH (9,982 m)		GM 54562
		12 DDH (3854 m)		
2000-2002	Duquesne Gold Mines Ltd.	3 DDH (435 m)		Rioux, 2011, 2016
2001	SOQUEM	Geophysical compilation	Entire claim block	GM 59030
2002	Kinross Gold Corp.	14 DDH (5,302 m)		Rioux, 2011,2016
2003	Clifton Star Resources Inc.	1 DDH (177 m).	West extension of the Duquesne Mine Main Zone	Rioux (2011, 2016)

Year	Company	Work Description	Other Records	References
2004	Clifton Star Resources Inc.	2 DDH (366 m).	West extension of the Duquesne Mine Main Zone	Rioux (2011, 2016)
2003	Queenston Mining Inc.	20 DDH	West part of the claim block	GM 61538
2004-2006		1/6 DDH (DQ04-25: 672 m)	Vein 20 and Vein 10 intersected (some 600 m west of the Duquesne shaft) values averaging 1.40 g/t Au over a width of 15.0 m. This area and the west extensions have been considered since 2004 as future targets for exploration.	
2007	Clifton Star Resources Inc.	21 DDH (3,368 m).	West extension of the Duquesne Mine Main Zone and Nipissing Zone, targets are near surface	Rioux (2011, 2016)
2008	Radisson Mining Resources Inc.	3 DDH (DQ08-21 to DQ08-22: 1,809 m)	East part of the claim block	GM 64413
2008-	Commission Géologique du Canada	Airborne EM-MAG (MEGATEM II) and geochemistry surveys	DP 2008-14 covers the north part of the claim block	DP-2008-39
2010		Ground gravimetric survey	DP 2010-05, 09 and 39 cover the entire claim block	DP 2008-14
				DP 2010-05
				DP 2010-09
2008	Clifton Star Resources Inc.	38 DDH (20,034 m)	West extension of the Duquesne Mine Main Zone	Rioux (2011, 2016)
2009	Clifton Star Resources Inc.	14 DDH (6,619 m)	The Nipissing Zone (Main Vein West) and west of the mine main shaft, target was located 500 m below the surface.	Rioux (2011, 2016) GM 64793

Year	Company	Work Description	Other Records	References
2010	Clifton Star Resources Inc.	70 DDH (20,614 m)	The Nipissing Zone (Main Vein West) and east extension of the Duquesne Mine Main Zone Nipissing Zone: drill spacing 50 m X 50 m over 800 m a strike length East extension: drill spacing 50-100 m X 50 m over 1200 m a strike length These drill holes covered the surface to a vertical depth of approximately 700 m.	Rioux (2011, 2016) GM 64413, GM 65537
2011	Clifton Star Resources Inc.	Mineral Resource Estimate		Rioux, 2011
2000-2006	Duquesne Gold Mines Ltd. / Clifton Star Resources	Drilling	Centre of the claim block	GM 58614
2007-2010		Line cutting, sampling, trenching	NW part and centre of the claim block	GM 62194
2011		Helicopter-Borne Tdem And Magnetic Survey, Data Acquisition Report, Duparquet Gold Project		GM 66879
2011		Hole-To-Hole 3d Ip Survey, Duquesne-Ottoman Project		GM 66865
2012		IP surveys		GM 62172
2012		IP Surveys		GM 66797
2013		IP Surveys		GM 68030
2014		Surface sampling program		GM 62686

Year	Company	Work Description	Other Records	References
2015		IP Surveys		GM 69156
2016		IP Surveys		GM 69713
2016		Geological survey		GM 63390
2016		Mineral Resource Estimate		Rioux, 2016
2017				GM 63389
				GM 63388
				GM 63979
				GM 65403
				GM 63397
				GM 63961
				GM 64797
				GM 64793
				GM 64783
				GM 65403
				GM 66797
				GM 68030
				GM 69156
				GM 69713
				GM 70635

Year	Company	Work Description	Other Records	References
				GM 63971
				GM 65539
				GM 68570

Source: InnovExplo, 2023

7 GEOLOGICAL SETTING AND MINERALIZATION

The information presented in this section is based on Iund et al. (2022), Rioux (2016), Lewis and San Martin (2017), Bugnon and Landon (2015) and Martin (2017). Other references are duly indicated where applicable.

7.1 Regional Geology

The Project is located in the southern portion of the Archean volcanic belt in the Abitibi region of the Superior Province. The Archean Superior Province (Figure 7.1) forms the core of the North American continent and is surrounded by provinces of Paleoproterozoic age to the west, north and east and the Grenville Province of Mesoproterozoic age to the southeast.

The Abitibi Subprovince is divided into the Southern and Northern Volcanic Zones (“SVZ” and “NVZ”, respectively; Chown et al., 1992) representing a collage of two arcs delineated by the Destor-Porcupine Fault Zone (“DPFZ”) (Mueller et al., 1996). The SVZ is separated from the Pontiac Terrane sedimentary rocks, an accretionary prism to the south (Calvert and Ludden, 1999), by the Cadillac-Larder Lake Fault Zone (CLLFZ).

Most of the rocks in the Southern Abitibi Greenstone Belt are Archean, with ages ranging from 2,730 to 2,670 Ma. The overall geometry of the Southern Abitibi comprises east-west trending lithological sequences primarily of volcanic origin that vary in composition from ultramafic (komatiites) through to felsic rocks (Figure 7.1).

The volcanic sequences have been intruded by mafic to felsic batholiths, mostly dated between 2,707 and 2,696 Ma.

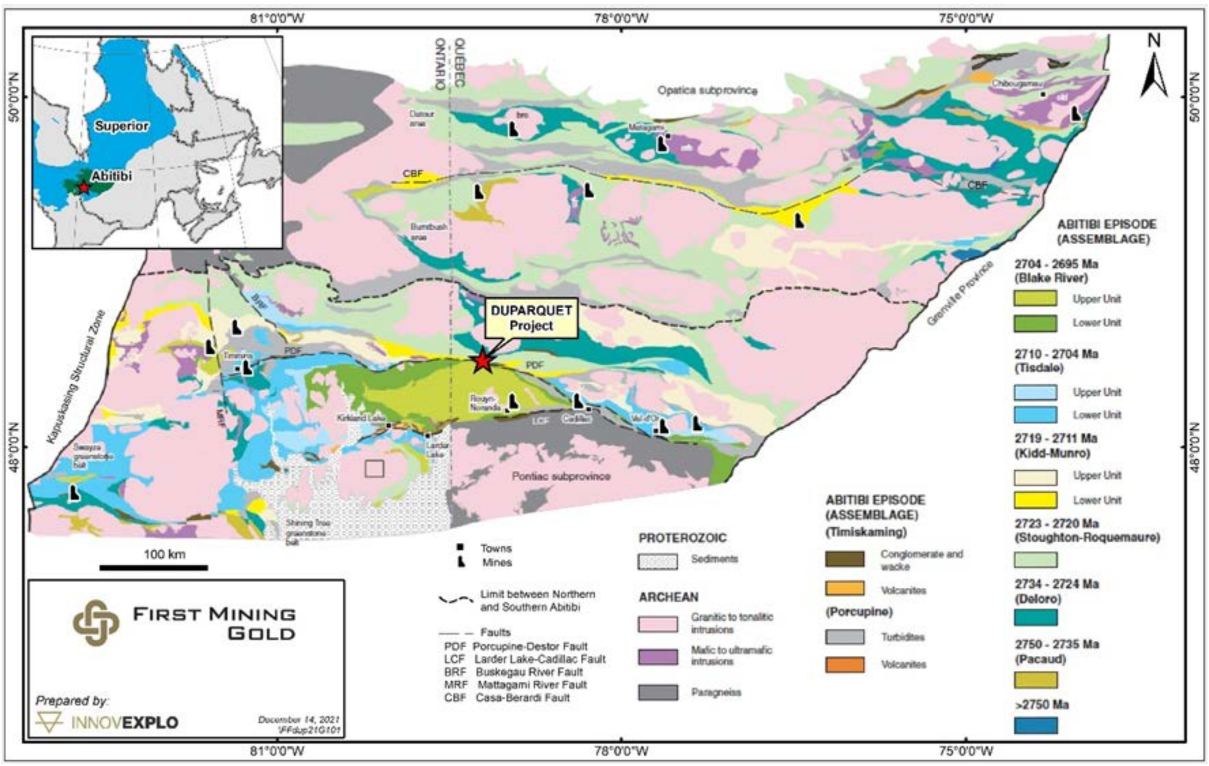
Deformation zones such as the DPFZ are terrane lineaments that display the change from thrusting to transcurrent motion as documented in the turbiditic flysch basins unconformably overlain by, or in structural contact, with coarse clastic deposits in strike-slip basins (Mueller et al., 1991, 1994, 1996; Daigneault et al., 2002).These sequences are spatially related to less frequently developed, younger coarse clastic rocks of the Timiskaming Group and its equivalents, generally thought to be 2,677 ± 2 Ma (Corfu, 1993).

Minor felsic intrusions and their extrusive equivalents occur in a variety of settings, including the Porcupine area (2,690 Ma), the Kirkland Lake area (2,677 ± 2 Ma) and the Duparquet area (2,689 to 2682 Ma) (Armstrong et al., 2010).

The metamorphic grade in the Abitibi Subprovince displays greenschist to sub-greenschist facies (Joly, 1978; Powell et al., 1993; Dimroth et al., 1983b; Benn et al., 1994) except around plutons where amphibolite grade facies prevails (Joly, 1978).

The DPFZ extends 200 km from west to east from Ontario to Québec. The deformation zone is well known for having a significant gold endowment, and several mines and projects (active or historic) can be found along the structure.

Figure 7.1: Geological Map of the Superior Province



Source: InnovExplo, 2021

7.2 Local Geological Setting

The local geology in the Property area (Figure 7.2) is characterized by ENE-WSW and WNW-ESE stratigraphy, that dips steeply (80°- 85°) toward the south. The predominant structures are the SE-trending regional DPFZ and its E-W-trending fault splays. On the claim blocks, these splays include the Duquesne, Lac Lepine, Central Duparquet, Donchester and Beattie fault zones (Figure 7.2). Several subsidiary faults with NE-SW to E-W orientations are closely related to these structures.

The local stratigraphy is predominantly represented by the Kinojevis, Blake River, Kewagama, and Timiskaming groups (Figure 7.2).

The Kinojevis Group, the oldest rock group forming the base of the stratigraphy in this area, lies north of the DPFZ and is subdivided into two units, the Deguisier Formation, composed of massive to pillowed tholeiitic basalt associated with some amounts of andesite, felsic pyroclastic rocks and gabbro; and the Lanaudière Formation, consisting of basalts, andesites, rhyolites, komatiites and multiple mafic to ultramafic intrusions (Goutier and Lacroix, 1992).

The Hébécourt and Reneault-Dufresnoy formations form the Blake River Group, located south of the DPFZ.This group is characterized by a volcanic sequence which varies from 4 to 7 km in thickness and belongs to the Southern Volcanic Zone (SVZ). The Hébécourt Formation is formed generally by tholeiitic basalts, characterized by varioles and glomeroporphyritic textures. The Reneault-Dufresnoy Formation is composed of andesites and intermediate pyroclastic rocks and lies in stratigraphic continuity on the Hébécourt Formation. The mafic volcanic rocks and the several felsic volcanic centres of the Blake River Group are interpreted to be part of a mega-caldera complex representing a multi-stage collapsing structure occupying most of the present Blake River Group surface area (Pearson and Daigneault, 2009). The arguments supporting a mega-caldera complex include (i) the mafic-intermediate swarm pattern, (ii) the overall geometry, (iii) the fault pattern, (iv) the distribution of volcaniclastic rocks, and (v) the distribution pattern of carbonate-rich hydrothermal alteration (Pearson and Daigneault, 2009).

The two sedimentary groups in this area, the Kewagama and Timiskaming groups, are younger than the volcanic groups. Sedimentary rocks of the Mont-Brun and Caste formations originated from turbidites deposited in deep basins and formed the Kewagama Group (Mortensen, 1993; Davis, 2002).

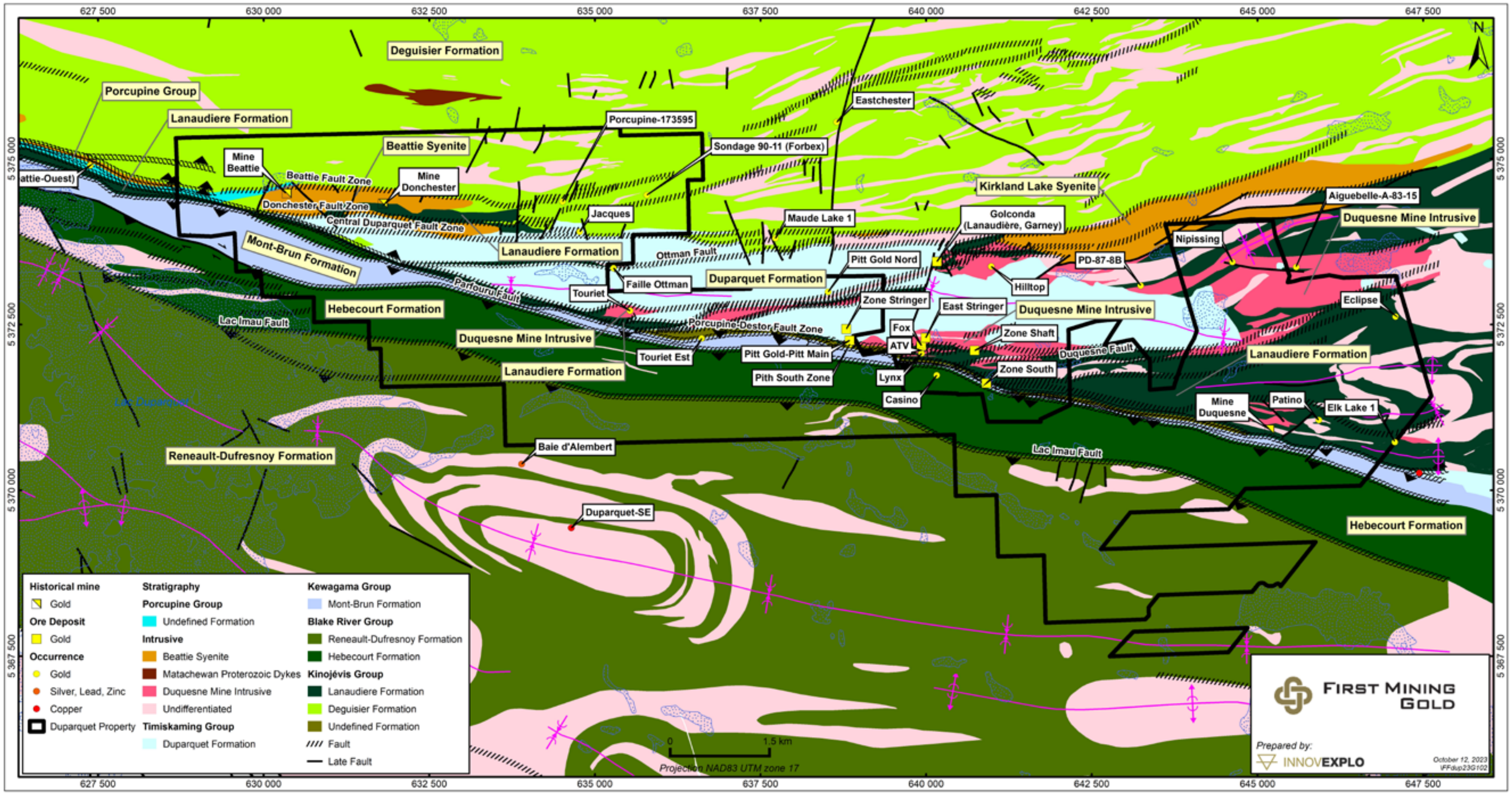
The Duparquet Formation of the Timiskaming Group is the youngest Archean unit of the region. It is composed of polymictic coarse-grained, poorly sorted sedimentary rocks deposited in alluvial and fluvial environments. In several locations, the Timiskaming Group lies with angular unconformity against deformed volcanics or alkaline and calc-alkaline porphyritic intrusions (Mueller et al., 1996).

Numerous ultramafic to felsic and alkaline intrusions crosscut the rocks of the area. Several mafic and ultramafic intrusions are interpreted as synvolcanic sills. Quartz-feldspar porphyries are seen throughout the Duparquet camp and are characterized by the presence of feldspar and quartz phenocrysts and a weak to intense iron-carbonate and sericite alteration. These intrusions are of diorite to granodiorite composition and of calc-alkaline affinity. The Beattie syenite represents a rare alkaline intrusion found on the Québec side of this gold-bearing belt.

The level of erosion appears to be to a lesser extent than what is deemed typical regionally across the Abitibi Belt. This may have contributed to the preservation of the calc-alkaline and alkaline porphyry intrusive rocks, and Timiskaming Group conglomerates. Two generations of folds are observed locally in this area of which the first is associated with the Lanaudière Formation and the second with the Duparquet Formation. Multiple E-W faults are present in the area and crosscut most lithologies. These faults are not necessarily subsidiary structures of the DPFZ as they are oriented ESE-WNW. The DPFZ is associated with intense ENE-WSW to E-W schistosity and E-W faults but appears to be locally variable.

All the rocks of the area have been subjected to sub-greenschist or greenschist facies metamorphism.

Figure 7.2: Local Geological Setting of the Duparquet Property



Source: InnovExplo, 2023

7.3 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

The geology within the claim blocks is representative of the syenitic plutons and the Kinojevis, Duparquet, and Mont-Brun formations (Figure 7.4). Two syenitic plutons oriented E-W are also present on the blocks. These intrusions are bounded by E-W major faults interpreted as splays of the main SE-trending DPFZ. The geological formations generally strike E-W and dip steeply (80°-85°) toward the north. The metamorphic grade is low (greenschist facies), and local alteration is represented by chloritization, silicification and sericitization. Most of the known mineralization appears to be related to late intrusions of syenite and feldspar porphyry in the Keewatin mafic flows and tuffs along zones of weakness adjacent to or coincident with the E-W major faults.

7.3.1 Stratigraphy

The property geology is comprised of intercalated felsic (rhyolitic to dacitic) and mafic (basaltic to andesitic) metavolcanic flows, with the felsic flows being older. Metasedimentary layers are also present, consisting of arkosic sandstones, greywackes, argillites, crystal tuffs, and conglomerates; these layers are generally more prevalent on the south side of the DPFZ. All the units have been intruded by the syenite porphyry units, which appear to be concordant with the location of the major fault zones. Quartz-feldspar and lath porphyries intruded along minor faults affecting the syenite intrusions.

7.3.2 Structural Geology

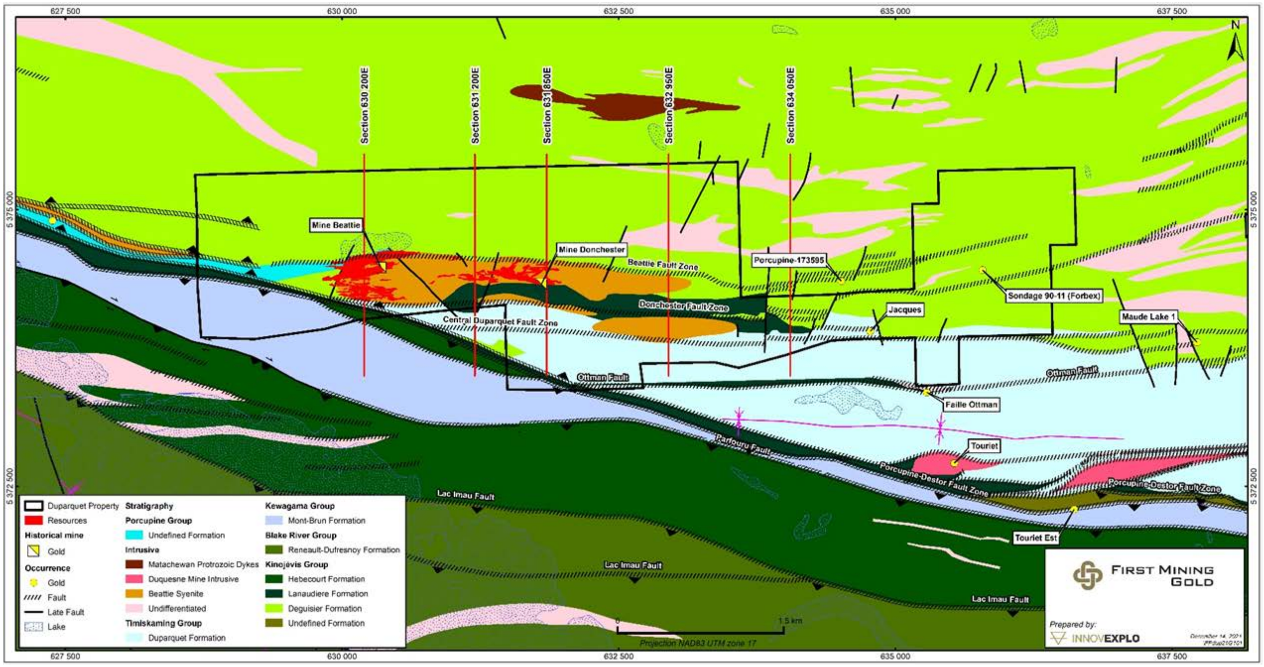
The Beattie Fault Zone (BF) is located along the north contact of the main syenite body, whereas the Donchester Fault Zone (D") trends along the south contact. The Central Duparquet Fault Zone (CDF) follows the south contact of the second smaller syenite intrusive to the east. The syenite porphyry generally plunges to the east.

The BF and DF dip steeply to the south and north, respectively, suggesting that the contacts of the syenite porphyry converge at depth within the central portion of the complex. The CDF is subparallel to the DF. Strike-slip offset along these major structures is not significant. Neither the downdip component of movement nor the slip vector could be determined.

Late cross-cutting faults interpreted in plan view (Figure 7.4) likely had some impact on displacing the gold-bearing zones, but the authors were unable to verify their existence while modelling the mineralization. Any displacement along crosscutting faults is assumed to be minimal and without significant consequences at the scale of InnovExplo's interpretation (Iund et al., 2022). The small amount of horizontal displacement visible on the drift maps and mine-level drilling plans supports this.

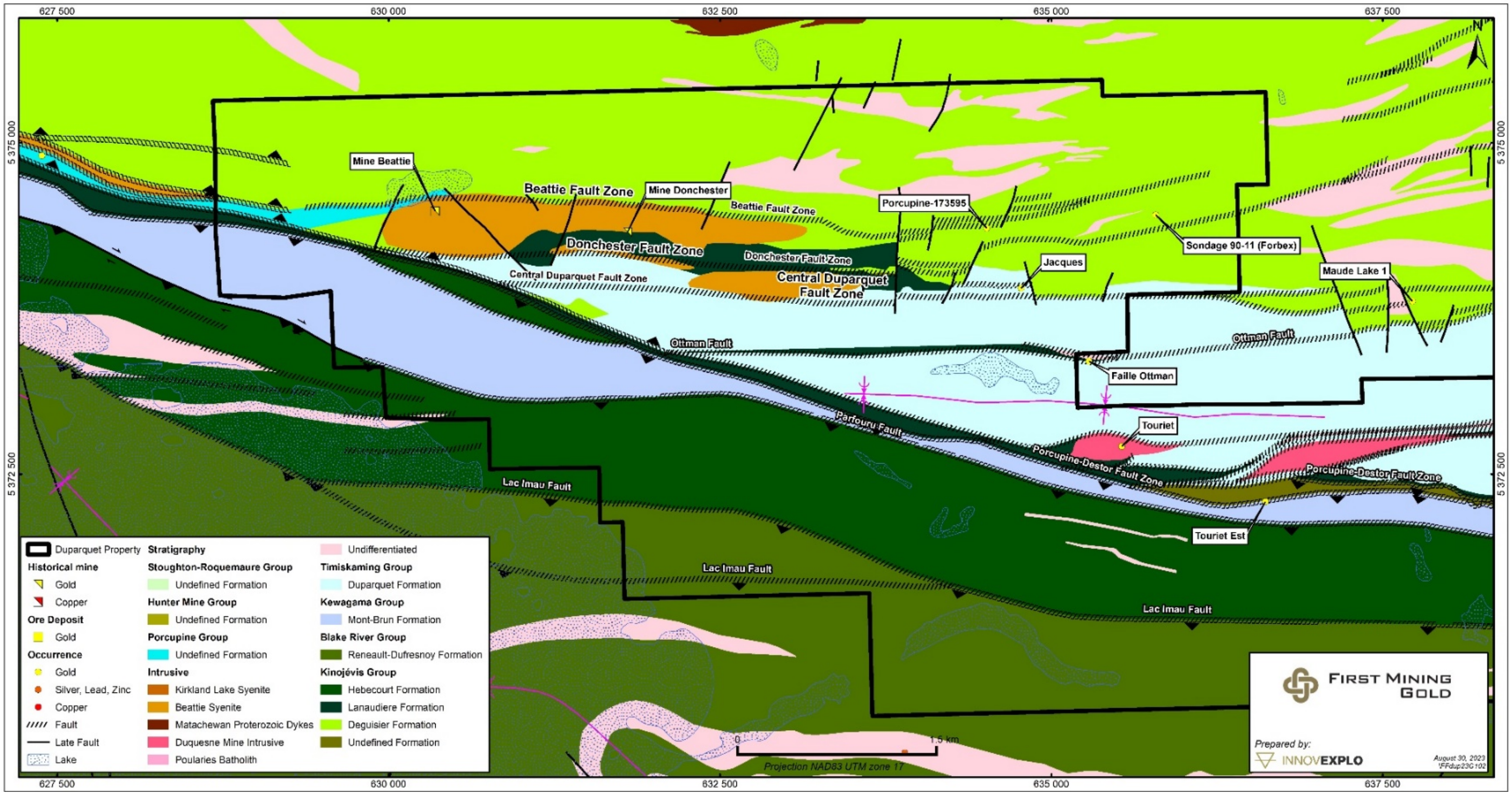
Structural and geometric details are represented by surface projections of the relevant structural elements from the deposit-scale 3D litho-structural model (Figure 7.3).

Figure 7.3: Geology of the Duparquet Project



Note: Structural and geometric details are represented by surface projections of the relevant structural elements from the deposit-scale 3D litho-structural model

Figure 7.4: Geology of the Beattie, Donchester, Dumico and Central Duparquet Claim Blocks



Source: InnovExplo, 2023

7.3.3 Alteration

Gold-bearing quartz veins within the DPFZ have historically been associated with sericite-carbonate-ankerite-chlorite alteration haloes and late-stage quartz-carbonate veins with ankerite haloes. On these claim blocks, it is associated with carbonate, chlorite, fuchsite, and sericite alteration as a product of hydrothermal fluid injection within sheared and brecciated sections of the syenite porphyries. Silicification and chert-calcite-rich accumulations along fractures have been observed within the mineralized zones, accompanied by pyrite-arsenopyrite host rock replacement. The chert is dark grey due to its potassium-rich composition and the hematite and tourmaline content of the hydrothermal fluids.

7.3.4 Mineralization

Gold-bearing mineralization on these claim blocks includes the former Beattie and Donchester mines.

At the historical Beattie mine, gold has been associated with silicified and brecciated zones containing a low percentage of very fine-grained pyrite and arsenopyrite (Goutier and Lacroix, 1992). According to Bevan (2011), the main type of gold mineralization generally occurs within shears or brecciated zones along or within the adjacent syenitic intrusions and is associated with finely disseminated pyrite and minor arsenopyrite replacement. Sulphide content is generally low (0.5 to 4%), although it can sometimes reach 10%. Higher gold grades appear to be related to the finer-grained sulphides (Bevan, 2011). Historically, gold production at the Beattie mine was accompanied by the extraction of arsenic trioxide and silver as by-products. The breccia type of mineralized material is found within the metavolcanic rocks (volcanics and tuffs) and is represented as well-mineralized, siliceous, brecciated, grey-coloured, and bleached units. The porphyry-style of mineralization is represented as fine-grained, strongly silicified mineralized zones hosted in porphyry intrusives. These units generally have lower gold grades than other styles of mineralization within the deposit (Bevan, 2011).

The typical mineral assemblage in mineralized zones of all types is characterized by feldspar, quartz, sulphides (pyrite and arsenopyrite), sericite, chlorite, and other secondary minerals. Mill tests suggest that 35% of the gold occurs as free gold and the remainder is known to be associated with sulphides. According to Bevan (2011), three phases of gold enrichment or remobilization can be interpreted from the cross-cutting relationships between gold-bearing veins. Bevan (2011) also states that higher gold concentrations are found along cross-cutting faults, in fold noses, and within the lath-textured porphyry dyke intrusions and are representative of remobilization processes.

At the past producing Beattie mine, the main mineralized lenses are hosted along the contacts of the shear zones (BF and DF) and the syenite intrusion (Figure 7.5). In this report, the main zone is referred to as the North Zone, and it is the northernmost contact of the syenite intrusion, and a second gold-bearing lens, the South Zone, occurs at the southern contact of the syenite intrusion.

Gold mineralization at the Donchester mine was of higher grade and associated with an E-W shear zone cutting across volcanic units and syenitic dykes (Goutier and Lacroix, 1992). This zone is interpreted herein as the east extension of the South Zone. At both the Beattie and Donchester mines, the South Zone can be subdivided into several mineralized lenses, modelled as ten individual subzones. Six other major mineralized zones within the Beattie-Donchester area have been interpreted by Iund et al. 2022.

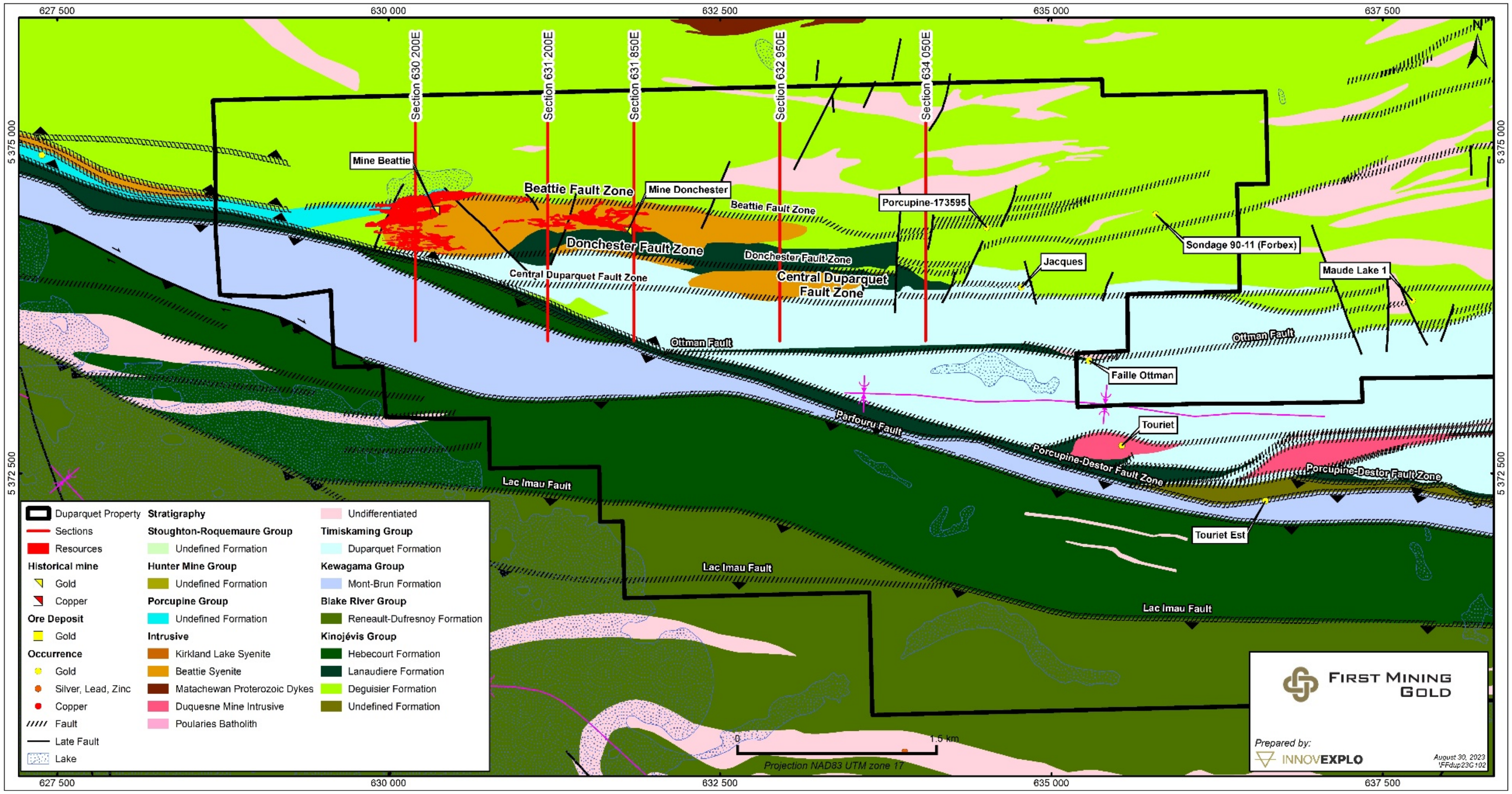
Mineralization at Central Duparquet is hosted within the CDF and is of a similar nature as the South and North zones (Bevan, 2011). InnovExplo interpreted three mineralized zones at Central Duparquet.

Dumico is the eastern extension of Central Duparquet. According to Iund et al., 2022, five mineralized zones were interpreted at Dumico. Three of these strike E-W and are interpreted as extensions of the Central Duparquet CD Zones. The other two zones, which strike NW-SE, occur on the eastern portion of Dumico. Based on the current interpretation, they are thought to be associated with a secondary structure subparallel to the regional DPFZ.

Thirty-four secondary mineralized zones have been interpreted. The interpretation of these secondary mineralized zones, most of which strike SW-NE, is based on field observations and grade continuity throughout the sample point dataset. These zones are interpreted to be hosted by subsidiary structures associated with the BF and DPFZ.

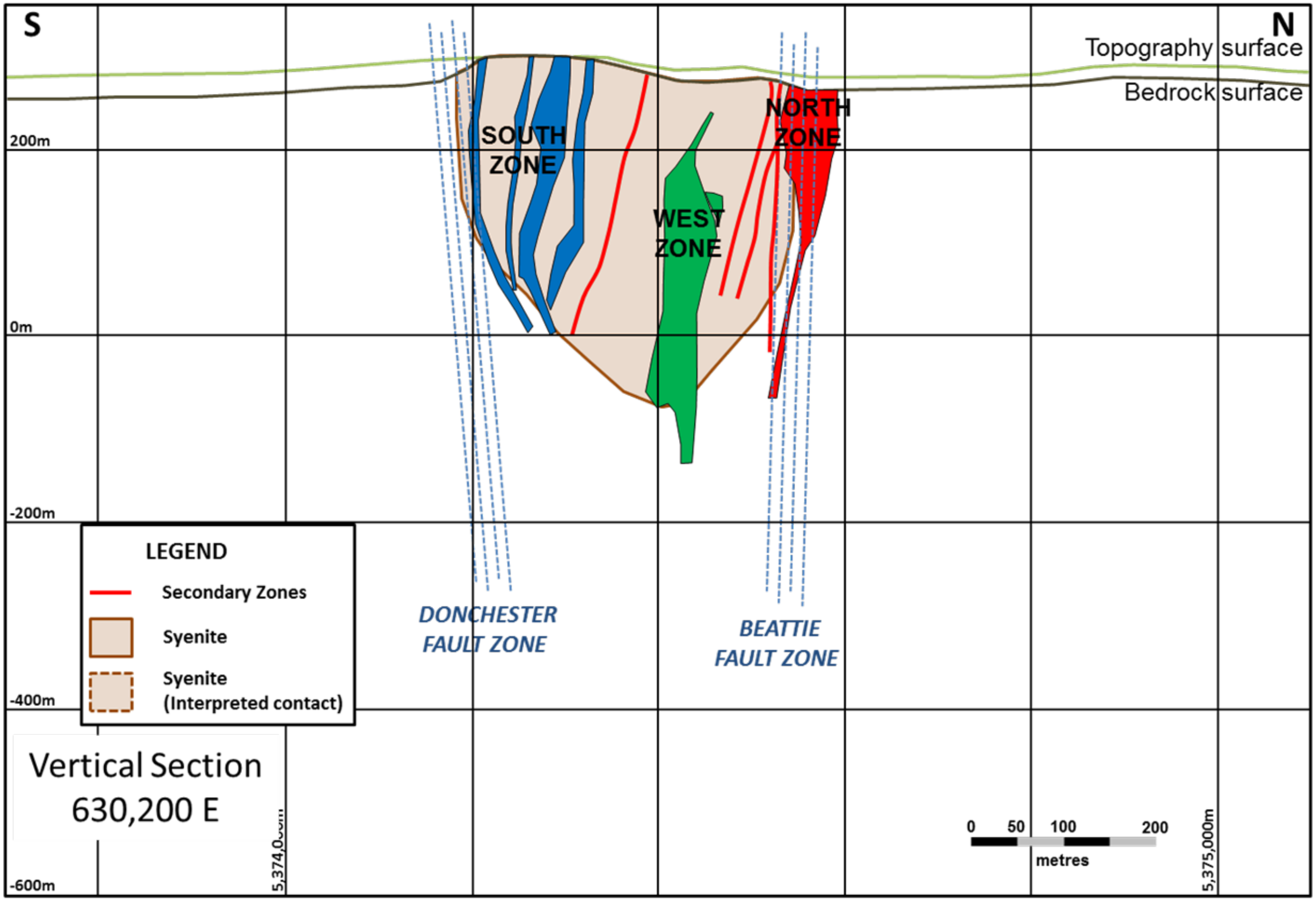
The geometry, size, and structural context of all the mineralized zones discussed above are shown in Figure 7.6 to Figure 7.10 as a plan view and select line sections through the deposit. The modelled interpretation demonstrates continuity in mineralization over a 4.5 km strike-length corridor that measures 1 km wide and extends currently to about 1 km below surface. This mineralized corridor contains a relatively complex system of E-W and SW-NE striking structures hosting mineralization that is mainly confined between the BF and DF (Iund et al., 2022).

Figure 7.5: 3D Litho-structural Model and Location of Section View



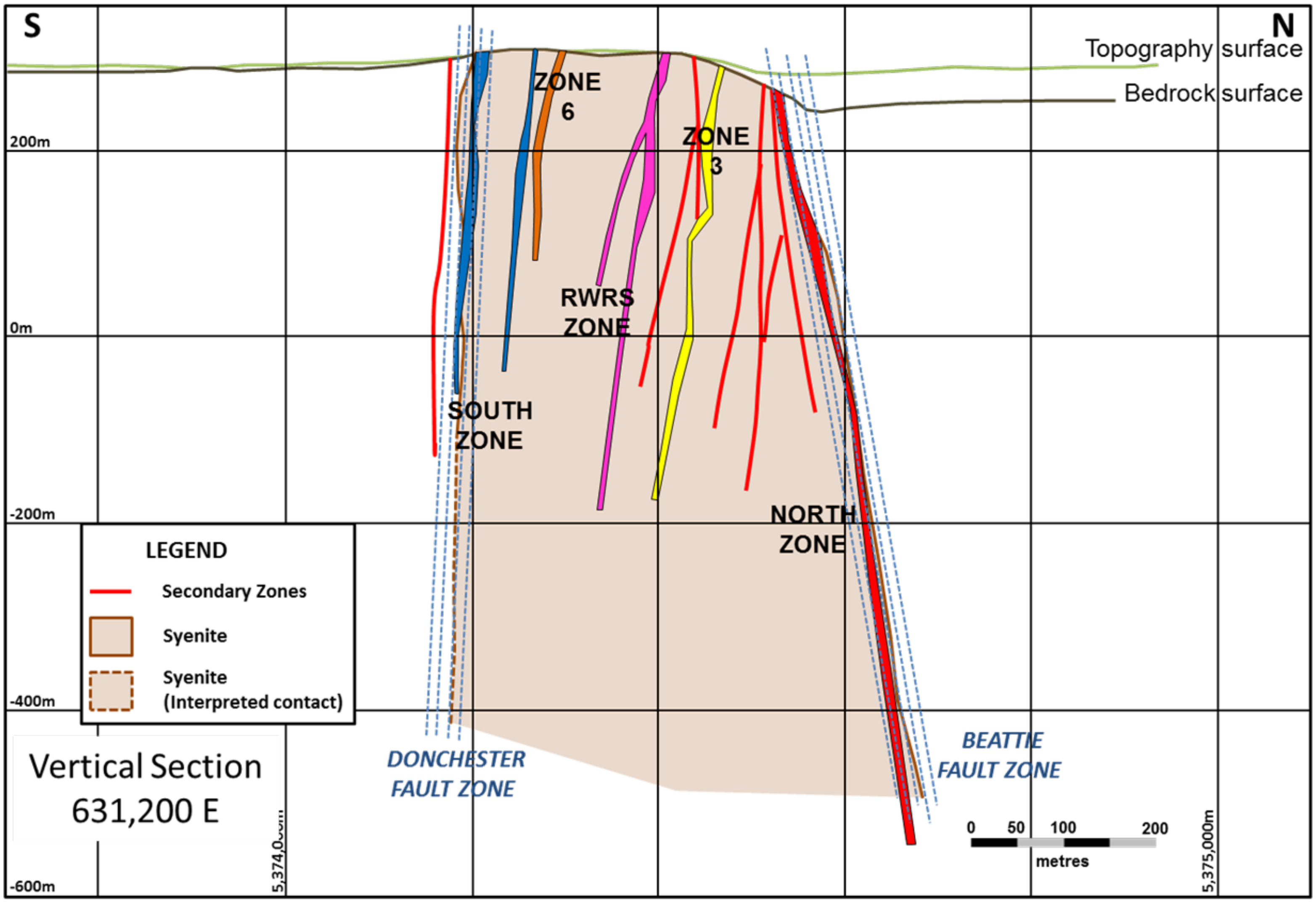
Source: InnovExplo, 2023

Figure 7.6: 3D Litho-structural Model. Vertical Section 630,200E, Looking West



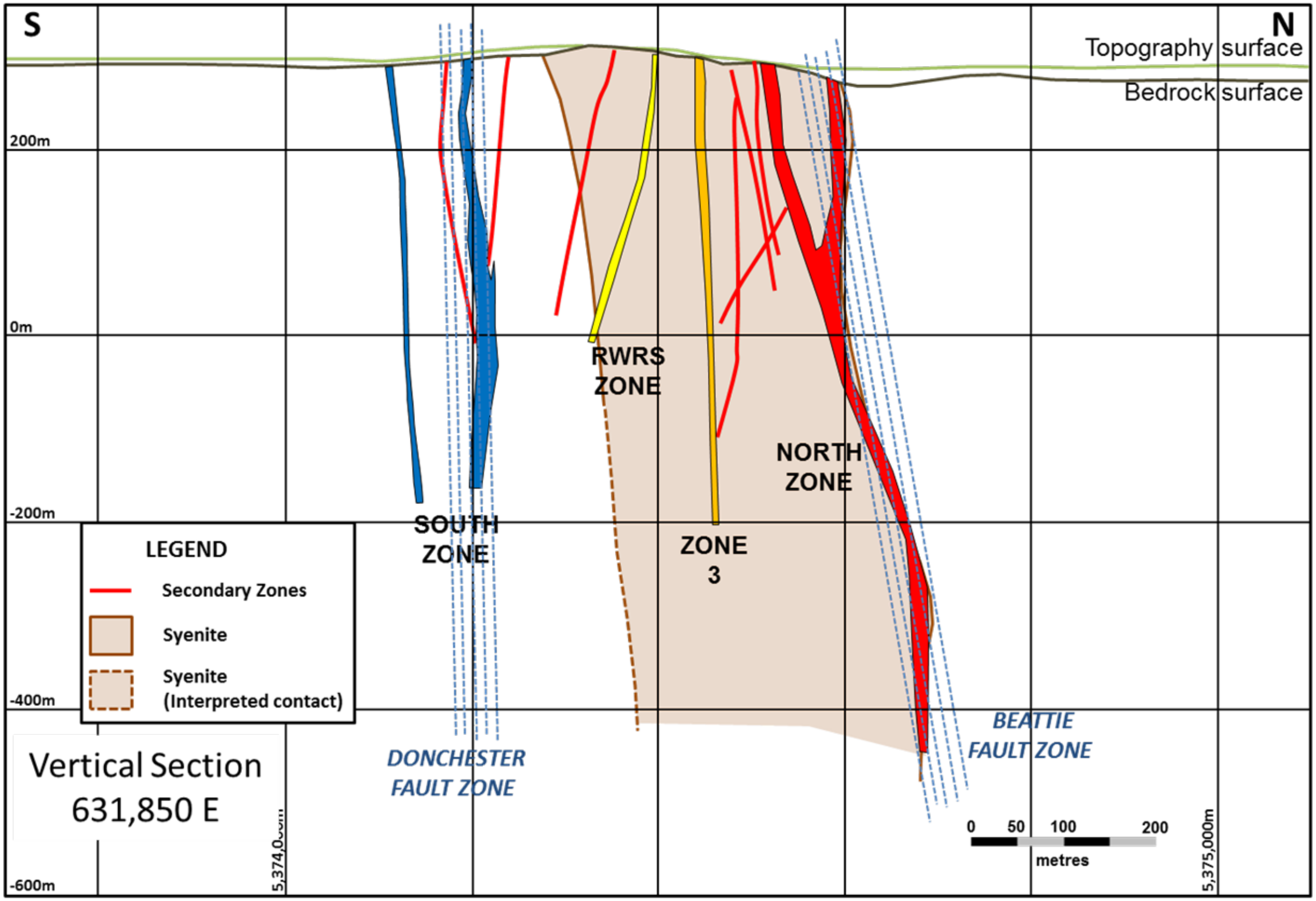
Source: InnovExplo, 2023

Figure 7.7: 3D Litho-structural Model. Vertical Section 631,200E, Looking West



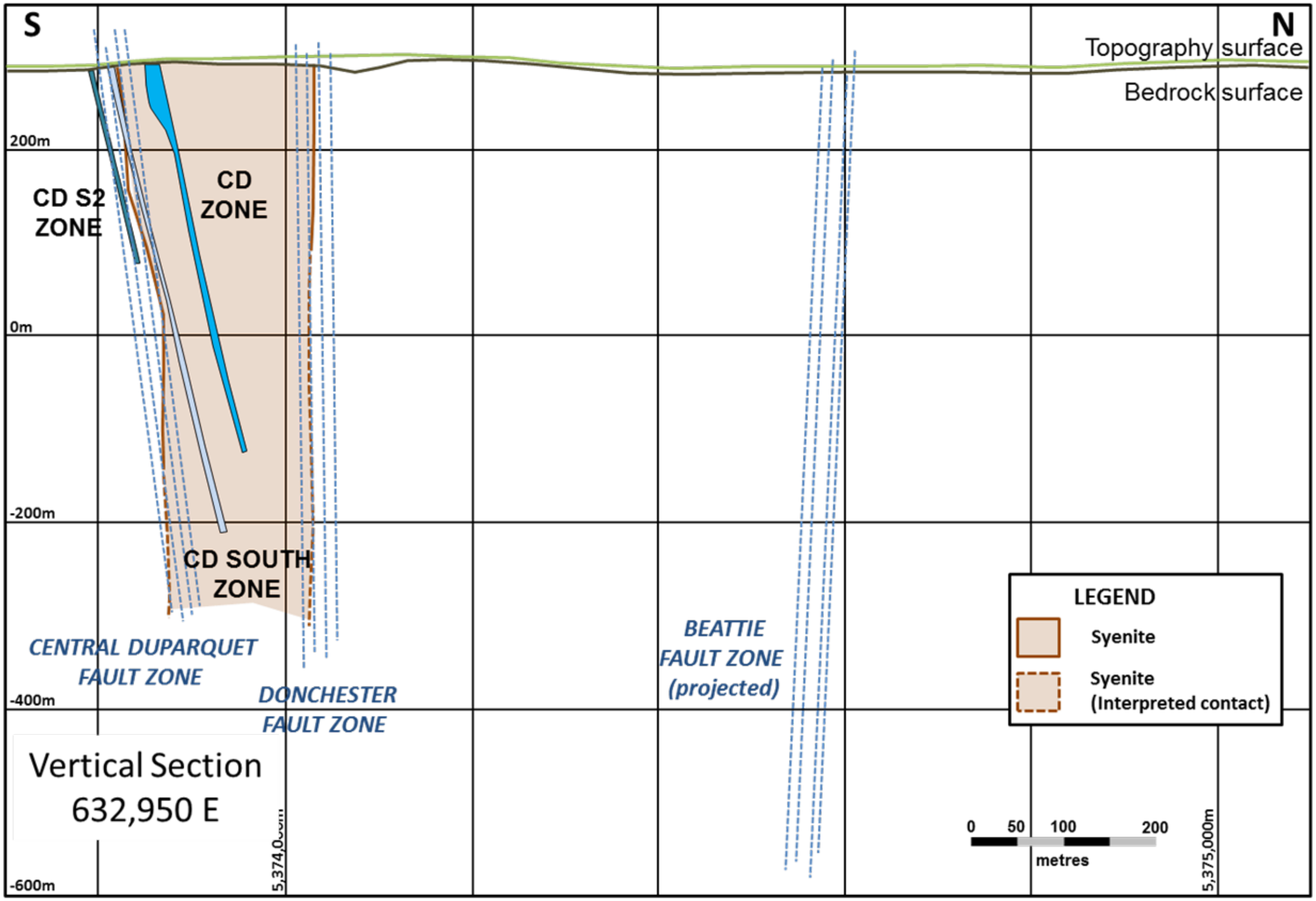
Source: InnovExplo, 2023

Figure 7.8: 3D Litho-structural Model. Vertical Section 631,850E, Looking West



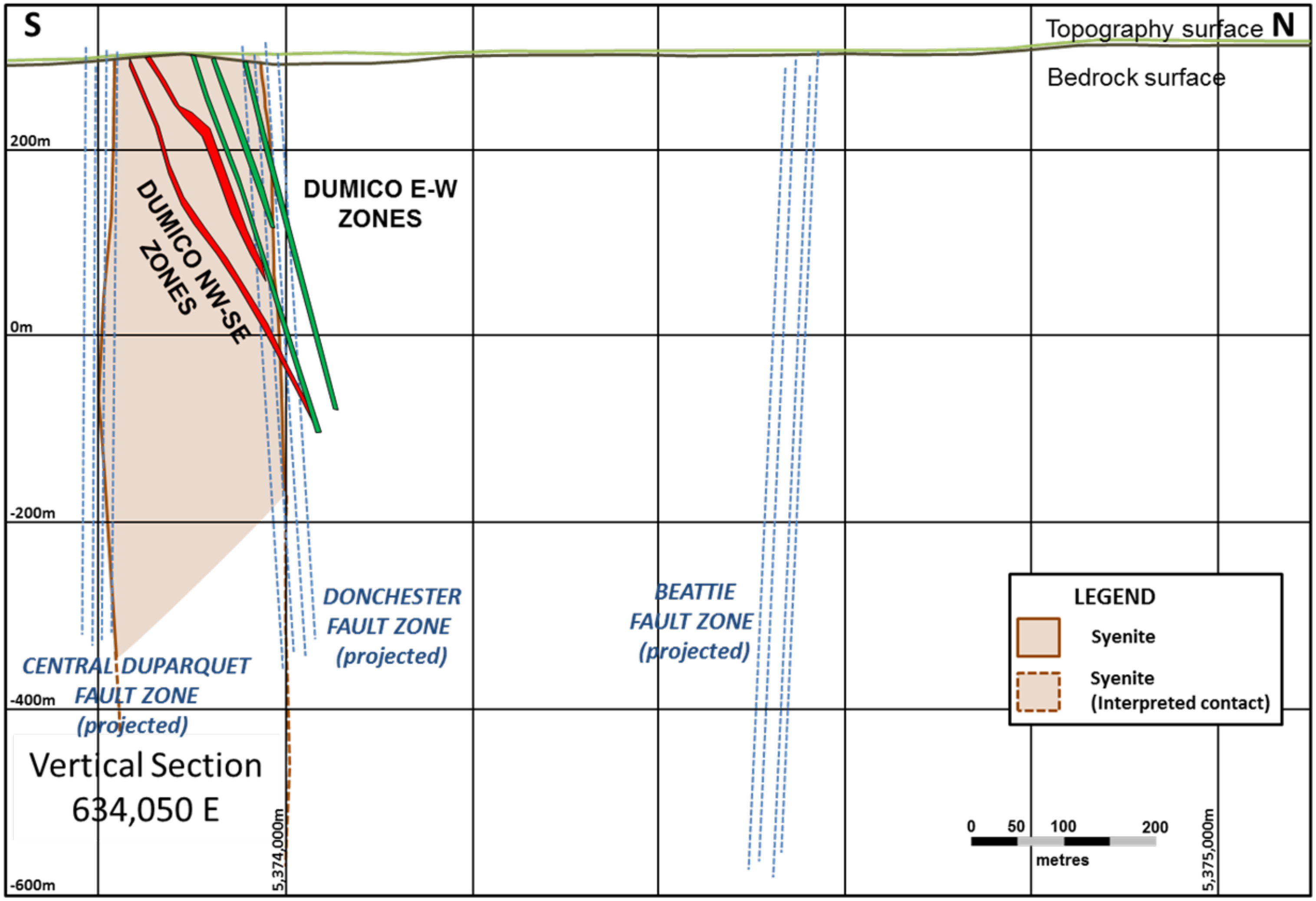
Source: InnovExplo, 2023

Figure 7.9: 3D Litho-structural Model. Vertical Section 632,950E, Looking West



Source: InnovExplo, 2023

Figure 7.10: 3D Litho-structural Model. Vertical Section 634,050E, Looking West



Source: InnovExplo, 2023

7.4 Pitt Gold Claim Block

7.4.1 Stratigraphy

Pitt Gold is located at the stratigraphic contact between the Blake River Group (to the south) and the Kinojevis Group (to the north). The contact itself is represented by the DPFZ, along which the Timiskaming-type units of the Duparquet Formation are observed and it includes lenses of graywacke belonging to the Kewagama Group, and ultramafic units that might be related to the Malartic Group (to the east) or the Stoughton-Roquemaure Group (to the west). The sedimentary units of the Duparquet Formation are believed to be representative of a pull-apart basin. The main movement along the DPFZ fault is dextral.

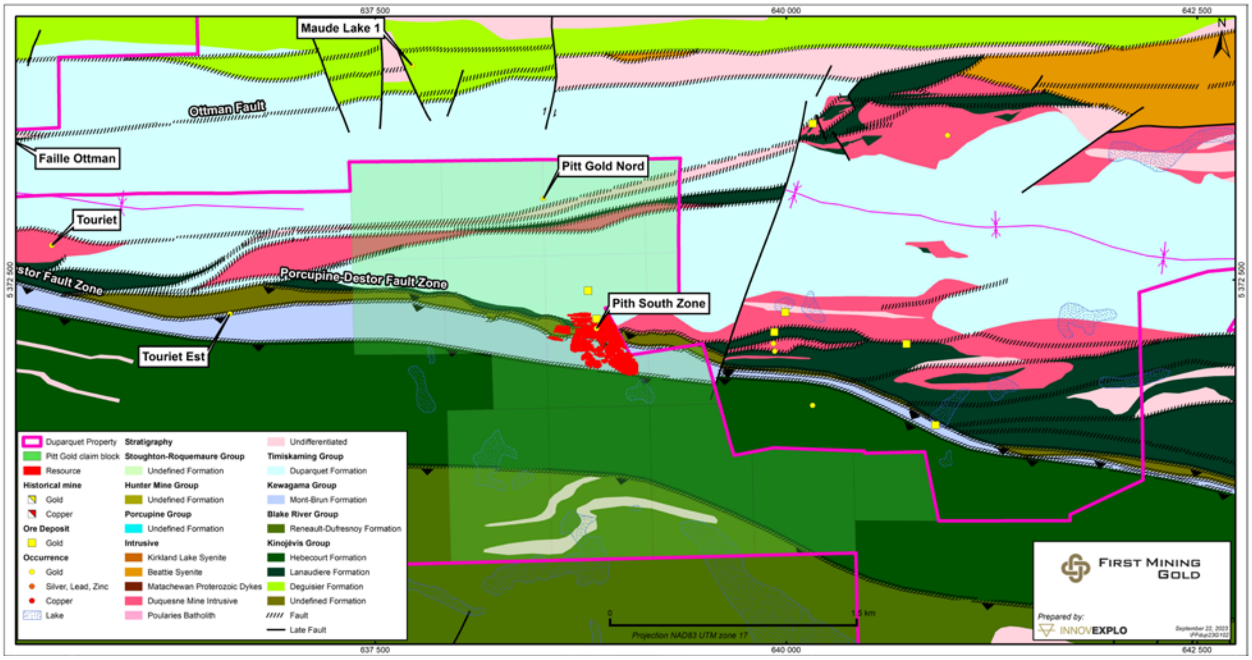
The stratigraphic sequence south of Pitt Gold comprises (from south to north) outcrops of mafic lavas with some gabbroic sills belonging to the Blake River Group including a distinctive variolitic unit characteristic of the base of the lithostratigraphic group, underlying graywackes of the Kewagama Group which have only been observed in drill holes as outcrop is limited due to swamps, and volcanic rocks of the Lanaudière Complex belonging to the Kinojevis Group.

The volcanic domain is in structural contact with the greywackes. The structural contact is the DPFZ, which is represented by a carbonate and sericite schists varying in width from 20 to 200 m.

The northern half of Pitt Gold comprises metapelites and conglomerates belonging to the Duparquet Formation, the latter lying disconformably over the volcanic unit of the Lanaudière Complex. The Duparquet Formation was intruded in its centre by a quartz-feldspar porphyry dyke. Regional modelling indicates that the dyke is part of an intrusive complex controlled by an enechelon fracture system. The Timiskaming-type unit forms an elongated basin (V-shape channel) and extends 200 m vertically down from surface. This unit post-dates deformation and is barren of mineralization.

Figure 7.11 shows the local geology for the claim block.

Figure 7.11: Local Geological Setting of the Pitt Gold Area



Source: InnovExplo, 2023

7.4.2 Structural Geology

The stratigraphy on the claim block strikes approximately E-W, dips steeply to the south at 70-80°, and has been subjected to several deformational events. The DPFZ and its associated splays are the dominant structural features, with the main fault trending 110° and dipping to the south at 60-80°. A complementary set of E and NE-trending faults and shears are developed both north and south of the DPFZ, but these often occur along lithologic contacts, making identification difficult. A weak foliation is present near these shears with the local development of a stretching lineation defined by mineral lineations and the long axes of clasts, fragments, and varioles (Cunningham-Dunlop, 1997).

7.4.3 Mineralization

Most of the mineralized intersections have been obtained north of the DPFZ. A few isolated gold values were encountered in sediments to the south of the fault zone and a few more within schist (chlorite, sericite, carbonate, fuchsite) representing the fault zone, but although the assay values could be quite high, limited continuity could be established with the data available.

Gold mineralization is more abundant towards the north of the fault zone and is hosted within distinctive structures and units that seem to be more variable and complex. Porphyry intrusions are prominent north of the DPFZ; and their association with gold mineralization is poorly understood. It is suggested that the intrusions were emplaced along the same dilatational structures that mobilized gold-bearing fluids. Drill hole data suggests that gold is not only confined to the porphyries, and there appears to be a cross-cutting relationship between the gold-bearing structures and the porphyries or volcanic units.

The mineralized structures are diffused and not always clearly defined. Their physical expression is represented by zones of silicification (and locally albitization) and dark grey quartz veining (locally graphitic), exhibiting significant fine pyrite (5 to 10%) in veinlets, as well as the altered host unit. Mineralized intersections vary from a few centimetres up to several metres. The gold content is highly variable and can locally reach ‘bonanza grade’ (hundreds of grams of gold per tonne). Visible gold is rarely observed in diamond drill core and outcrop. Gold appears closely related to pyrite and may be hosted along grain boundaries, in fractures, or within the pyrite crystals. Areas with stronger alteration (silicification) and increase in fine pyrite yield higher gold grades.

A previous model described gold-bearing structures located along the internal contacts of the porphyry intrusion and two main zones, namely the Main Zone (upper contact) and the Stringer Zone (lower contact), were defined in a resource model that was based on a 100 m x 100 m drill spacing. In an effort to further validate the model, the drillhole spacing was adjusted to 50 m x 50 m; however, the outcomes did not fully yield the same findings and subsequent drilling was carried out, which revealed that there is more complexity to the stratigraphy than initially anticipated.

Historical exploration by Brionor found that the porphyry intrusion has a complex geometry and that it laterally grades into dacitic volcanics. These newly interpreted mineralized structures exhibit a clear cross-cutting relationship with the rock units. The preferred host units for the mineralization are the porphyries, followed by the mafic volcanics and the ultramafic volcanics. Gold-bearing structures strike almost E-W and are moderately to steeply dipping towards the south until they intersect the DPFZ, where they terminate by fault offset. Drilling by Brionor in 2010 targeted the near-surface area in the Main Zone, and large anomalous halos of gold mineralization were returned with ‘bonanza’ grades near surface not obtained as often as is the case at depth.

Brionor concentrated its drilling efforts in the Stringer Zone area. Although the model has been materially refined, the Stringer Zone generally corresponds with what is currently named Vein 2. Brionor’s drilling program discovered another structure (Vein 1) positioned above Vein 2, and a third (Vein 3) below and to the north of Vein 2. The newly discovered structures appear to define an echelon pattern in the footwall of the DPFZ. The best gold values were obtained in 2006 with Hole PG2006-01 returning 82.88 g/t Au over 4.58 m).

7.5 Porcupine East Claim Block

7.5.1 Stratigraphy

The geological formations in Porcupine East generally strike ENE-WSW and WNW-ESE, with steep dips (80-85°) to the south, and lithologically represents four main stratigraphic groups of the area.

The Kinojévis Group is mainly located to the north of the DPFZ. This group is made up of basalts (tholeiitic affinity), locally interbedded with mafic to intermediate tuff layers. This group includes strongly deformed ultramafic units within the DPFZ. The Blake River Group is located to the south of the DPFZ and consists of calc-alkalic basalt, andesite, dacite, and rhyolite flows and tuffs. In the western part of Porcupine East, the rocks of the Blake River Group are concordant with the Kinojévis Group. Both groups have been interpreted as being deposited in a back-arc setting (Kerrick et al., 2007).

The Kewagama Group is composed of a sequence of turbiditic sandstones and mudstones along the DPFZ. The contacts between these units and the volcanic units are usually faulted.

The Timiskaming Group is made up of conglomerates, greywackes and mudstones. In general, this group is located to the north of the DPFZ in discordance with the Kinojévis volcanics and along a faulted contact with the Kewagama sediments. On Porcupine East, the Duparquet Formation, part of the Timiskaming Group, is a sedimentary unit within a small structurally controlled basin named the Duparquet Basin (Mueller et al., 1991). The development of the Duparquet Basin at a late orogenic stage (of the Kenoran orogeny) classifies it as a successor basin (pull-apart basin).

A number of gabbro-diorite subvolcanic intrusions have been mapped along the full extent of the property. In addition to these mafic-intermediate intrusives, two other series of intrusions of different ages are observed. The first (2689 ±3 Ma) corresponds to a felsic quartz-feldspar porphyry. The second suite is a syenite intrusion (2682 ±2 Ma) found only in the Duparquet claim block.

7.5.2 Structural Geology

The DPFZ is the most prominent geological feature on Porcupine East. The current locations of these regional deformation zones are interpreted to be proximal to early synvolcanic extensional faults. Belt-scale folding and faulting were protracted and occurred in a number of distinct intervals associated, at least in the early stages, with compressive stresses related to the onset of continental collision between the Abitibi and older Subprovinces to the north (Ayer et al., 2005).

The DPFZ traverses across Porcupine East from west to east, changing to a WNW-ESE direction east of the Property. This major structure shows a ductile-fragile heterogeneous deformation zone varying in width from 100 to 500 m. The deformation zone is an assemblage of shear and brittle fault zones characterized by strong schistosity, foliation, brecciation, and locally cataclastic units.

Several second-order and third-order (subsidiary faults) faults are developed on both sides of the DPFZ. These subsidiary faults are oriented ENE-WSE to E-W, with a strong dip to the north or south.

The DPFZ is recognized as having a complex structural polyphase history. This deformation zone and its subsidiary structures control not only the emplacement of the porphyry dykes (2689 ± 3 Ma) but also the formation of sedimentary basins (for example, the Duparquet basin) and the syenitic intrusions.

The DPFZ has at least two major deformational movements: a reverse shearing movement and subsequent dextral shearing.

The major faults of the DPFZ and their subsidiary faults are cross-cut by younger faults with two dominant orientations: NW-SE and NE-SW. The NE-SW faults generally formed later than the NW-SE faults.

At a regional scale, the DPFZ is considered a principal feeder of deep hydrothermal fluids. Most of the known deposits are known to be associated with the intersection between the first- and second-order faults. Deposits linked to the secondary faults are common along the DPFZ.

7.5.3 Alteration

Gold-bearing quartz veins within the DPFZ have historically been associated with sericite-carbonate-ankerite-chlorite alteration haloes and late-stage quartz-carbonate veins with ankerite alteration haloes.

Carbonate and sericite alteration appears diffuse around the gold-bearing zones. This alteration results in the gain of potassium, carbonate, and sulphur.

The silicification and albitization are constrained to the mineralized zones. Locally, fuchsite alteration is observed and related to mafic and ultramafic volcanic rocks.

Tourmaline is rare and does not constitute a significant percentage in the veins.

7.5.4 Mineralization

Prospecting and exploration work led to the discovery of three gold showings on Porcupine East. These are Touriet, Touriet Est, and GF-81 (Porcupine-173595). In addition to these showings, anomalous gold values have also been intercepted by drilling. In general, gold showings and intersections are located along the DPFZ and its subsidiary faults.

The mineralization found locally on Porcupine East is disseminated sulphides associated with felsic intrusives. According to Legault et al. (2003), this type of mineralization can be of two types:

- Disseminated with quartz-carbonate veinlets associated with quartz-feldspar porphyry ("QFP"),in the eastern part of the south claim block, this type can be found in the Touriet and Touriet East showings. This mineralization style is associated with known gold deposits such as the nearby Duquesne deposit and some significant deposits in the Timmins camp, including Hollinger (20 Moz), Dome (16 Moz) and McIntyre (11 Moz).
- Disseminated sulphides associated with a syenite intrusion. On the property, this type is represented by the GF-81 showing (Porcupine-173595) towards the north. Examples of known gold deposits of this type are the nearby Beattie and Donchester deposits.

7.6 Duquesne Geological Setting

7.6.1 Stratigraphy

Duquesne is stratigraphically separated into two parts by the DPFZ which trends N110 with a steep dip to the south.

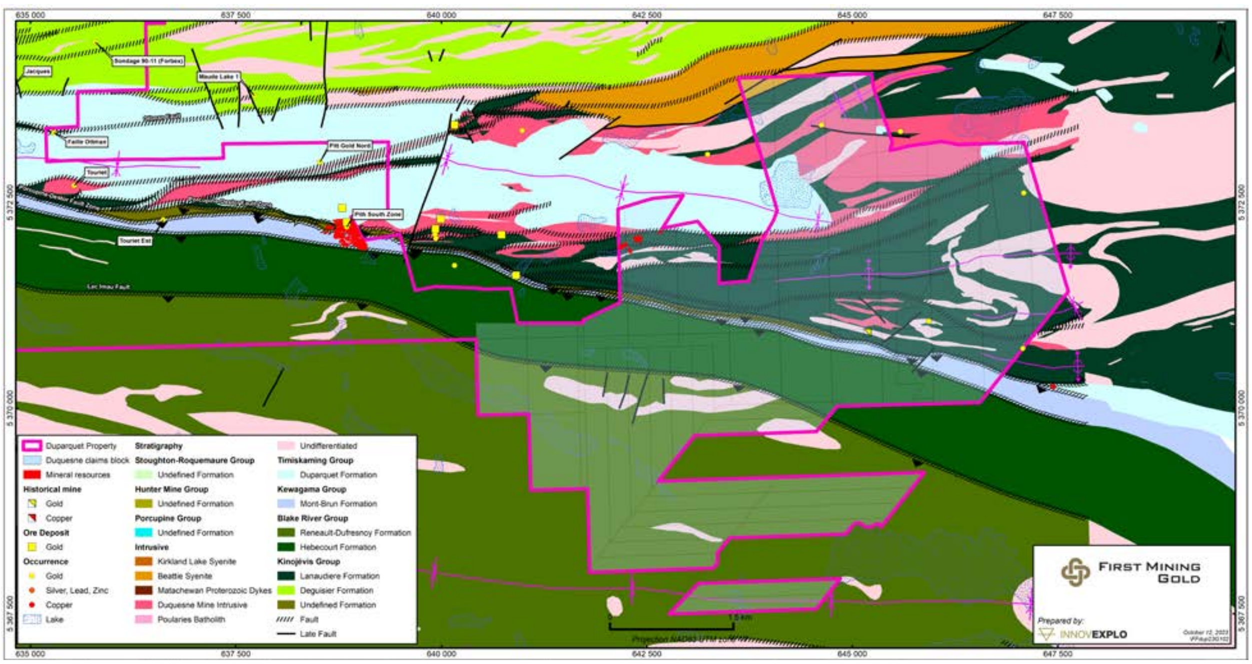
To the south of the DPFZ lie the volcanic rocks of the Blake River Group; mostly variolitic basalts of the Hébécourt Formation. The sedimentary unit of the Kewagama Group is situated at the contact on the south side of the DPFZ. The sequence has an average width of 100 m and a N100 strike and steeply dips (70° to 80°) to the south, with the southern limit being the contact with the Blake River Group. The north contact is within the DPFZ for more than 20 m, and these sediments are transformed into a sericite-carbonate-quartz schist with chlorite, fuchsite and albite.

The Lanaudière Formation of the Kinojevis Group covers a major part of the claim block on the north side of the DPFZ. Many distinct volcanic units can be identified moving from north to south across Duquesne, with occasional intrusions along the contact between stratigraphic sequences. The first volcanic unit is a mafic volcanic andesite, approximately 200 m thick, and contains felsic porphyritic dykes. The second is a komatiitic ultramafic lava unit with a spinifex texture and varies in thickness from 100 m in the east to

400 m in the west. A gabbro dyke lies between these two first units and has a width close to 200 m. From here, basalt-andesite units succeed directly to the south and can reach 600 m in thickness. A stock of quartz-feldspar porphyry covers a large part of the northern portion of the property along provincial road 101. Lacroix (1991) called this stock “the central intrusion”. Rhyolite with euhedral quartz phenocrysts trends along the southern margin of the stock near the Duquesne Fault. South of the central intrusion, a massive basaltic unit is found inter-stratified with gabbro sills followed by a tholeiitic andesite of pillow lava facies. The last unit in the Lanaudière complex is known as the “Duquesne structural and plutonic complex” and was named by Lacroix (1991). It comprises ultramafic volcanics (komatiites), some porphyritic tonalite intrusions, and a gabbro intrusion. The komatiite unit has a maximum width of 400 m and is intruded by several felsic porphyry dykes of several metres in thickness. This complex trends along the DPFZ.

The Duparquet Formation outcrops towards the northwestern portion of Duquesne. This sedimentary unit overlies discordantly at an angular contact on an erosional surface of volcanic rocks from the Lanaudière complex and is composed of conglomerate, arkose, and greywacke.

Figure 7.12: Local Geological Setting of the Duquesne Area



Source: InnovExplo, 2023

7.6.2 Structural Geology

Duquesne is located in the heart of the DPFZ and is crossed by seven important faults recognized from surface mapping and diamond drill holes namely (from south to north): Destor-Porcupine, Mine Duquesne, Ultramafique-Un, Andésite, Ankérite, Duquesne and Lac Lépine.

The DPFZ crosses the full extent of Duquesne towards the south with a N110 trend and a steep dip to the south. The DPFZ has not yet been verified in outcrop but it has been intercepted in diamond drill holes. The fault is characterized as a talc-chlorite schist zone, which is very strongly sheared to an unconsolidated fault gouge over an approximate width of 1.5 m. The schist has a total width of 10 m. The DPFZ, however, has a width close to 100 m and alternates between zones of weakly to strongly sheared and altered units. Its gold potential is best characterized in a silicified zone known as Zone 74.

The Mine Duquesne Fault (N110) including several gold horizons was historically mined and is of economic significance. Graham (1954) described an important fault which is defined by a green rock band that is strongly sheared with several porphyry dykes. This corridor, named the “Mine Duquesne unit”, is formed by ultramafic sequences altered to chlorite-talc-carbonate schist with small amounts of QFP and syenite.

Other splay-faults that control gold mineralization include the Beattie, Donchester, Lac Lépine, Fox Creek, Shaft, and Liz faults.

7.6.3 Alteration

Regionally, the gold-bearing quartz veins within the DPFZ have been historically associated with sericite-carbonate-ankerite-chlorite alteration haloes and late-stage quartz-carbonate veins with ankerite haloes.

The principal gold-associated alterations reported from Duquesne are silicification, carbonatization and sericitization. Gold and pyrite mineralization is generally associated with silicification. In the fault zones, chlorite and sericite alterations are more prevalent.

7.6.4 Mineralization

Felsic porphyry intrusions are very important for gold mineralization at Duquesne. These felsic intrusions are located on the contact between two lithostratigraphic units, in the fault zone or on the extension of the sedimentary band of the Duparquet Formation.

Gold is found in four geological settings: a) within syenite and feldspar porphyry and mafic to ultramafic host rocks within shears that splay off the DPFZ; b) within sheared and brecciated zones associated with the splay-faults and associated with quartz-feldspar porphyry and syenite porphyry; c) within quartz-carbonate-rich systems within quartz-feldspar porphyry, syenite porphyry, and quartz diorite; in particular silicified and chert rich quartz-flooding of the sheared areas of the host rocks; and d) along contacts between mafic and ultramafic sheared units.

Mineralization is within or parallel to secondary fault splays from the DPFZ, which are known to be gold-bearing. Gold-bearing zones within historical Duquesne mine workings are associated with pyrite-carbonate-rich breccias hosted within syenite porphyries. Gold values have also been known to be associated with contact zones of iron formations, sheared conglomerate sediments and within chert horizons of sedimentary rocks. The main host for gold mineralization is sheared and silicified syenite porphyry within a felsic syenite intrusive rock, which lies at the footwall of the DPFZ.

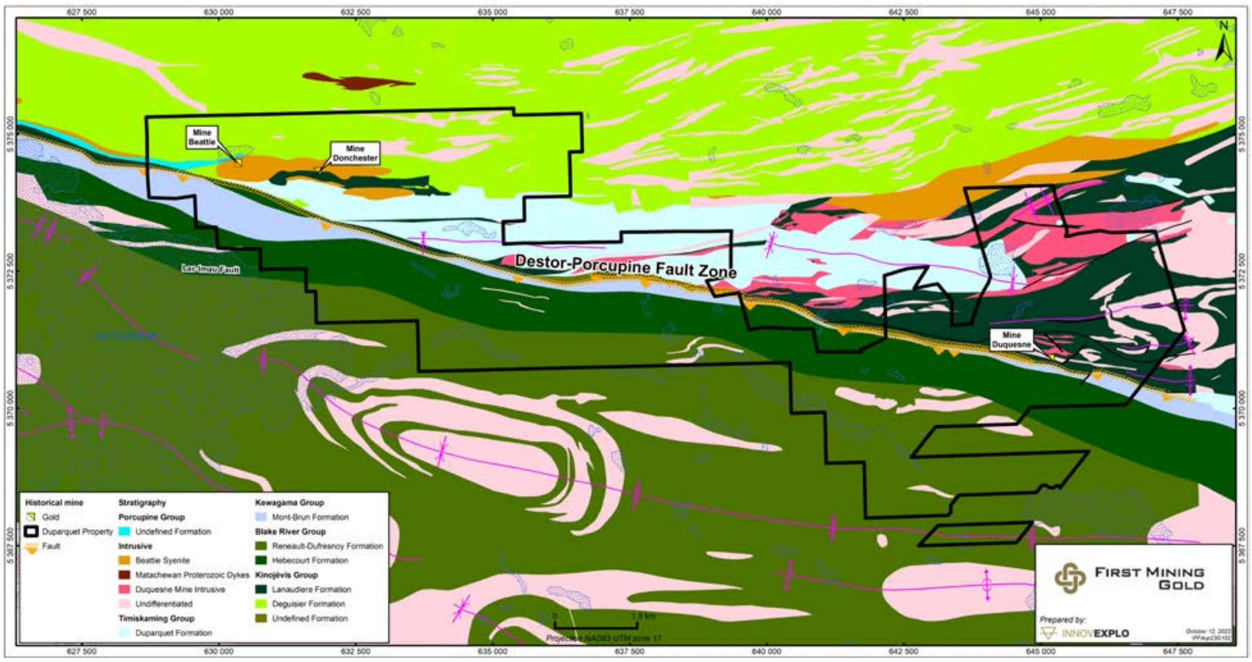
More meaningful gold values in the Duquesne deposit are primarily associated with disseminated pyrite, molybdenum, and quartz veinlets. Native gold is typically fine-grained and lies at the pyrite grain boundaries, although some is found as independent grains in the quartz veinlets. Alteration in the form of sericite, carbonates, and sulphides is typical of the deposit and the style of mineralization. Silver and molybdenum are associated with higher gold values in this deposit type. Arsenic concentrations in the deposits of this class are typically low, reported as less than 100 ppm (Legault et al., 2005).

8 DEPOSIT TYPES

The information presented in this section is based on Iund et al. (2022), Rioux (2016), Lewis and San Martin (2017), Bugnon and Landon (2015), Martin (2017), and others where applicable.

The prolific Destor-Porcupine Fault Zone ("DPFZ") (Figure 8.1) represents a major gold-bearing structure with a 200 km strike length in the Abitibi Subprovince. Numerous deposits have been found near the DPFZ and its associated splays, resulting in more than 2,500 tonnes of gold being produced in operations along the structure that extends east-west from Timmins, Ontario, to the east of Duparquet, Québec.

Figure 8.1: Destor-Porcupine Fault Zone



Source: InnovExplo, 2023

Gold deposits along the fault are varied, and the majority of the lithologies can host gold mineralization, except for the Timiskaming sediments which are known to be deposited post-mineralization. Some deposits consist mainly of quartz-carbonate veins, while others are related to alteration zones exhibiting disseminated sulphides (pyrite, pyrrhotite, arsenopyrite, etc.). In addition, the alteration assemblages vary regionally with carbonate alteration (ankerite and others) being more prominent along the fault, but silicification, sericitization, fuchsite and K-feldspar alterations are not uncommon.

The DPFZ is known to have three stages of veining, predominantly associated with alteration. The first and earlier vein sets are barren of mineralization and have no visible alteration. The second, main-stage of veining has both barren- and gold-bearing quartz veins with the later associated with sericite-carbonate-ankerite-chlorite alteration haloes. Later stage veining is known to be barren quartz-carbonate veins with ankerite alteration haloes. Spatially, the vein stages are also distinguishable, with earlier veins being more widespread and oriented at various angles, with main-stage veins generally confined to well-defined vein systems that are related to faults with specific strike directions. Late-stage veins locally crosscut and brecciate earlier veins.

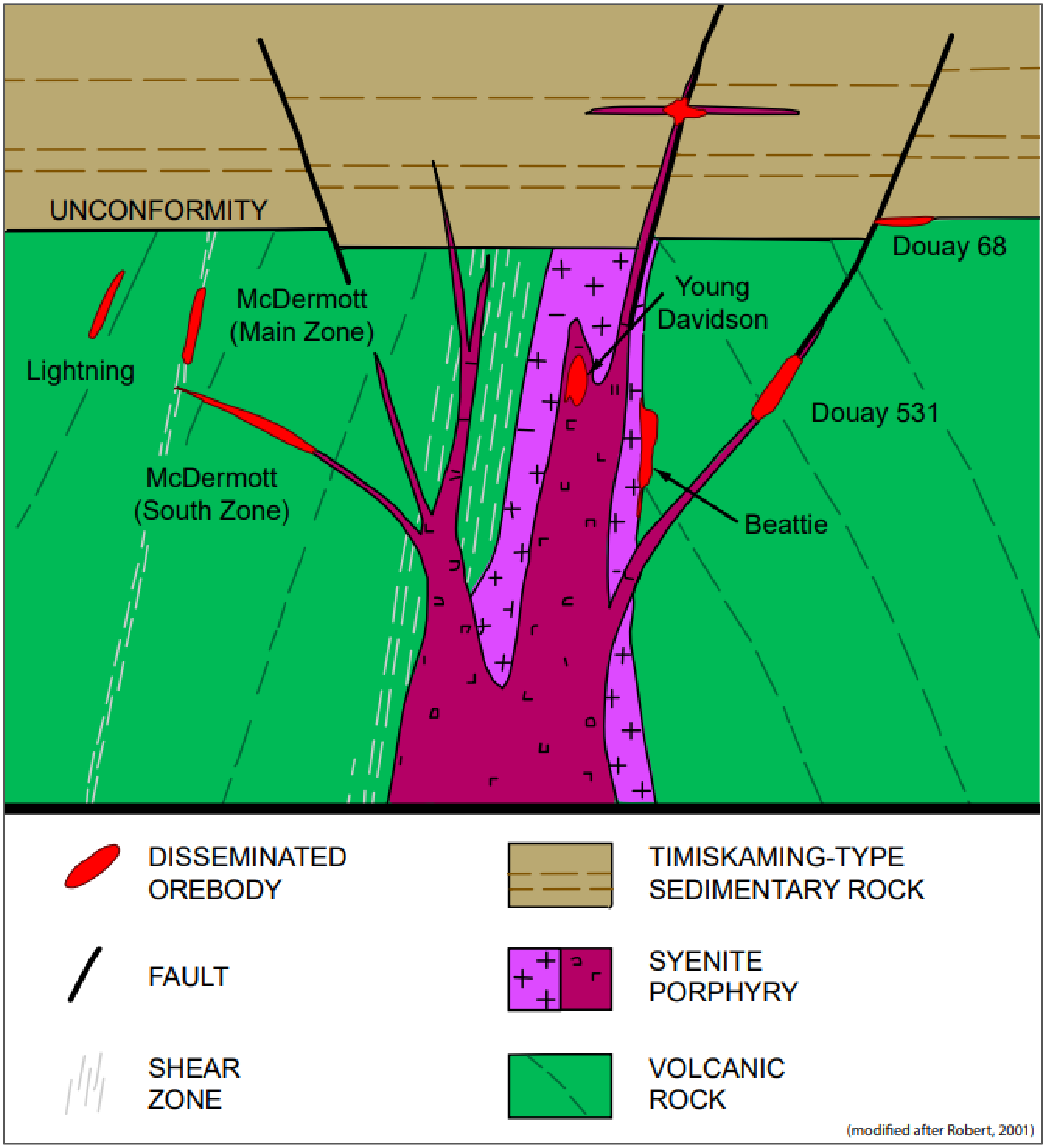
The Project's style of gold mineralization is characterized by disseminated sulphides associated with a porphyritic intrusion. Controls on mineralization in this deposit type are frequently complex and poorly understood. Gold is associated with quartz flooding and sulphide-bearing veinlets and is disseminated throughout the host rock as opposed to being in or immediately adjacent to veins. According to Legault et al. (2006), this type of mineralization can be subdivided into two types based on the composition of the intrusive rock: 1) Disseminated sulphides with quartz-carbonate veins and veinlets associated with calc-alkaline intrusions; the calc-alkaline subtype has a limited sulphide content, generally displaying strong carbonatization, and probably constitutes a variant of classic orogenic deposits; 2) Disseminated sulphides associated with alkaline intrusions. The subtype associated with alkaline lithologies is richer in sulphides and exhibits intense silicification.

The Duparquet deposit comprises both these styles of mineralization. The Duquesne deposit mineralization is described as disseminated sulphides associated with calc-alkaline intrusive rocks (Legault et al., 2005). The gold mineralization on the Pitt Gold claim block is found within or close to QFP intrusions.

The main-stage gold-bearing systems are associated with faults commonly forming contacts between geological units with contrasting competency. The syenite and granite intrusive rocks within these areas provide a host for silica-flooding enrichment and zones of brittle rock that allow fluid ingress during vein-forming events. Secondary cross-faulting provides areas for increased gold concentrations in syenite and granite intrusion corridors. Generally, they 'bulge' (up to thicknesses of 40 m) close to cross-cutting fault structures and are predominantly concentrated on one side of the cross-cutting fault. Intrusions of late porphyry dykes within fault fractures are associated with remobilization and deposition of gold.

The schematic geological model showing the distribution of disseminated-stockwork orebodies relative to a composite syenite stock intruded along a major fault zone near the base of the Timiskaming unconformity is illustrated in Figure 8.2.

Figure 8.2: Schematic Geological Model



Source: InnovExplo, 2023

8.1 Duparquet Deposit

The Duparquet deposit is hosted by the Beattie Syenite, an Archean porphyry intrusion emplaced along the DPFZ (Figure 8.1). The syenite is aligned along an E-W axis. The main gold mineralization is associated with a network of E-W dextral strike-slip faults dipping steeply to the north. Gold deposits in the Project area tend to occur close to the syenite-sedimentary and/or volcanic rock contacts. This is attributed to the competency contrasts between the syenitic rocks and the Duparquet Formation lithologies during deformation, resulting in favourable structural traps for gold mineralization.

The main alteration is silicification with sericitization, ankeritization, and chloritization are other types of alteration associated with gold mineralization (Goutier and Lacroix, 1992). The main sulphide is pyrite (<10%), accompanied by arsenopyrite (Davidson and Banfield, 1944). Gold is hosted in arsenopyrite and arsenian pyrite (Bigot and Jébrack, 2012). Gold grains are less than micron-sized.

According to Bigot and Jébrak (2012), several petrological characteristics in the deposit, including gold appearances, metallic mineralogy, type of alterations, and ore control, suggest a shallow magmatic deposit.

8.2 Duquesne Deposit

Along the western boundary of the Duquesne claim block and in the historical Duquesne mine, the gold-bearing systems are associated with a similar structural trend to the Duparquet deposit but appear to plunge generally steeply to the east, except where they are cut by cross-cutting faults and may plunge steeply to the west. The Duquesne deposit mineralization is described as disseminated sulphides associated with calc-alkaline intrusive rocks.

8.3 Pitt Gold Deposit

The bulk of the gold mineralization on the Pitt Gold claim block is found north of the DPFZ, within or close to quartz-feldspar porphyry intrusions. The gold is thought to be controlled by subsidiary structures running E-W in an area where the structure, which runs generally E-W, bends towards the south.

9 EXPLORATION

First Mining has not conducted any exploration programs on the Project.

The only recent exploration activity on the claim blocks was in 2022 on Porcupine East, where Geo Data Solutions GDS Inc. carried out work for the previous owner, IAMGOLD.

9.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

No exploration work has been carried out on these claim blocks since September 12, 2022, the database close-out date for the current Mineral Resource Estimate (Iund et al., 2022). The prior exploration activities described in Iund et al. (2022) and other historical work are summarized in Section 6 of this report.

9.2 Porcupine East Claim Block

First Mining has not performed any work on the Porcupine East Block since it acquired the claims through its wholly-owned subsidiary Mines d’Or Duparquet in February 2023. Historical exploration work is described in Section 6 of this report.

9.3 Duquesne Claim Block

9.3.1 Line Cutting and IP Survey

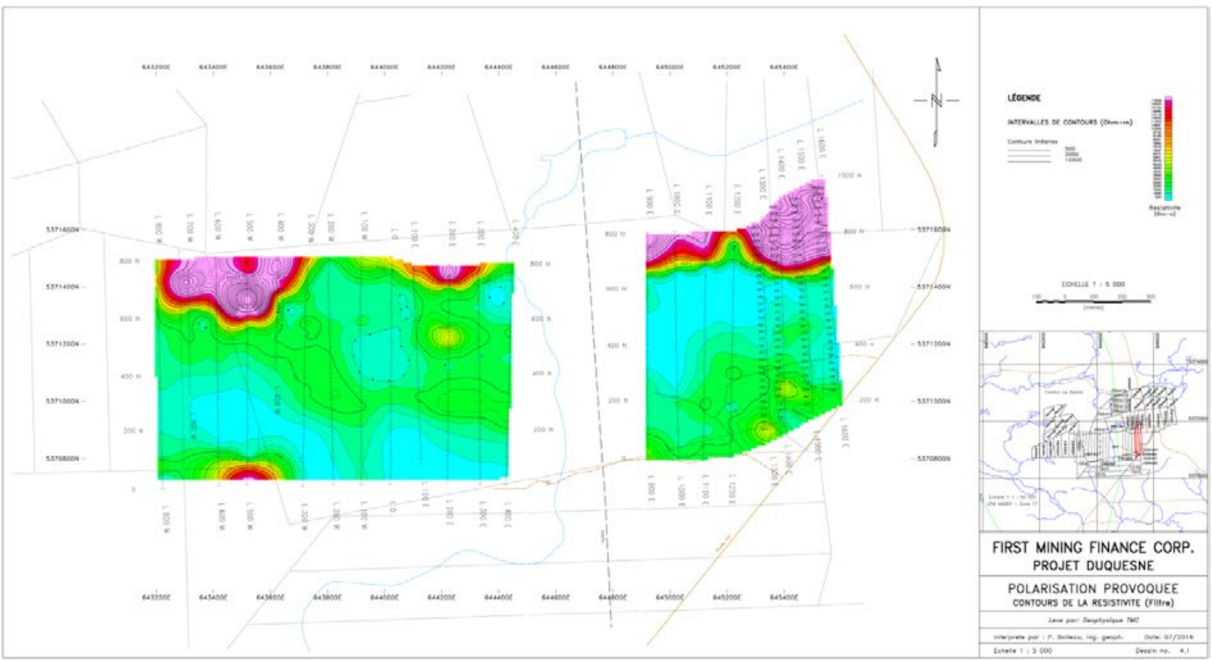
Line cutting and IP survey work was completed on the Duquesne claim block in 2012, 2013, 2015 for Clifton Star, and in 2016 on behalf of First Mining by Geophysique TMC.

As per the Québec Mining Act, mining concessions require annual exploration or development expenditures to keep the property in good standing. The cost of the required work is calculated based on the surface area of the mining concession. In each of the years mentioned, the companies completed four lines totalling 3.2 km of line cutting and IP surveying per year to meet the annual required expenditures.

The exact location of the grid lines was determined using a GPS unit (UTM NAD 83 – zone 17). The IP-Resistivity survey was carried out with an ELREC-PRO time-domain receiver and a 1.8 kW GDD transmitter. A dipole-dipole electrode configuration was used, with a 25 m dipole (X) and multiple dipole separations (N) of 1 to 6 between the transmitting and receiving dipoles. The voltage (Vp) and chargeability (Ma) readings were taken to accuracies of 0. mV and 0.1 mV/V, respectively. Transient residual voltage (chargeability) was taken over 20 equal windows of 80 msec (2 sec. cycle).

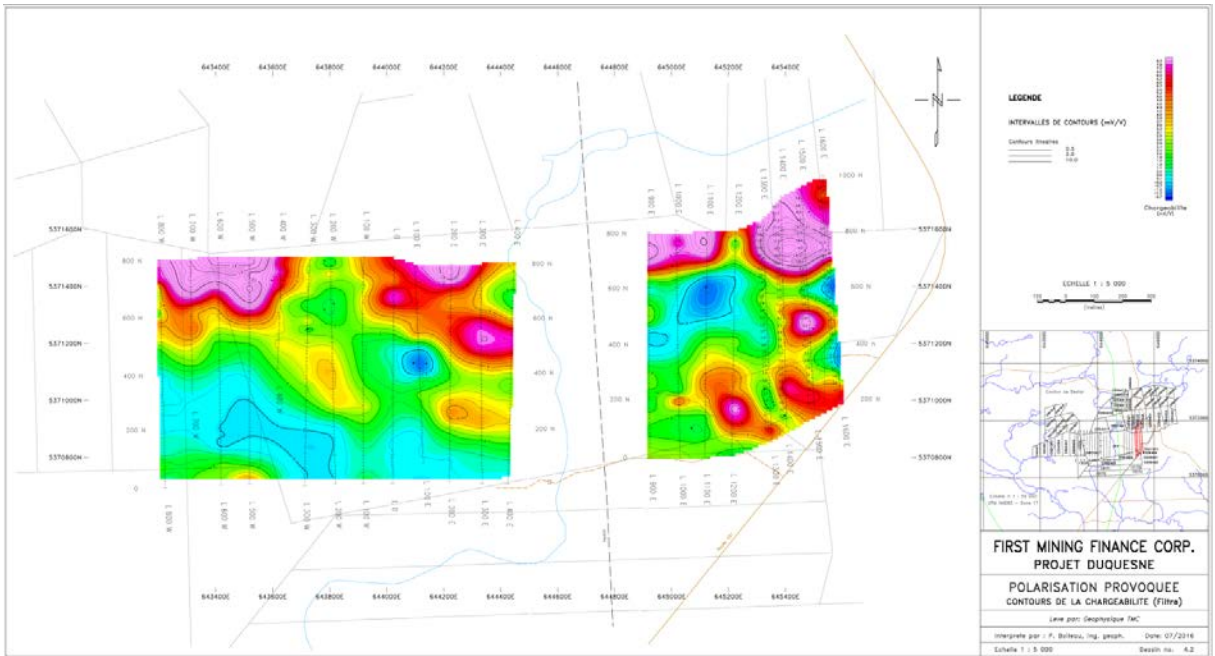
The survey revealed a few weakly anomalous responses characterized by often poorly defined chargeability patterns, most of which are associated with similar patterns of resistivity increase (Boileau, 2016). These anomalies, however, could be caused in part and in places, by finely disseminated mineralization in the host rock. Initial interpretation has grouped these possible responses to form three weakly anomalous zones.

Figure 9.1: 2016 IP Survey: Resistivity



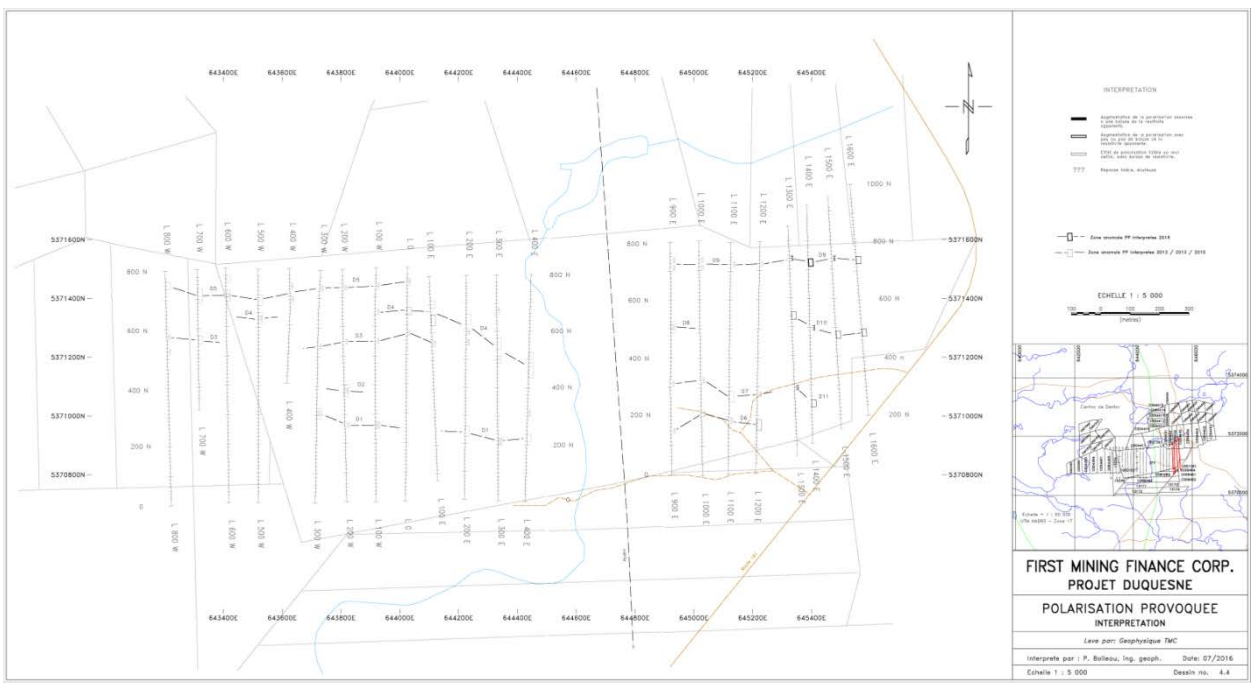
Source Boileau, P., 2016

Figure 9.2: 2016 IP Survey: Chargeability



Source Boileau, P., 2016

Figure 9.3 : 2016 IP Survey: Interpretation



Source Boileau, P., 2016

9.3.2 2017 Channel Sampling Program

In 2017, First Mining undertook a program of channel sampling on an outcrop located in the central part of the Duquesne mining concession (#377-Block 4) approximately 450 m northwest of the Duquesne shaft (Figure 9.6). The outcrop measuring approximately 80 m x 40 m is centered over the coordinates 644,750E 5,371,135N (UTM NAD83, Zone 17). This work and accompanying technical report met the annual work requirements to keep the Duquesne mining concession (CM377) in good standing with the Québec government.

Additionally, the objectives of this field program were to:

- Determine if any significant concentrations of gold are present in an outcrop located on the central part of the mining concession
- Define the thickness and lateral continuity of the gold mineralization within the outcrop sampled

The geology encountered during the channel sampling program is dominantly a felsic intrusive (quartz porphyry) and zones of finer-grained material with a strong carbonate alteration. It is believed by First Mining to be the stratigraphic equivalent to the rocks hosting the mineralization at the Duquesne mine (Figure 9.4).

Some areas sampled also included a significant concentration of quartz veining and local well-developed shear zones.

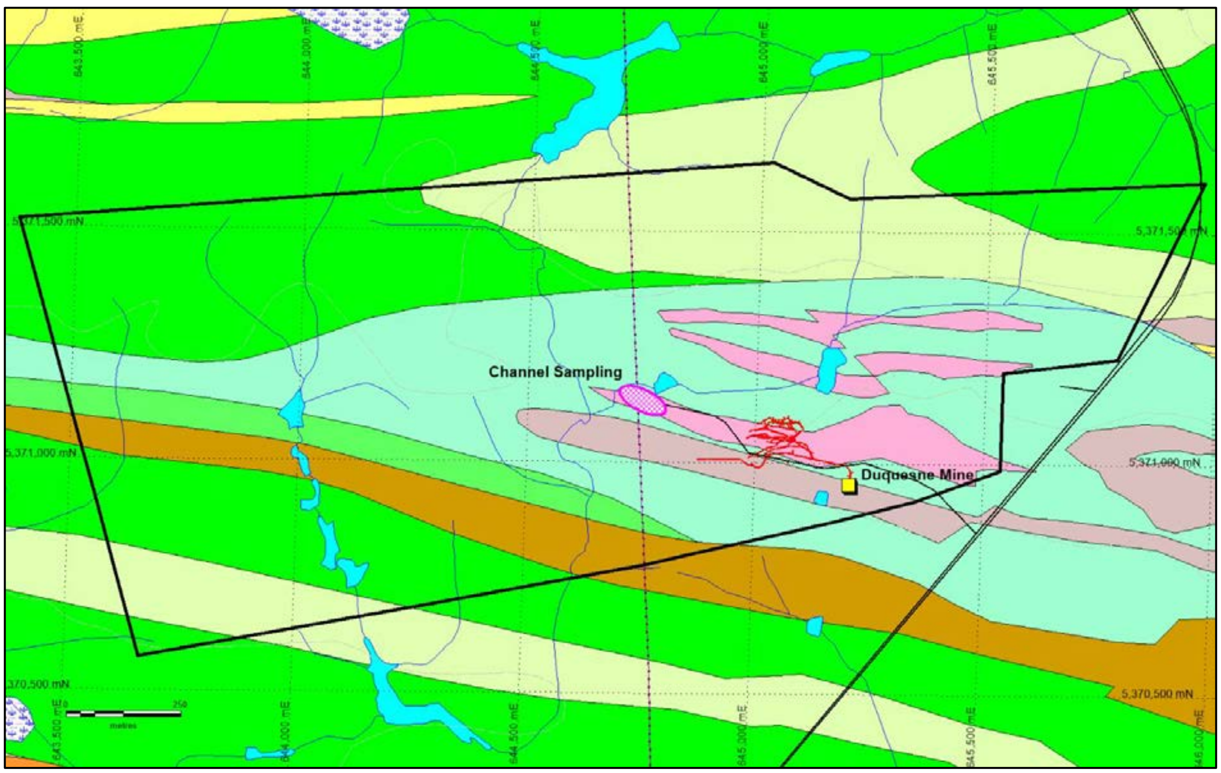
Lines and sample lengths for channel sampling were painted on the outcrop, perpendicular to the general trend of the geology to define the location and length of each sample for the cutting process. The sampling program included five traverse lines spaced across the strike of the outcrop, resulting in a more representative estimate of the gold content in the rock and defining the continuity of the mineralization.

The cutting, chipping, and bagging of the channel samples was contracted to Service Technominex Inc. (“Technominex”), located in Rouyn-Noranda, Québec. The samples were cut with a handheld gas-powered saw equipped with a water cooled, diamond encrusted blade. The samples varied from 0.9 to 1.7 m in length, with an average sample length of 1.4 m. The start and end of each sample was marked by a saw cut, perpendicular to the length of the sample. A metal tag was inscribed with the sample number and inserted in the cut at the end (north limit) of each sample. The samples were chipped out with a hammer and chisel, put in individual plastic sample bags with the designated sample tag, and taped closed. Technominex had a crew of two technicians working in the field on the channel sampling for a period of 4.35 days. After each day of work, the completed samples were transported to the Technominex office for safe keeping.

A total of five major lines, in a roughly south to north direction, were marked and channel sampled. The five lines do include local offsets, to provide more complete and continuous representative samples. A total of 61 channel samples were collected during this program. Figure 9.4 is a plan map with the line locations and channel samples collected during the 2017 program.

The start and end position of each of the channel sample lines was recorded with a handheld GPS (Garmin 62S). These geographic positions, recorded in UTM NAD83, were transcribed on the table of samples collected (Figure 9.5).

Figure 9.4: Location of the of the 2017 Channel Sampling within the Duquesne Mining Concession (CM377)



Source Martin, L., 2017

Figure 9.5: 2017 Channel Samples

The channel samples collected during the 2017 program, along with blanks, duplicates, and standards, were sent for gold-only analysis to SGS. The 2017 program included the analysis of 61 channel samples, plus three blanks, three standards, and one duplicate sample. Samples were prepared (G_WGH79, G_PRP89) and analyzed by fire assay with an AA finish (GE_FAA313).

The report by Martin, 2017 includes a listing of the samples collected, along with the standards, blanks, and duplicates. The report also includes the length and weight of each sample submitted to the assay lab, analytical results (Au-ppb), and a brief geological description of the sample.

Anomalous levels of gold (>100 ppb) were detected in 24 samples. Four of these samples returned gold assays of greater than 1,000 ppb, with the highest at 2,351 ppb. Each of the samples with results greater than 1,000 ppb is located on different sample lines, as illustrated in Figure 9.6.

Figure 9.6: Anomalous Gold Assays: 2017 Channel Sampling Program

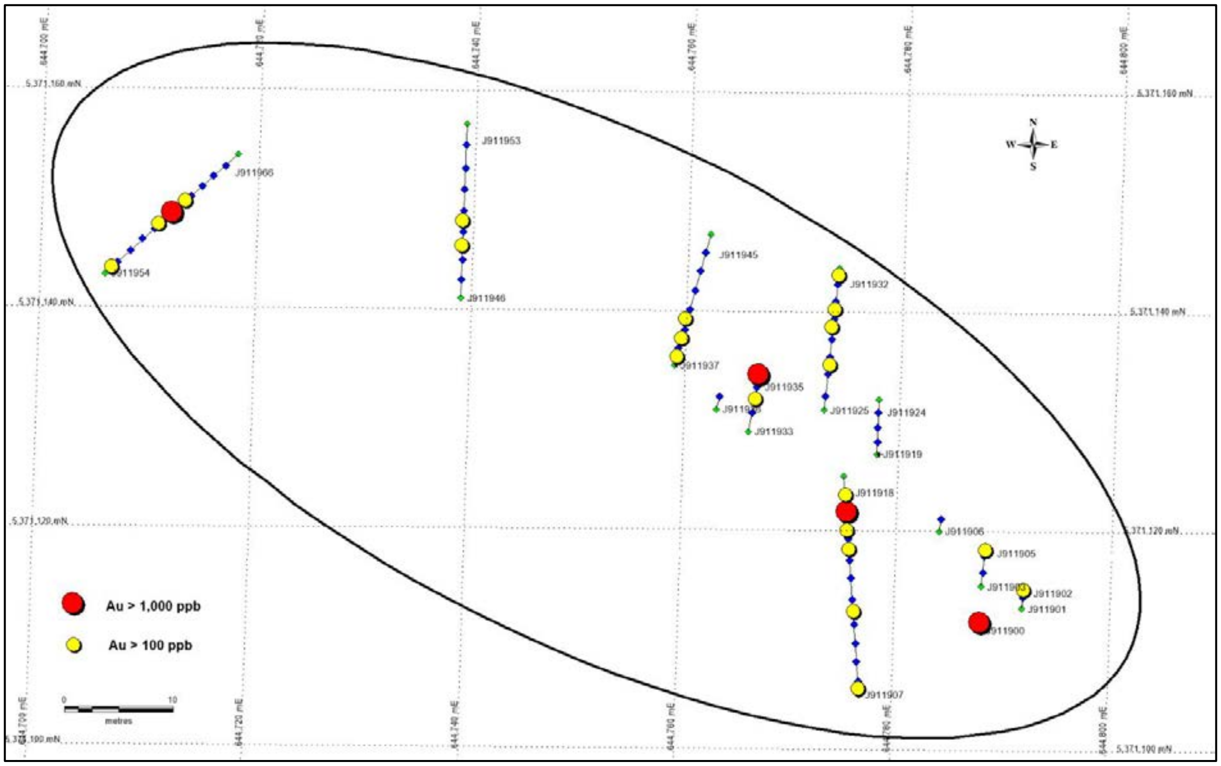


Table 9.1: 2017 Channel Samples

Sample ID	Wt-Kg	Au ppb	Line No.	Length (m)	Geology
J911900	6.205	2141	L 1A	1.10	Felsic Intrusive, Strong Carbonate Alteration, QV
J911901	3.804	54	L 1B	0.90	Felsic Intrusive
J911902	2.799	130	L 1B	1.00	Felsic Intrusive
J911903	4.805	43	L1C	1.45	Felsic Intrusive
J911904	2.735	<5	L1C	1.15	Felsic Intrusive, Silicification
J911905	5.631	757	L1C	1.15	Felsic Intrusive
J911906	3.278	72	L1D	1.15	Felsic Intrusive, Silicification
J911907	4.015	191	L2A	1.05	Felsic Intrusive
J911908	3.557	78	L2A	1.05	Felsic Intrusive
J911909	6.154	20	L2A	1.70	Felsic Intrusive
J911910	5.608	44	L2A	1.45	Felsic Intrusive

Sample ID	Wt-Kg	Au ppb	Line No.	Length (m)	Geology
J911911	6.044	472	L2A	1.60	Felsic Intrusive
J911912	3.694	37	L2A	1.45	Felsic Intrusive
J911913	3.193	33	L2A	1.50	Felsic Intrusive
J911914	6.033	513	L2A	1.45	Felsic Intrusive
J911915	4.327	430	L2A	1.50	Strong Carbonate Alteration, Felsic Intrusive
J911916	6.506	2287	L2A	1.45	Strong Carbonate Alteration, Felsic Intrusive
J911917	3.612	216	L2A	1.15	Strong Carbonate Alteration
J911918	5.392	<5	L2A	1.30	Strong Carbonate Alteration
J911919	7.121	<5	L2B	1.60	Strong Carbonate Alteration
J911922	7.588	<5	L2B	1.50	Strong Carbonate Alteration
J911923	6.216	<5	L2B	1.50	Strong Carbonate Alteration
J911924	6.367	<5	L2B	1.50	Shear Zone, Strong Carbonate Alteration
J911925	5.398	17	L2C	1.60	Felsic Intrusive
J911926	2.859	<5	L2C	1.30	Felsic Intrusive
J911927	4.14	136	L2C	1.40	Felsic Intrusive
J911928	4.855	37	L2C	1.50	Felsic Intrusive
J911929	4.371	123	L2C	1.50	Felsic Intrusive
J911930	6.16	219	L2C	1.50	Felsic Intrusive
J911931	5.5	92	L2C	1.50	Felsic Intrusive
J911932	4.27	358	L2C	1.50	Felsic Intrusive
J911933	3.53	11	L3A	1.15	Shear Zone, Strong Carbonate Alteration
J911934	4.246	246	L3A	1.50	Shear Zone, Strong Carbonate Alteration
J911935	5.01	2351	L3A	1.70	Felsic Intrusive
J911936	4.533	51	L3B	1.25	Strong Carbonate Alteration, Shear
J911937	6.576	672	L3C	1.45	Felsic Intrusive
J911938	3.903	615	L3C	1.45	Felsic Intrusive

Sample ID	Wt-Kg	Au ppb	Line No.	Length (m)	Geology
J911939	6.466	472	L3C	1.60	Felsic Intrusive
J911942	5.716	67	L3C	1.60	Strong Carbonate Alteration
J911943	5.844	<5	L3C	1.50	Strong Carbonate Alteration
J911944	4.81	6	L3C	1.50	Strong Carbonate Alteration
J911945	4.379	9	L3C	1.00	Felsic Intrusive
J911946	3.496	60	L4	1.70	Felsic Intrusive, Shear
J911947	5.305	33	L4	1.50	Felsic Intrusive
J911948	6.707	203	L4	1.50	Felsic Intrusive
J911949	5.252	202	L4	1.45	Felsic Intrusive
J911950	8.751	11	L4	1.50	Strong Carbonate Alteration
J911951	5.547	<5	L4	1.40	Strong Carbonate Alteration
J911952	7.607	<5	L4	1.40	Strong Carbonate Alteration
J911953	6.481	<5	L4	1.60	Felsic Intrusive
J911954	5.84	111	L5	1.70	Felsic Intrusive
J911955	5.487	94	L5	1.50	Felsic Intrusive
J911956	4.955	93	L5	1.45	Felsic Intrusive
J911957	5.692	31	L5	1.50	Felsic Intrusive
J911958	5.926	176	L5	1.45	Felsic Intrusive
J911959	6.351	1915	L5	1.50	Strong Carbonate Alteration
J911962	5.816	146	L5	1.50	Felsic Intrusive
J911963	5.348	32	L5	1.45	Felsic Intrusive
J911964	5.788	54	L5	1.45	Felsic Intrusive
J911965	7.103	10	L5	1.40	Strong Carbonate Alteration
J911966	4.471	<5	L5	1.20	Strong Carbonate Alteration

10 DRILLING

10.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

First Mining initiated a Phase I diamond drill program in May 2023 totaling approximately 5,000 m. This program represents the first drill program undertaken by the company since acquiring the project in 2022. The aim of the drill program was to validate geologic models and test extension opportunities of the current resource estimate, as well as defining new gold zones from the modelled data in the western part of the Duparquet Project. The drilling program is being conducted with one hydraulic drilling rig from Forage Roullier of Amos, Québec.

The 2023 drill holes by First Mining were not reviewed as part of this PEA and are not included in the 2022 Mineral Resource Estimate on the Duparquet deposit (the ''2022 MRE'') as the holes were drilled after the close-out date of the drill database and the effective date of the 2022 MRE technical report.

Historical drilling on the claim blocks is summarized in Section 6 of this report.

10.2 Porcupine East Claim Block

No drilling has been conducted on the Porcupine East claim block since IAMGOLD's 2012-2013 drilling program. The work described in Bugnon and Landon (2015) and other historical work on the claim block is summarized in Section 6 of this report.

10.3 Pitt Gold Claim Block

No drilling has been conducted by First Mining on the Pitt Gold claim block. A summary of the work described in Lewis and San Martin (2017) and other historical drilling on the claim block is included in Section 6 of this report.

10.4 Duquesne Claim Block

No drilling has been conducted by First Mining on the Duquesne claim block. A summary of the historical drilling on the claim block is included in Section 6 of this report.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

First Mining has not conducted any sample preparation, analyses and security on any work programs related to the mineral resource on the Project prior to the effective date of the current resource estimate.

Sampling completed by previous exploration companies was subject to that company's standard of internal quality control and quality assurance (QA/QC) programs at the time, which included the insertion of certified reference materials, blank materials and a level of duplicate analysis.

11.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

The following text, adopted and modified from Iund et al. (2022), describes the sample preparation, analysis and security procedures for the drilling programs conducted by Clifton Star Resources, Beattie Gold Mines, 2588111 Manitoba, and 2699681 Canada on the Beattie, Donchester, Dumico and Central Duparquet claim blocks between May 6, 2013 and the end of 2018.

11.1.1 Core Handling, Sampling and Security

The drill core was boxed, covered and sealed at the drill rigs and transported by the drilling company employees to the core logging facility at the Beattie mine, where company personnel took over the core handling.

The core was logged and sampled by, or supervised by geologists, all members in good standing with the OGQ (Québec's professional order of geologists). A geologist marked the samples by placing a unique identification tag at the end of each core sample interval. Sample contacts respected lithological contacts and/or changes in the appearance of mineralization or alteration (type and/or strength). A technician sawed each marked sample in half. One half of the core was placed in a plastic bag along with a detached portion of the unique bar-coded sample tag, and the other half returned to the core box with the remaining tag portion stapled in place. The core boxes were stored in outdoor core racks for future reference. Individually bagged samples were placed in security-sealed rice bags along with the sample list for delivery to the assay laboratory.

One blank and one certified reference material ("CRM" or "standard") were inserted for every twenty samples. The laboratory was required to assay one pulp duplicate for every twenty samples processed.

For every 100 samples sent to the laboratory, the numbers ending in the following digits represent QA/QC samples:

- 15, 35, 55, 75, or 95 = standard
- 17, 37, 57, 77, or 97 = pulp duplicate of the preceding sample
- 20, 40, 60, 80, or 00 = blank.

11.1.2 Laboratory Accreditation and Certification

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) form the specialized system for worldwide standardization. ISO / IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories sets out the criteria for laboratories wishing to demonstrate that they are technically competent, operating an effective quality system, and able to generate technically valid calibration and test results. This standard forms the basis for laboratory competence accreditation.

Samples from the 2013 to 2018 drill programs were sent to Activation Laboratories Ltd ("Actlabs") in Sainte-Germaine-Boulé, Québec, for preparation and analysis. Actlabs received ISO / IEC 17025 accreditation through the Standards Council of Canada ("SCC") and is a commercial laboratory independent of First Mining and has no interest in the Project. Actlabs purchased Techni-Lab S.G.B Abitibi Inc. ("Techni-Lab") in 2010 and modernized the facility as well as enlarging the sample preparation facilities.

11.1.3 Laboratory Preparation and Assays

Samples were analyzed for gold using fire assay with atomic absorption spectroscopy ("AAS") finish. The nominal sample weight was 50 g.

Techni-Lab followed the methodology below:

- Samples are sorted, bar-coded, and logged into the Techni-Lab LIMS program before being placed in the sample drying room.
- Samples are crushed in their entirety to 85% passing 8 mesh (2.4 mm) using either an oscillating jaw crusher or a roll crusher. A 250 to 300 g fraction derived from the crushing process is pulverized using a ring mill to 90% passing 150 mesh (106 µm).
- Assay results are provided in Excel spreadsheets, and the official certificate (signed and sealed) is provided as a PDF file.
- The pulverized pulps are placed in kraft sample bags, and the un-pulverized portions are returned to their original sample bags.

- The remainder of the crushed samples (the rejects) and the pulps are returned to the client and stored at the Beattie mine facility.

Samples with grades over 5.0 g/t Au were re-assayed with a gravimetric finish. If the assay result from the gravimetric finish exceeded 10 g/t Au, then the sample was re-assayed by the metallic sieve method.

11.1.4 Quality Assurance and Quality Control (QA/QC)

The QA/QC program for the drill core included the insertion of blanks, standards, and duplicates in the core sample stream. About 15% of the samples were QA/QC samples in the sampling and assaying process. One standard, one blank sample of barren rock, and one duplicate were added to each group of 20 samples as an analytical check for the laboratory batches.

Geologists were responsible for the QA/QC program and database compilation. Upon receiving the analytical results, the geologists compared the results for the blanks and standards against the expected values. If QA/QC acceptability was achieved for the analytical batch, the data was entered into the project's database; and if it failed, the laboratory was asked to review and address the issue, including retesting the batch if required.

The results of the QA/QC programs for the 2013 to 2018 drilling campaigns on the Beattie, Donchester, Dumico, and Central Duparquet claim blocks are discussed in the following sections.

11.1.4.1 Standards (Certified Reference Materials)

Accuracy at the assay laboratory was monitored by inserting CRM samples at a ratio of one standard for every 20 samples (1:20). CDN Resource Laboratories Ltd of Langley, British Columbia, supplied the CRMs. A QC failure is when the assay result for a standard falls outside three standard deviations ("3SD") from the expected value. Gross outliers were excluded from the standard deviation calculation.

Fourteen different standards were used between 2013 and 2018. Of the 310 CRM samples, eight returned results outside 3SD (Table 11.1).

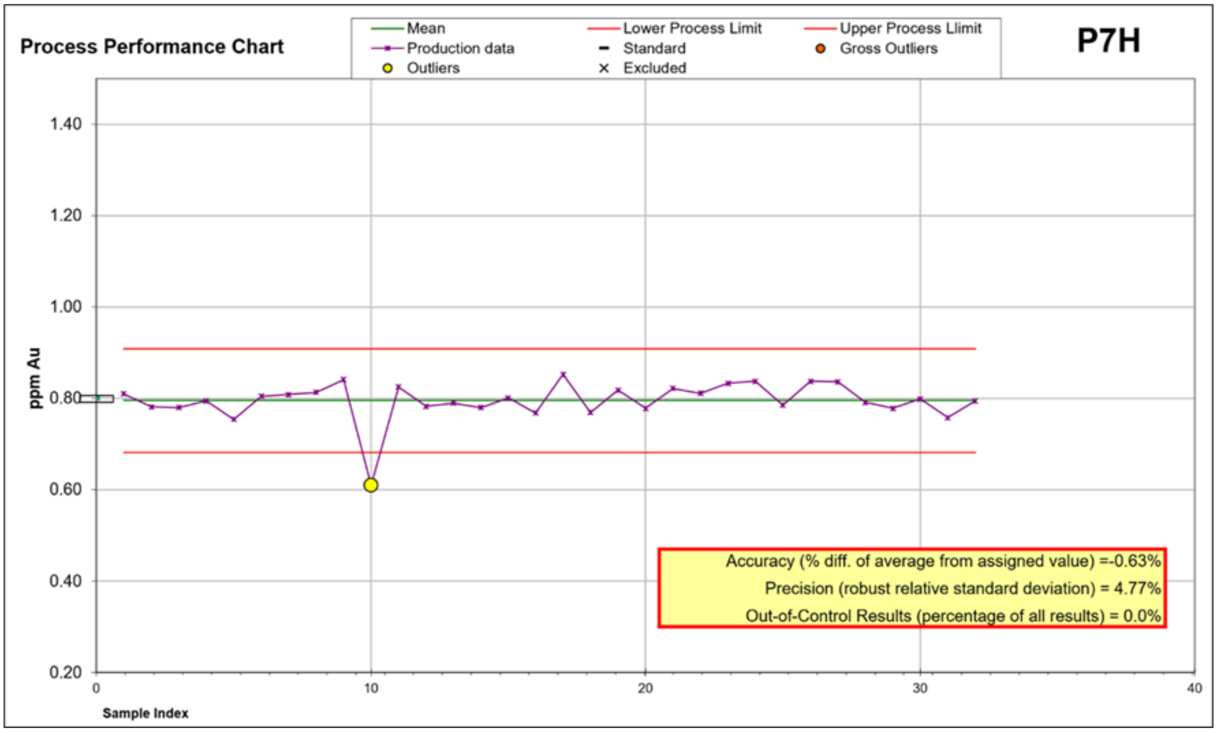
Table 11.1:Results of CRM Standards Used Between 2013 to 2018

CRM	No. of Assays	CRM Value (Au g/t)	Average (Au g/t)	Accuracy (Au g/t)	Precision (%)	Outlier	Gross Outliers	Percent Passing QC
CDN-GS-1D	3	1.05	1.04			0	0	100
CDN-GS-2F	1	2.16	2.37			0	0	100
CDN-GS-1J	35	0.95	0.97	2.4	7.2	1	0	97
CDN-GS-1P5F	34	1.4	1.44	3	6	0	1	97
CDN-PGMS-23	33	0.49	0.5	1.8	6.7	0	0	100
CDN-GS-2J	3	2.36	2.38			0	0	100
CDN-GS-1K	27	0.87	0.84	-2.7	9.6	0	1	96
CDN-GS-2K	35	1.97	2.04	4	7	1	0	97
CDN-GS-2L	33	2.34	2.45	4.7	4.8	0	0	100
CDN-GS-P3B	3	0.41	0.41			0	0	100
CDN-GS-P3C	35	0.26	0.26	-1.2	6.4	0	1	97
CDN-GS-P7E	35	0.77	0.78	1.6	6.4	1	0	97
CDN-GS-P7H	32	0.8	0.79	-0.6	4.8	1	0	97
CDN-GS-P8	1	0.78	0.82			0	0	100

Of the eight fails, three were identified as gross outliers. The project operator at the time took action to explain the cause of the abnormal values. Two results were due to an inversion between two standards (CDN-GS-1P5F and CDN-GS-1K). The third outlier seemingly indicates a problem at the laboratory (a slight underestimation of the grade) because the other standards in the batch had passed the QA/QC; considering the possible underestimation was minor, the results were deemed valid.

The overall success rate of the standards was 98%. Outliers did not generally show persistent analytical bias (either below or above the 3SD limit). They were close to the 3SD threshold and appeared to be isolated errors, as other standards and blanks processed in the same batches had passed. Consequently, no batch re-runs were performed. Figure 11.1 shows an example of a control chart for the standard CDN-GS-P7H assayed by Techni-Lab. A similar control chart was prepared for each CRM to visualize the analytical concentration value over time.

Figure 11.1: Control Chart for Standard CDN-GS-P7H Assayed by Techni-Lab



Source: InnovExplo, 2023

The overall results exhibit a slight positive bias in terms of accuracy, with an average of +1.5% and a precision of around 6.1% for standards. Both parameters meet standard industry criteria.

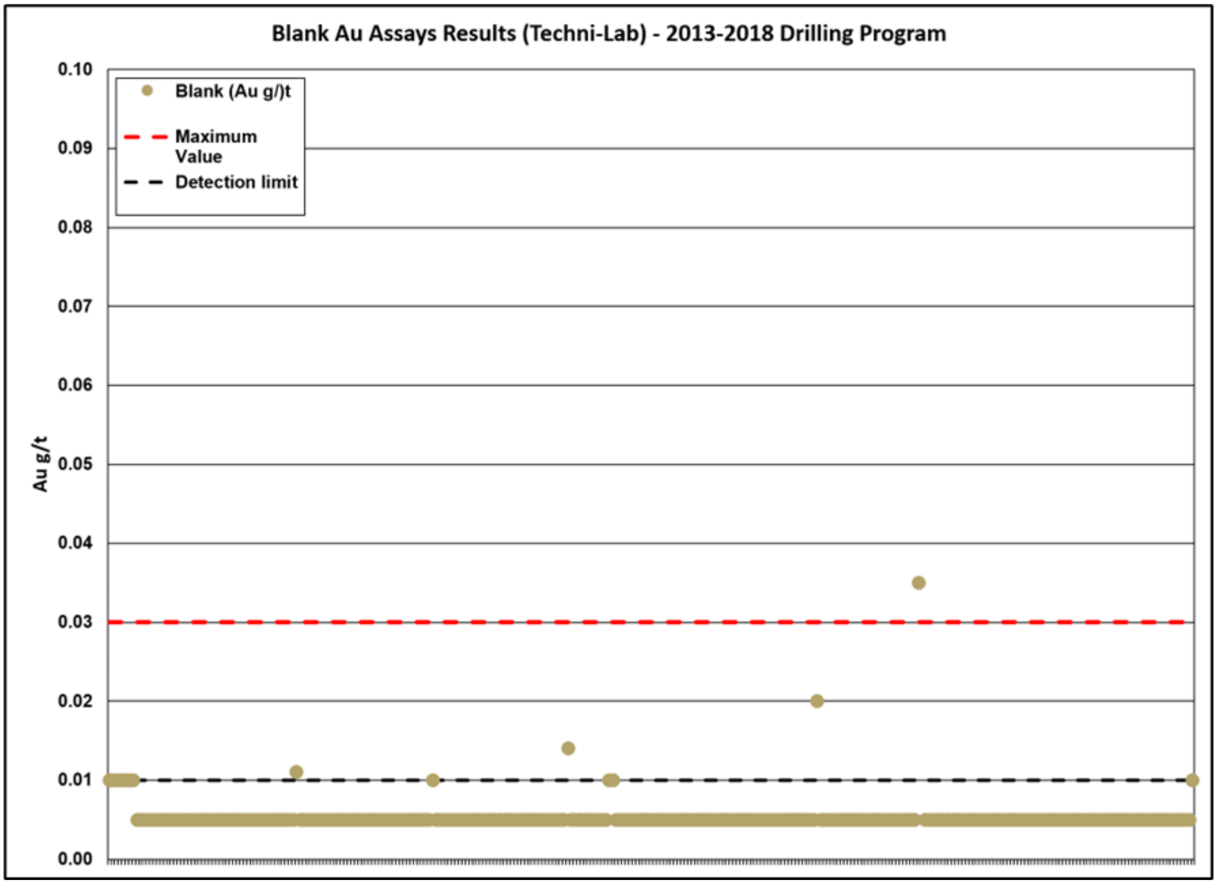
11.1.4.2 Blank Samples

Contamination was monitored by the routine insertion of barren samples (blanks), which went through the same sample preparation and analytical procedures as the core samples.

A total of 313 blanks were inserted in the sample batches from 2013 to 2018. The blank material consisted of crushed marble. A general guideline for success during a QAQC program is a rate of 90% of blank assay results not exceeding the acceptance limits of three times the detection limit (“3DL”). The detection limit was 0.01 g/t Au.

One sample did not pass the quality control procedure, representing a success rate of 99.6% (Figure 11.2).

Figure 11.2: Time Series Plot for Blank Samples Assayed by Techni-Lab from 2013 to 2018



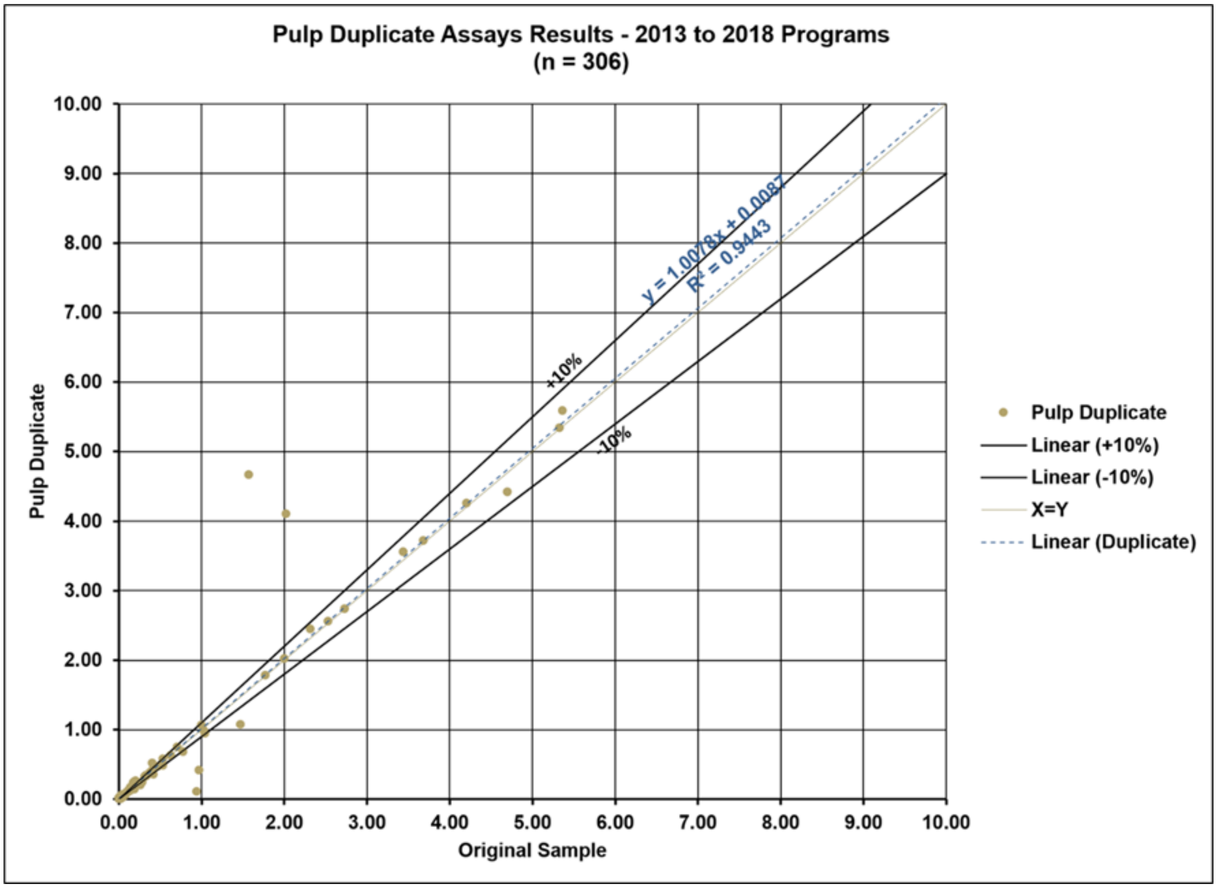
Source: InnovExplo, 2023

11.1.4.3 Pulp Duplicates

The precision of pulp duplicates can be used to determine the incremental loss of precision for the pulp pulverizing stage of the process, thereby establishing whether a given pulp size taken after pulverization is adequate to ensure representative fusing and analysis.

Three hundred and six pulp duplicates were assayed in the 2013 to 2018 drilling programs. The differences between the original and duplicate analyses are presented in the scatter plot of Figure 11.3. Results show a good precision with R2=0.94. Results also show a good accuracy monitored by the linear regression line (between the 10% tolerance limit).

Figure 11.3: Linear Graph Comparing Original and Pulp Duplicate Samples Analyzed by Techni-Lab from 2013 to 2018



Source: InnovExplo, 2023

11.1.5 Conclusion

The QPs are of the opinion that the sample preparation, security, analysis, and QA/QC protocols performed from 2013 to 2018 on the Beattie, Donchester, Dumico, and Central Duparquet drilling programs followed generally accepted industry standards and the assay data is both valid and of sufficient quality for mineral resource estimation.

11.2 Porcupine East Claim Block

First Mining has not conducted any new sampling or analytical work on the Porcupine East claim block since it acquired the claims.

11.3 Pitt Gold Claim Block

No new sample preparation or analytical work has been conducted on the Pitt Gold claim block since December 15, 2016, the database close-out date for the previous Mineral Resource Estimate (Lewis and San Martin, 2017). The following sections describe the sampling, assaying and safety protocols used by Brionor and Normabec on the Pitt Gold claim block and were extracted and modified from Lewis and San Martin (2017).

11.3.1 Core Handling, Sampling and Security

Normabec first employed the sampling methods and approach outlined in this section for its 2005 and 2006 drilling programs. These methods were continued throughout Normabec's programs and those of its successor, Brionor.

Core boxes were collected at the drill site every morning by the project geologist or their assistant. Core boxes were opened at the company core shed and labelled according to the hole number and depth of the interval in the box. The core was then logged by the geologist, who outlined intervals to be sampled with red marks. Two sample tags were placed with each sample; one tag was placed in the sample bag, with the second remaining in the core box to identify the sample location. Sample information was listed in both the sample book and the geologist's log (date, interval sampled).

The geologist decided the size of the interval to be sampled based on geological criteria such as geological contacts, alteration, and mineralization. Samples rarely exceeded a maximum length of 1.5 m and were usually greater than 30 cm. The majority of the sampling was conducted using 1.0 m intervals or shorter. All samples respected the geological boundaries.

Selected intervals for assaying were split in two using a hydraulic core splitter. One half of the interval was placed in a plastic bag with one of the sample tags left in the box. The other half was put back at its original location in the core box with the second tag to identify the sample interval for future reference. The sample bag was sealed and readied for shipping to the laboratory. The core splitter was thoroughly cleaned using fine brushes between every sample to avoid contamination.

Once all samples had been collected from a core box, the boxes were piled outside the company core shed and eventually strapped when piles reached 1.5 m high. Samples were brought or shipped to the laboratory at regular intervals depending on volume (every week or every few days). Only company employees were permitted to handle the samples before they reached either the laboratory or a shipping company that was employed to deliver the samples to the laboratory. Brionor stated that in no instance was any officer, director, or associate of Brionor involved in any aspect of the sample preparation.

The core pulps and rejects were stored outdoors in Rouyn-Noranda at a storage facility rented by Brionor and previously by Normabec. The pulps and rejects were not provided to First Mining when they acquired the property from Brionor. Any available drill core for Pitt Gold was moved by First Mining to the Duquesne mine site.

11.3.2 Laboratory Accreditation and Certification

Activation Laboratories Ltd ("Actlabs") in Sainte-Germaine de Boulé was the accredited independent laboratory used by Brionor for the 2010 exploration program. Actlabs is an independent laboratory that has ISO / IEC 17025 accreditation through the Standards Council of Canada ("SCC"). Neither Techni-Lab nor Actlabs had an interest in Brionor or its predecessor, Normabec.

The laboratory used to assay the samples for the 2005, 2006 and 2007 drilling programs was Laboratoire Expert Inc. ("Expert Inc"), which was not accredited per ISO/IEC Guideline 17025 by the SCC at the time. However, this was common for local laboratories, and they usually participated in several round robins with other laboratories while pursuing certification, without affecting the quality of the assaying being performed.

In 2008, Techni-Lab was chosen to conduct the assaying, and they continued with the assaying for the 2010 drilling program.

11.3.3 Laboratory Preparation and Assays

The following is a description of the procedures used by Actlabs for the sample preparation and analysis of the 2005 to 2010 core samples.

11.3.3.1 Gold Analysis

- Samples received were compared with the client's list, then dried at 100-110°C for as long as needed (typically 3-4 hours).
- Samples were crushed using TM Engineering Rhino Jaw crushers, typically to a size of at least 85% passing a 10-mesh sieve.
- Samples were split using a riffle splitter to obtain a typical sub-sample of approximately 250 g.

- The sub-sample was pulverized, using a TM Engineering ring pulverizer, to a size of at least 85% passing a 200-mesh sieve. The sub-sample was then thoroughly mixed to ensure homogeneity.
- A portion (30 g) of the sub-sample was then weighed in a crucible, with fluxes and litharge, according to method TMT-G3. The lead button produced was sent to the cupellation phase, and the resulting silver/gold bead was dissolved in a microwave oven with aqua regia and analyzed according to method TMT-G5D (atomic absorption finish).

11.3.3.2 Quality Control

- Particle size distribution was verified (crushing and pulverizing stages) at the frequency of 1-in-20 samples.
- In each batch of 20 samples, Actlabs included a blank, a duplicate, and two CRM samples.
- Samples over 3 g/t Au were analyzed for a second time to confirm the assay, using a technique agreed upon by the client and the laboratory.
- Crushers and pulverizers were cleaned using glass (crushers) and commercially available crushed glass at a frequency determined by the client.

11.3.4 Quality Assurance and Quality Control (QA/QC)

A QA/QC program was originally implemented in 2005 and continued throughout subsequent drilling programs. In addition to the systematic checks conducted by the laboratory (use of standards and duplicates), Normabec/Brionor used four different certified standard reference material samples and one blank standard sample. Table 11.2 summarizes the four CRM standards.

Table 11.2: Summary of the CRM Standards Used by Brionor

CRM	Gold Assay (g/t)
SI 25	1.801
OxK 48	3.557
OxC 44	0.197
SJ 32	2.645

The CRMs were supplied by RockLabs Ltd. of New Zealand.

The material used for the blank samples was commercial landscaping gravel made of limestone obtained from the local Canadian Tire store.

On average, Brionor randomly introduced one standard and one blank for every 30 samples. All samples returning values above 3 g/t Au were systematically re-assayed (above 1 g/t Au from 2005 to 2007). Duplicate sampling was performed regularly by the laboratory.

11.3.4.1 QA/QC Results from the 2010 Exploration Program

Due to the small number of samples generated during the 2010 exploration drilling program, only eight blank samples and seven standard samples were introduced into the sample stream by Brionor. Table 11.3 summarizes the assay results obtained by Actlabs for the blank and standard samples.

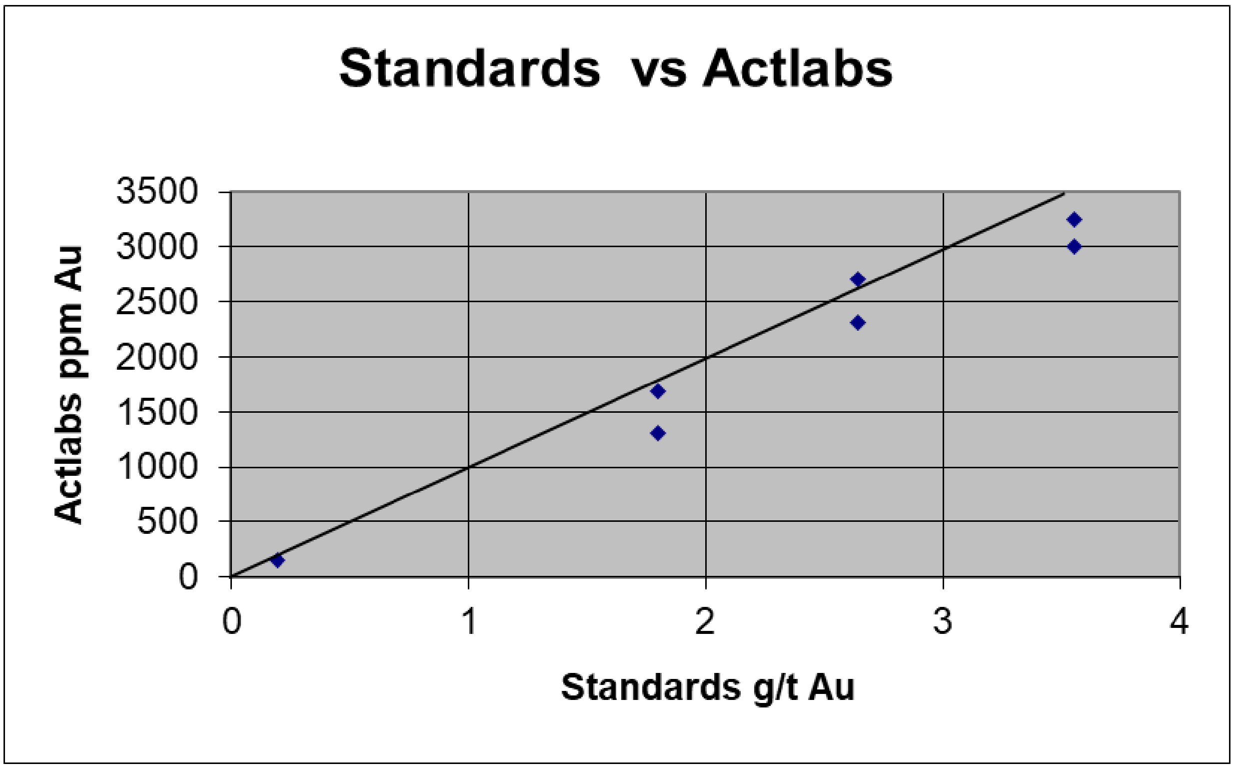
Table 11.3: QA/QC Results from the 2010 Program

Sample ID	Type of Control Sample	CRM Value (g/t Au)	Actlabs Result (g/t Au)
34030	Blank		
34060	Standard	3.557	3.01
34090	Blank		<0.005
34120	Standard	2.645	2.309
34150	Blank		<0.005
34180	Standard	1.801	1.314
34210	Blank		<0.007
34240	Standard	0.197	0.152
34270	Blank		<0.005
34300	Standard	1.801	1.693
34330	Blank		0.048
34360	Standard	3.557	3.253
34390	Blank		<0.007
34420	Standard	2.645	2.705
34450	Blank		<0.005

In general, the results of the blank samples were good, other than sample 34330, which returned a value of 0.048 g/t Au. This result is high when compared to the other results and may indicate that some contamination of the sample occurred. However, the overall QA/QC on the assay is still within acceptable standards and does not indicate significant bias.

There is generally a good correlation between the published CRM values and the Actlabs results for the standards. The correlation is shown in Figure 11.4.

Figure 11.4: Published CRM Values Versus Actlabs Results



Source: InnovExplo, 2023

Actlabs conducted duplicate sampling as part of its standard QA/QC procedures.

Table 11.4 summarizes the assay results obtained by Actlabs for the duplicate samples.

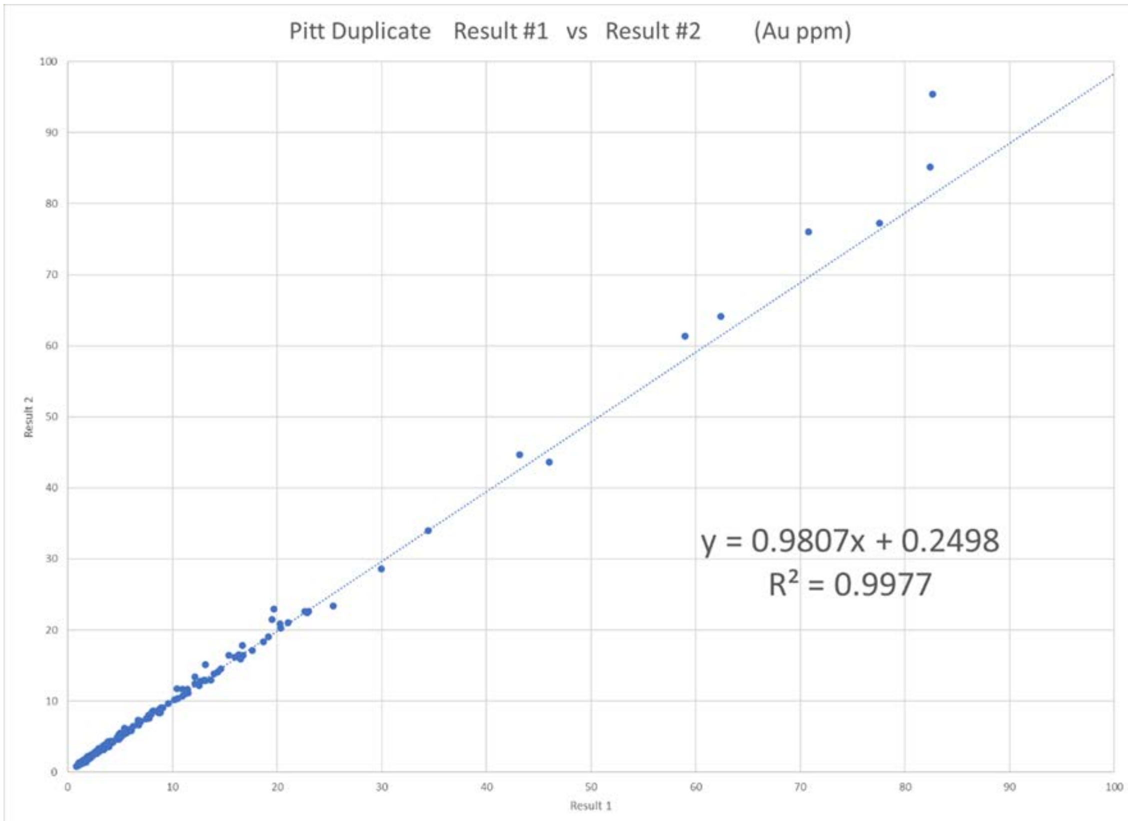
Table 11.4: Actlabs Duplicate Assay Results

Drill Hole ID	Sample ID	Actlabs Assay Results (g/t Au)		
		1st Sample	2nd Sample	3rd Sample
PG2010-03	34107	4.302	4.148	
	34153	1.192	1.288	
	34206	5.425	6.2	
	34209	12.17	12.43	
PG2010-04	34425	2.295	2.208	
PG2010-06	34399	11.279	11.07	
PG2010-07	34261	1.396	1.381	11.1
	34283	4.871	4.66	
	34311	3.849	4.3	

The samples assayed by Actlabs showed good correlation with their laboratory duplicates. Micon recommended, however, that Brionor conduct its own duplicate sampling in future exploration programs, using either quarter-core samples or the rejects derived from the sample preparation process, to provide the laboratory with blind duplicates.

Figure 11.5 presents all duplicate assays completed since 2005.

Figure 11.5: 2005-2010 Duplicates



Source: InnovExplo, 2023

Table 11.5 lists the CRM standards used by Normabec / Brionor starting late in the 2008 exploration program and continuing into the 2010 program.

Table 11.5: Certified Reference Material Standards in the 2008-2010 Programs

Standard ID	Gold Assay (g/t)
SI 25	1.801
OxK 48	3.557
OxC 44	0.197
SJ 32	2.645

(Lewis W.J. and San Martin A.J. 2017)

All the CRMs were supplied by RockLabs Ltd. of New Zealand.

The material used for the blank samples was commercial landscaping gravel made of limestone obtained from the local Canadian Tire store.

On average, Brionor randomly introduced one standard and one blank for every 30 samples. All samples returning values above 3 g/t Au were systematically re-assayed (above 1 g/t Au from 2005 to 2007). After 2007, samples above 3 g/t Au were selected for sampling at the discretion of the geologist. Duplicate sampling was performed regularly by the laboratory. Neither Normabec nor Brionor used a second laboratory as a secondary check laboratory.

11.3.4.2 2005-2006 Exploration Program

During the 2005-2006 exploration drilling program, 24 blank samples and nine standard samples were introduced into the sample stream. Table 11.6 summarizes the assay results obtained from the laboratory for the CRM standards, and Figure 11.6 shows the results for the blank samples.

In general, the results of the blanks were good, and there does not appear to be any significant bias to the assay results.

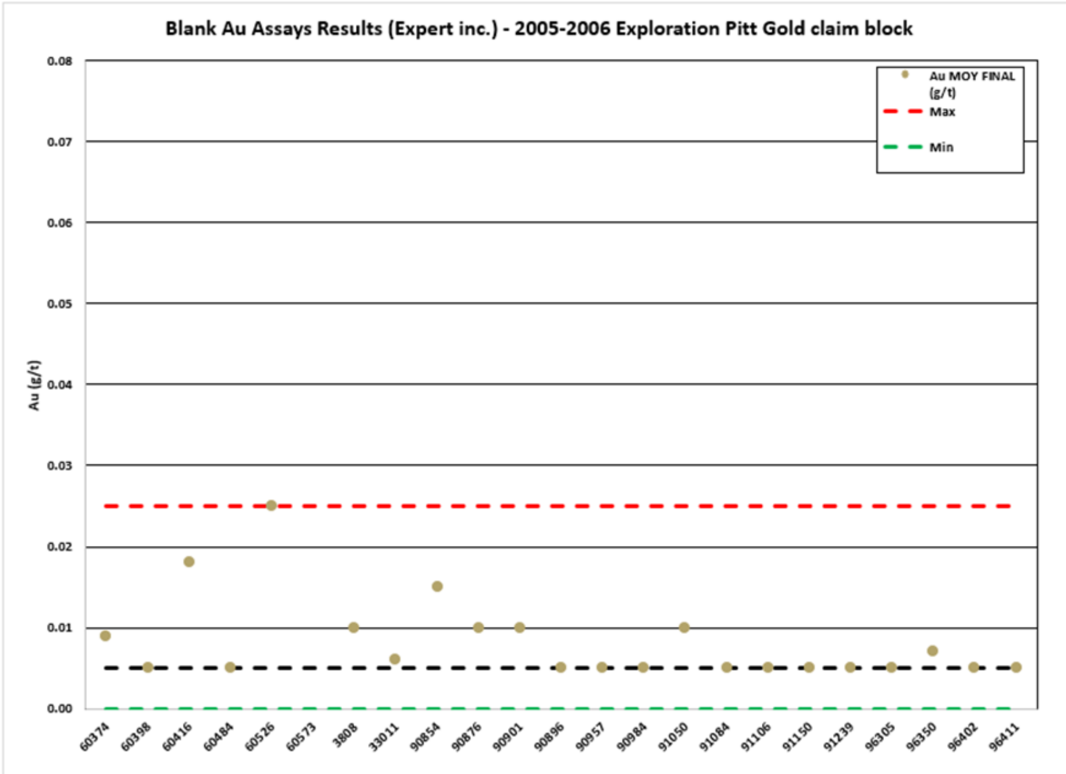
There is generally good correlation between the published CRM values and the laboratory results for these samples.

However, there was one standard failure, although it appears that this was possibly a recording error, and the incorrect sample was inserted rather than the intended one.

Table 11.6: Standard and Blank Samples Used in 2005 and 2006

Sample ID	Control Sample Type	CRM Value (g/t Au)	Assay Results (g/t Au)	
			Standard Sample (g/t)	Blank Sample (g/t)
60425	Standard C	1.53	1.376	
60443	Standard B	0.968	0.985	
60458	Standard C	1.53	1.738	
60497	Standard B	0.968	0.922	
60540	Standard A	0.85	0.927	
60599	Standard D	6.6	6.087	
3809	Standard A	0.85	0.969	
91107	Standard Fail	error	5.98	Possibly Standard J
96412	Standard J	5.758	5.761	

Figure 11.6: 2005-2006 Results for Blanks (n=23) Assayed by Expert Inc.

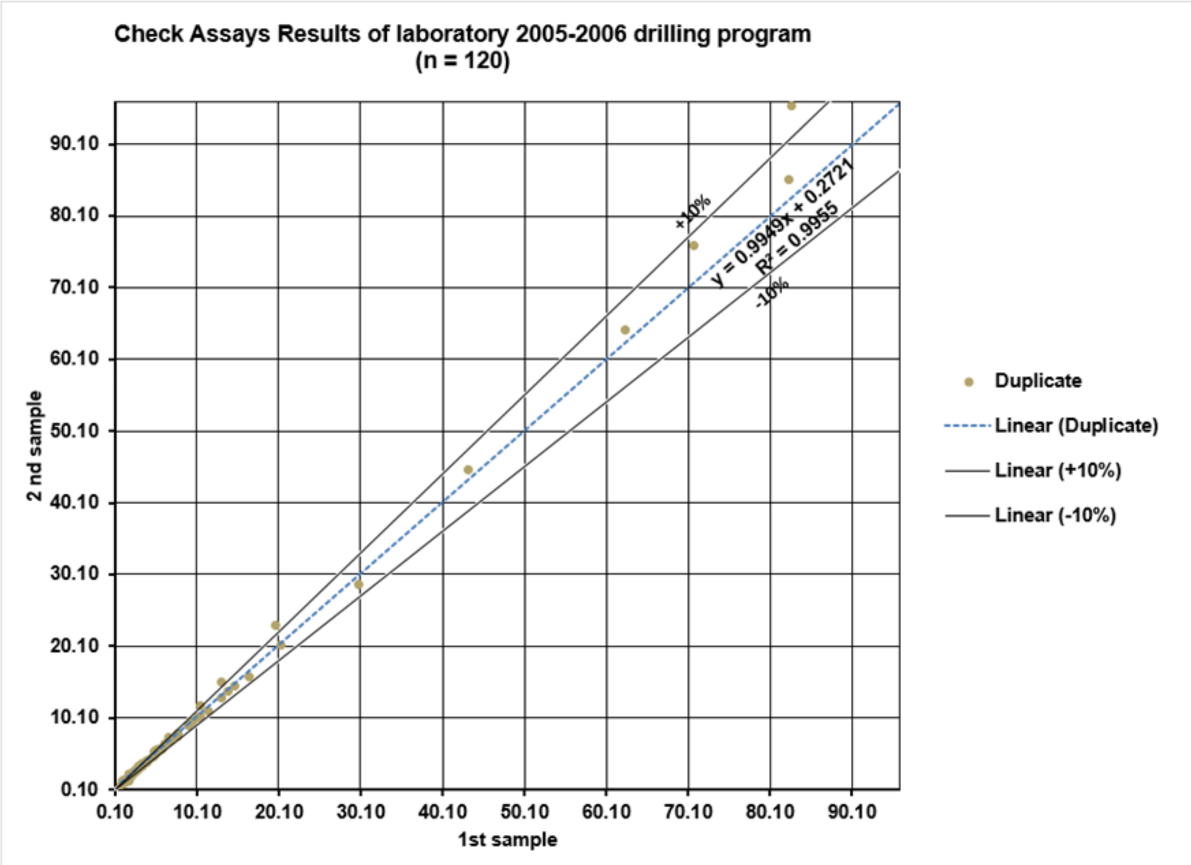


Source: InnovExplo, 2023

The laboratories analyzed 120 duplicate samples as part of their standard QA/QC procedures from 2005 to 2006 (Figure 11.7).

Repeatability was found to be good, with R2 = 0.99.

Figure 11.7: 2005-2006 Results for Check Assays (n=120)



Source: InnovExplo, 2023

11.3.4.3 <u>2007 Exploration Program</u>

During the 2007 exploration drilling program, six blank samples and nine standard samples were sent for gold assay. Table 11.7 summarizes the assay results returned from the laboratory for these samples.

In general, the results were good, without any significant bias. There is generally good correlation between the published CRM values and the laboratory results for these samples.

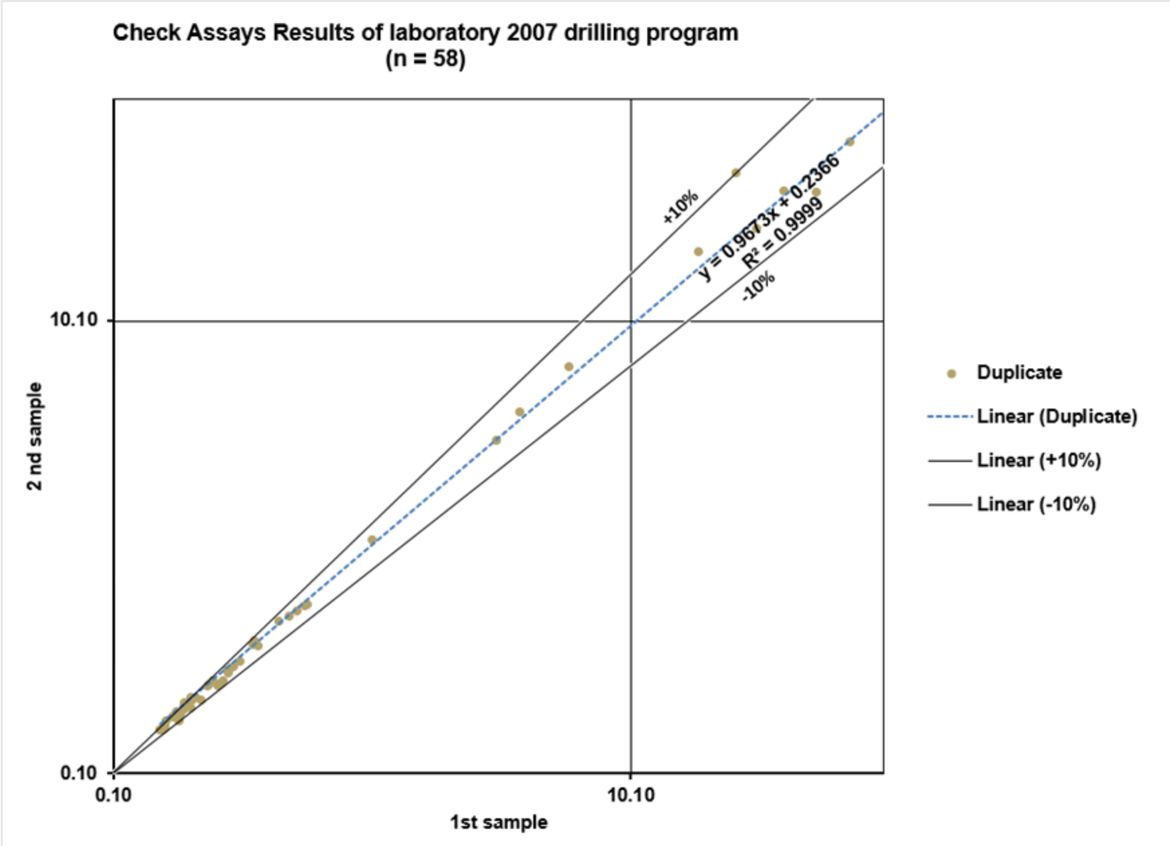
Table 11.7: Standards and Blanks Used in 2007

Sample ID	Control Sample Type	CRM Value (g/t Au)	Standard and Blank Sample (g/t)
95651	Standard B	0.968	0.989
95834	Standard J	5.758	5.918
96127	Standard B	0.968	1.036
20573	Standard B	0.968	0.972
96245	Standard J	5.758	5.83
89381	Standard	0.0811	0.078
89436	Standard	0.197	0.194
95652	Blank		0.005
95835	Blank		0.023
96128	Blank		0.005
20576	Blank		0.006
96246	Blank		0.005
89382	Blank		0.005
89437	Blank		0.005

(Lewis W.J. and San Martin A.J. 2017)

The laboratories prepared and analyzed 58 duplicate samples during their QA/QC procedures for the 2007 drilling program. Figure 11.8 summarizes the assay results obtained by the laboratories for the duplicates they prepared. In general, the results for the duplicate samples show a good correlation with each other. Repeatability was good with R2 = 0.99.

Figure 11.8: 2007 Results for Check Assays (n=58)



Source: InnovExplo, 2023

11.3.4.4 <u>2008 Exploration Program</u>

During the 2008 exploration drilling program, six blank samples and 9 standard samples were sent for gold assay. Table 11.8 summarizes the assay results obtained from the laboratory for the blanks and standards.

In general, the results of the blank samples were good for the 2008 program, apart from sample 112480 which returned a value of 0.163 g/t Au. This result is high when compared to the other results. It may indicate that slight contamination of the sample occurred. However, the overall assay is still very low and does not indicate significant bias.

There is generally good correlation between the published CRM values and the laboratory results for these samples.

Table 11.8: 2008 Blanks and Standards

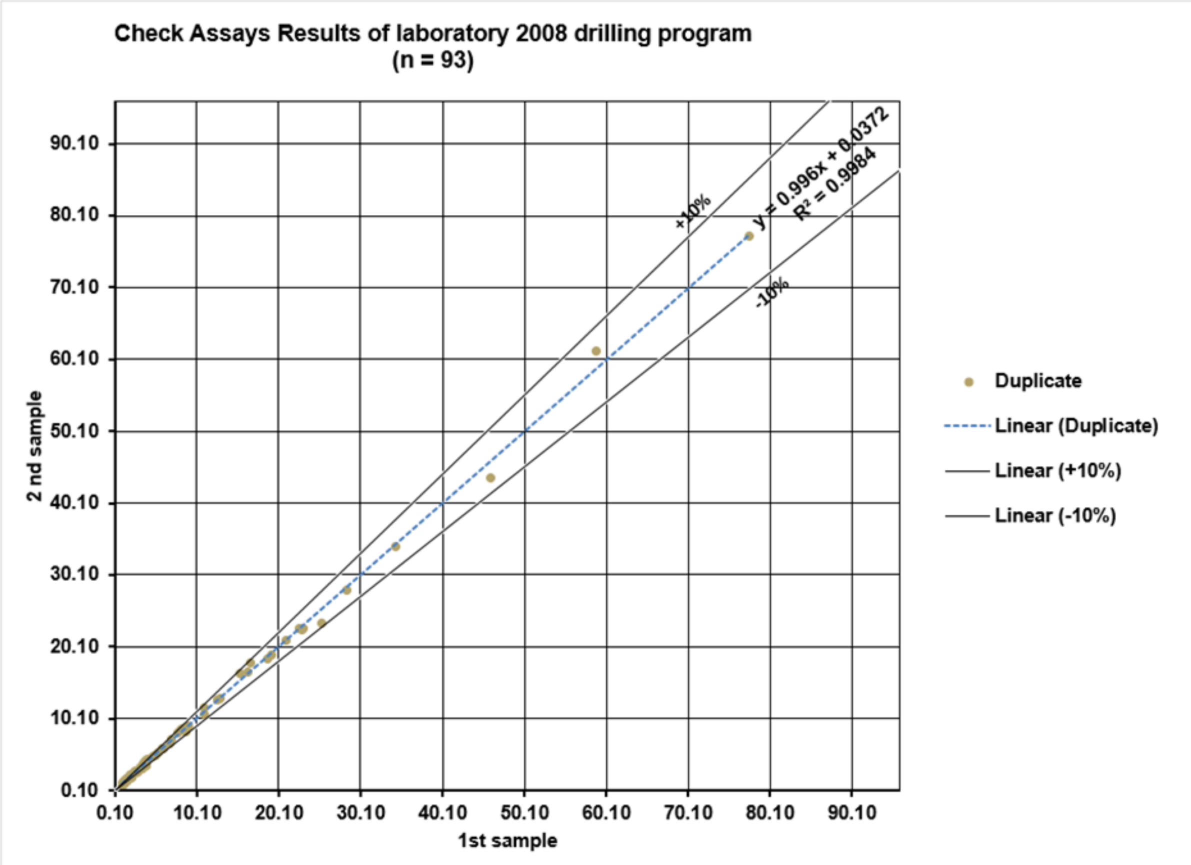
Sample ID	Control Sample Type	CRM Value (g/t Au)	Assay Results (g/t Au)	
			Standard Sample	Blank Sample
112041	Standard	2.645	2.628	
112302	Standard	0.197	0.196	
112438	Standard	1.801	1.726	
112479	Standard	0.197	0.196	
29496	Standard	2.645	2.48	
5742	Standard	1.801	1.823	
29409	Standard	1.801	1.716	
29438	Standard	0.197	0.216	
29467	Standard	0.197	0.211	
112002	Blank			0.034
112042	Blank			0.005
112103	Blank			0.005
112303	Blank			0.005
112439	Blank			0.005
112480	Blank			0.163

(Lewis and San Martin, 2017)

Ninety-three duplicate samples were prepared and analyzed by the laboratories during their QA/QC procedures for the 2008 drilling program. Figure 11.9 summarizes the assay results obtained by the laboratories for the duplicates they prepared.

In general, the duplicates assayed show a good correlation with each other. Repeatability is good, with R2 = 0.99.

Figure 11.9: 2008 Results for Check Assays (n=93)



Source: InnovExplo, 2023

11.3.4.5 <u>2010 Exploration Program</u>

Due to the small number of samples generated during the 2010 exploration drilling program, only eight blank samples and seven standard samples were assayed by Brionor. Table 11.9 summarizes the assay results obtained by Actlabs for the blanks and standards.

In general, the results of the blank samples were good for the 2010 program, other than sample 34330, which returned a value of 0.048 g/t Au. This result is high when compared to the other results. It may indicate that some contamination of the sample occurred. However, the overall assay is still very low and does not indicate significant bias.

There is generally good correlation between the published CRM values and the Actlabs results for these samples (Figure 11.10).

Table 11.9: Standards and Blanks Used in 2010

Sample ID	Control Sample Type	CRM Value (g/t Au)	Actlabs Assay Results (Au)	
			Standard Sample (g/t)	Blank Sample (g/t)
34060	Standard	3.557	3.01	
34120	Standard	2.645	2.309	
34180	Standard	1.801	1.314	
34240	Standard	0.197	0.152	
34300	Standard	1.801	1.693	
34360	Standard	3.557	3.253	
34420	Standard	2.645	2.705	
34030	Blank			<0.005
34090	Blank			<0.005
34150	Blank			<0.005
34210	Blank			0.007
34270	Blank			<0.005
34330	Blank			0.048
34390	Blank			0.007
34450	Blank			<0.005

(Lewis and San Martin, 2017)

Figure 11.10: Certified Standard Reference Material Samples, Published Results versus Actlabs Results

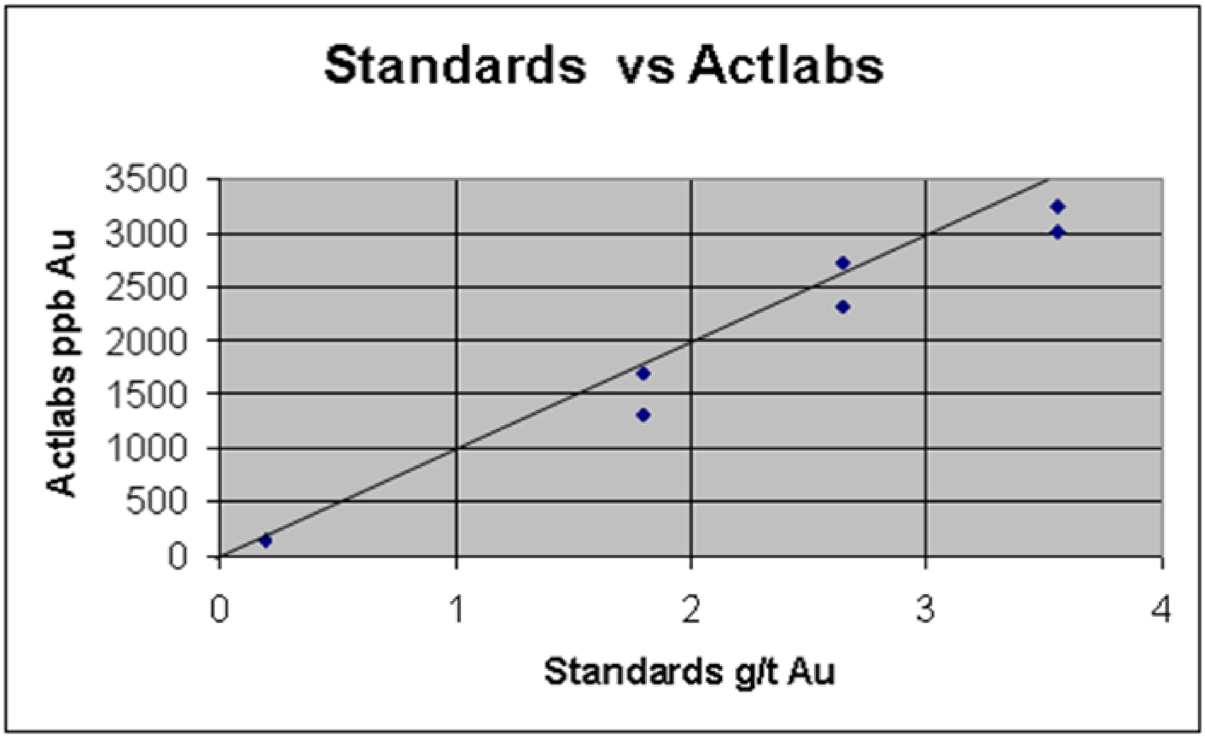


Figure extracted from Lewis and San Martin 2016 .

Actlabs conducted duplicate sampling during its QA/QC procedures in 2010.

Table 11.10 summarizes the assay results obtained by Actlabs for the nine duplicate samples it prepared during the analysis of Brionor's samples.

The duplicate samples assayed by Actlabs show a good correlation with each other. However, Micon recommended Brionor conduct its own duplicate sampling in future exploration programs.

Brionor did not use a secondary assay laboratory during the 2010 exploration program, so there is no comparison of the original assays conducted by Actlabs against the results obtained by a secondary laboratory for any of the samples.

Table 11.10: Summary of the Duplicate Samples Prepared by Actlabs for the 2010 Drilling Program

Drill Hole ID	Sample ID	Actlabs Assay Results (g/t gold)		
		1st Sample	2nd Sample	3rd Sample
PG2010-03	34107	4.302	4.148	----
	34153	1.192	1.288	----
	34206	5.425	6.2	----
	34209	12.17	12.43	----
PG2010-04	34425	2.295	2.208	----
PG2010-06	34399	11.279	11.07	11.1
PG2010-07	34261	1.396	1.381	----
	34283	4.871	4.66	----
	34311	3.849	4.3	----

Table extracted from Lewis and San Martin 2016 .

11.3.5 Conclusion

The author reviewed the QA/QC work undertaken by Brionor and concluded that it was of an acceptable standard for the type of sampling conducted. However, the author recommended that Brionor add its own field duplicates to the sampling process for future drilling programs rather than relying on the assay laboratory for duplicate sampling. The purpose of the field duplicates would be to evaluate the sampling procedures conducted on-site and the consistency of the assay laboratory results.

A secondary laboratory was not used to validate the results of the primary laboratory during Brionor's 2010 drilling program. The author also recommended that future exploration conducted by Brionor should include the addition of a secondary assay laboratory as a validation of the assay procedures of the primary laboratory.

No further QA/QC work was conducted on any samples by Brionor since the original Micon technical report was published in 2011.

The author of this report reviewed the QA/QC data for the Pitt Gold claim block and the author finds the sample preparation, security, analysis and QA/QC protocols for the 2005-2008 and 2010 programs followed generally accepted industry standards and that the data is valid and of sufficient quality for a mineral resource estimation.

11.4 Duquesne Claim Block

The most recent drilling on Duquesne was conducted by Clifton Star during 2007 to 2010 when they had an option on the Duquesne Project. First Mining has not conducted any new drilling on the Duquesne claims since acquiring the property.

The following sections were adopted and modified from Rioux (2016).

11.4.1 Core Handling, Sampling and Security

11.4.1.1 2007-2009 Drilling Programs

During the 2007-2009 drilling programs, the workflow from drilling to core storage was as follows:

- The drilling contractor brought the NQ-size core to the old Beattie mine site
- Clifton Star employees received the core boxes outside on framework supports
- The core boxes were opened, measured, and tagged
- The core boxes were placed in outdoor core racks
- The core boxes were brought into the core shack, and Clifton Star's geologists logged them
- While logging the core, geologists indicated with a red mark where the core would be split
- Once the core was split, the logging geologist also sampled the core
- Each sample was put into a plastic bag along with a numbered tag
- Samples were analyzed for gold only
- Clifton Star stored the pulps and rejects at the old Beattie mine site
- 60 g standards were integrated into the project's sample stream. In general, one standard sample was inserted for every 20 core samples

11.4.1.2 2010 Drilling Program

The blanks and standards were inserted every twenty samples, according to the geologist's instructions. ALS Minerals collected the samples and transported them to the ALS Minerals facility for assaying.

The workflow from drilling to storage of the core, was as follows:

- The drilling contractor brought the NQ-size core to the old Beattie mine site
- Clifton Star's employees received the core boxes outside on framework supports, and a quick log was performed
- The core boxes were opened, measured, and tagged
- The core was logged in detail
- The core was sawed
- The core boxes were placed in outdoor core racks
- Once the core was split, a technician completed the sampling
- Each sample was put into a plastic bag along with a numbered tag
- Samples were analyzed for gold only
- Clifton Star kept the pulps and rejects at the old Beattie Mine site
- 60 g standards were integrated into the project's samples. In general, one standard sample was inserted for every twenty core samples

11.4.2 Laboratory Accreditation and Certification

Three different laboratories were used from 2007 to 2010: Techni-Lab (Actlabs) in Ste-Germaine Boulé, Laboratoire Expert in Rouyn-Noranda, and ALS Chemex in Val-d'Or.

Techni-Lab (Actlabs) in Ste-Germaine Boulé, and ALS Chemex in Val-d'Or are ISO-certified and independent of the property owners. Laboratoire Expert in Rouyn-Noranda is not ISO-certified.

Handling procedures vary with the type of samples transported to the selected laboratory.

11.4.3 Laboratory Preparation and Assays

11.4.3.1 2007-2009 Drilling Programs

The following procedure was used to prepare samples for the assay laboratory:

- Samples were sent to the elected laboratory for that year (as indicated in Section 11.3.1)
- Samples were analyzed for gold only
- Clifton Star stored the pulps and rejects at the old Beattie mine site

- All three laboratories used fire assay with AAS finish to analyze the samples; if the grade was over 3 g/t Au, they automatically reassayed using a gravimetric analysis
- The bags containing samples were closed with a tie wrap or other type of clip
- Approximately 15 bags were put into a transport container and sent to the laboratory
- When ALS Chemex was conducting the analyses, they came to site to collect the containers on a regular basis
- When Techni-Lab and Laboratoire Expert were conducting the analyses, Clifton Star employees transported the containers to the laboratory
- Laboratoire Expert conducted the 2009 assay program and analyzed the samples by atomic absorption and gravimetric method
- No blanks were integrated into the Duquesne sample stream
- Once sampled, the core boxes were stored on outdoor core racks at the Beattie mine site

OREAS certified reference material was supplied by Analytical Solutions Ltd of Toronto. Clifton Star used the following standards from 2007 to 2009:

- O53Pb, QMP @ 0.623 g/t ±0.021
- O15Pa, Basalt @ 1.02 g/t ±0.030
- O6Pc, Greywacke @ 1.52 g/t ±0.070
- OPc, Greywacke @ 2.77 g/t ±0.050
- O61d, Meta-andesite @ 4.76 g/t ±0.140

11.4.3.2 2010 Drilling Program

Samples from the 2010 drilling program were shipped to the ALS Chemex laboratory in Val-d’Or.

The following procedure was used to prepare samples for the laboratory:

- Samples were analyzed for gold only
- Clifton Star stored the pulps and rejects at the old Beattie mine site
- The laboratories analyzed the samples using fire assay with AAS finish; if the grade was over 3 g/t Au, they automatically reassayed using a gravimetric analysis
- The bags containing samples were closed with a tie wrap or other type of clip

- Approximately 15 bags were put into a transport container and shipped to the laboratory
- ALS Chemex collected sample containers on a regular basis
- Once sampled, the core boxes were stored on outdoor core racks at the Beattie mine site

The OREAS certified reference material used during the 2010 program was supplied by Analytical Solutions Ltd of Toronto. The standards used were:

- O50Pb 0.841 g/t ± 0.016
- O52Pb 0.307 g/t ± 0.008
- O53Pb 0.623 g/t ± 0.011
- O54Pa 2.90 g/t ± 0.070
- O61d 4.76 g/t ± 0.070
- O6Pc 1.52 g/t ± 0.070

Other certified reference material was used during the 2010 program and was supplied by Rocklabs Ltd. of New Zealand. The standards used were:

- SF45 0.848 g/t ± 0.010
- SG31 0.996 g/t ± 0.011

For the 2010 drilling program (12,051 samples), 42 samples assayed above 10 g/t Au, 11,469 samples (95%) assayed below 1 g/t Au, and 84.5% of the total samples assayed below 0.2 g/t Au. Statistics based on the data above 0.2 g/t show that 98% of the values are less than 11 g/t Au.

11.4.4 Quality Assurance and Quality Control

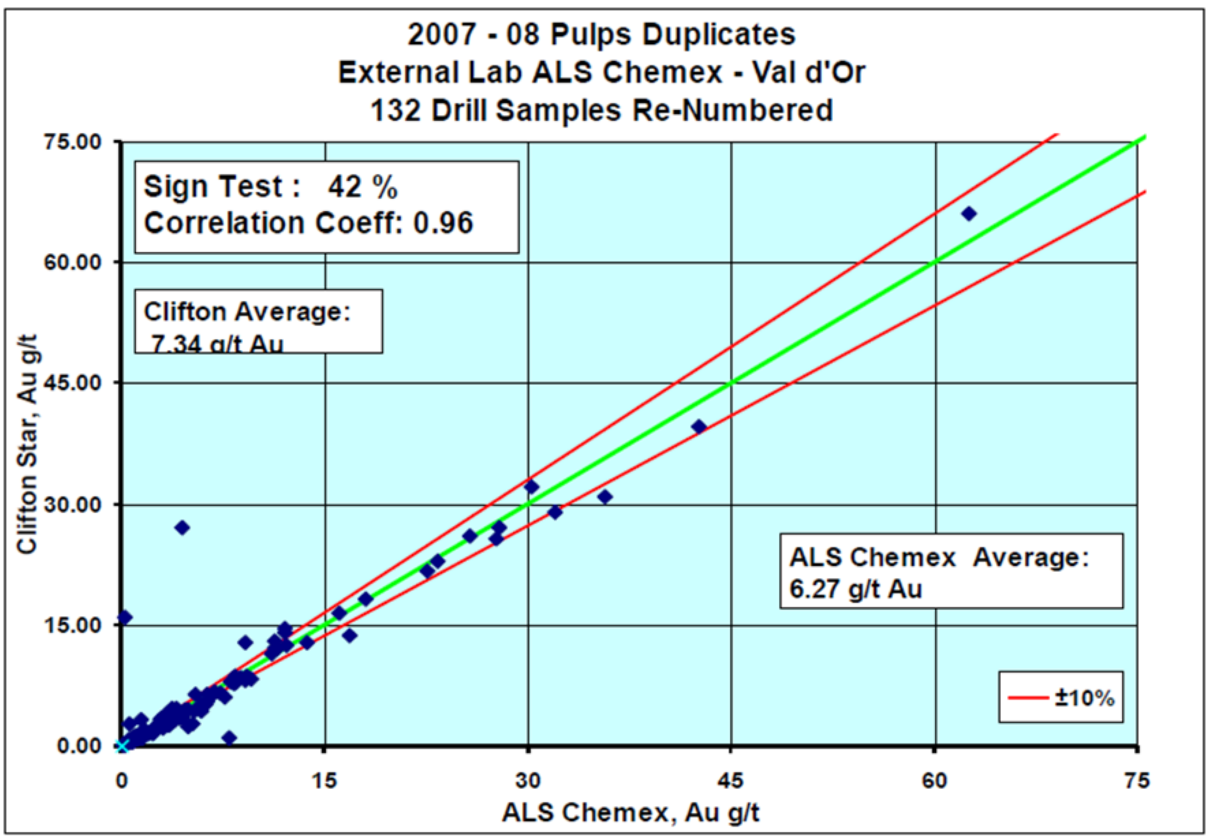
The QA/QC data from the Duquesne claim block has been reviewed by the QP against the original data from the 2016 Technical Report (Rioux, 2016).

11.4.4.1 2007-2008 Pulps and Rejects Re-analysis

The pulps and rejects from the 2007 and 2008 drill holes were re-analyzed by Duquesne Gold Mines Ltd. A total of 230 verification analyses were conducted on samples from 41 different holes and from significant mineralized zones (zones 74, 10, 20 and 30). ALS Chemex in Val-d'Or performed the analyses. The method used was the same as that used by Clifton Star. First, assaying was conducted by fire assay with AAS finish, and for samples greater than 3 g/t Au, an additional gravimetric analysis was done. Figure 11.11 and Figure 11.12 illustrate the results of the pulp duplicate analysis in which 132 samples were assayed. A 96% correlation coefficient was observed. The sign test result was 42% and indicated that ALS Chemex's results had a higher-grade trend. In 57% of the analyses the difference between Clifton Star's and ALS Chemex's results exceeded the expected 10%, which is higher than the normally accepted industry standard. This hindered repeatability and the laboratory methodology was thought to be a potential contributor. To identify and rectify the issue, assaying at a third independent laboratory was recommended (Rioux, 2016).

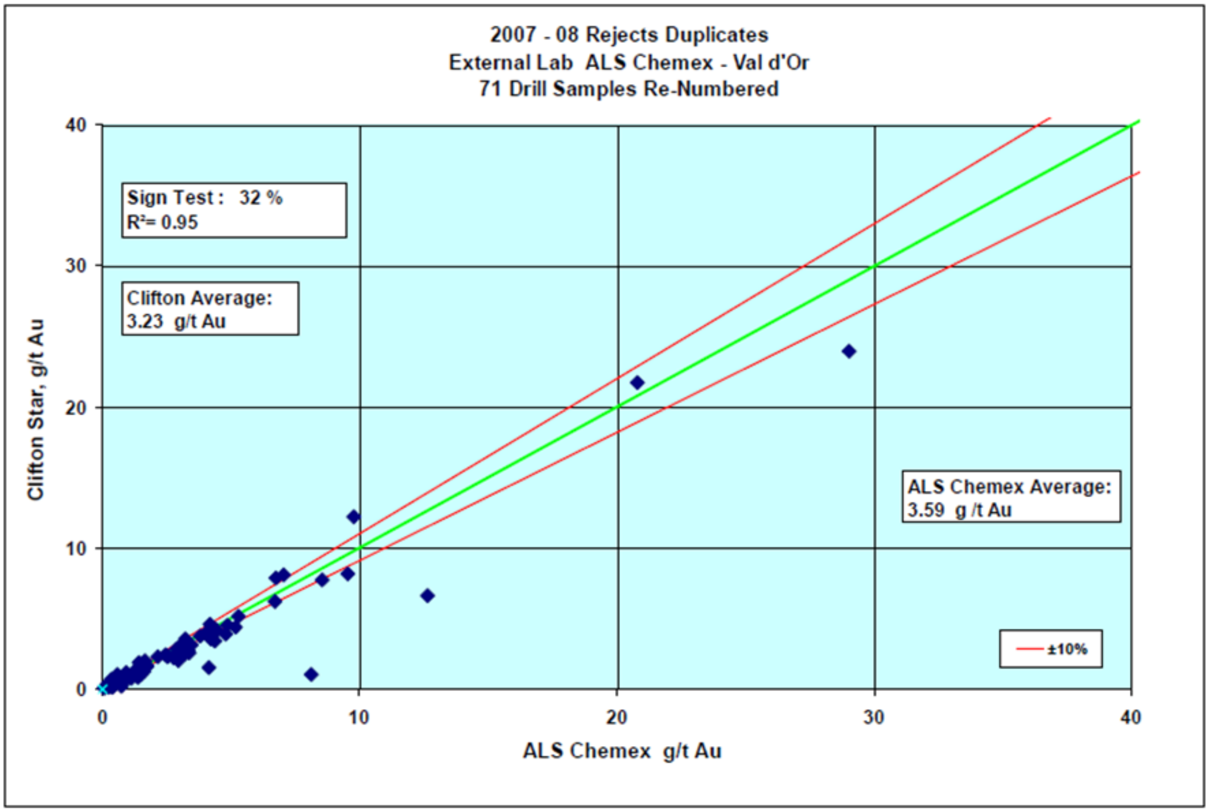
In the reject-duplicate graph (Figure 11.12), 71 samples were considered. The correlation coefficient was 95%, but the sign test result was only 32%, indicating ALS Chemex's laboratory results had a trend of obtaining a higher grade. In almost 42% of the analyses, the difference between Clifton Star's and ALS Chemex's results exceeded the expected 20%, which is higher than the normally accepted industry standard. Consequently, it was difficult to reproduce the results for the rejects and therefore it was recommended that the reject-duplicates also be assayed at a third independent laboratory to identify and rectify the issue.

Figure 11.11: 2007-2008 Pulp Duplicates (Rioux, 2016)



Source: InnovExplo, 2023

Figure 11.12: 2007-2008 Pulp Duplicates (Rioux, 2016)



Source: InnovExplo, 2023

11.4.4.2 <u>2009 Re-assays and New Samples</u>

In December 2009, Rioux re-sampled the core previously drilled by Radisson to validate the mineralization grades. The remaining half core of the selected intervals was re-split into quarter core and sent to the ALS Laboratory in Val-d'Or, maintaining the same sample intervals. Sampling was also carried out on new sections of syenite containing a small amount of pyrite.

A total of 184 samples were sent to the laboratory: 125 re-assays, 36 new samples, 11 blanks and 12 standards.

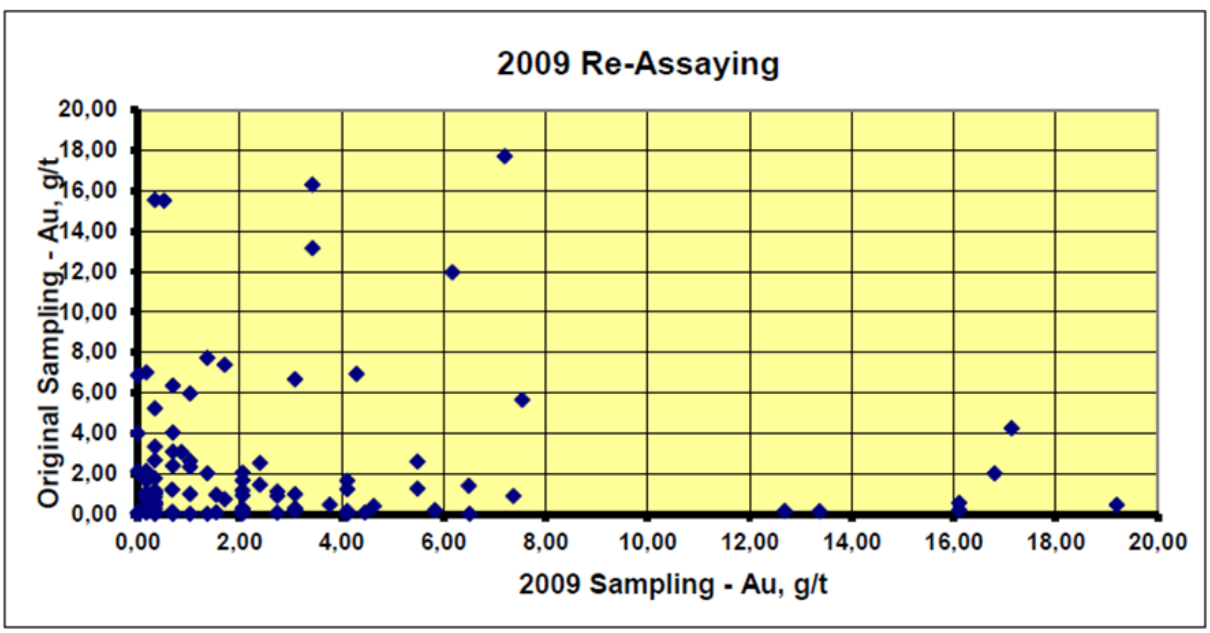
Table 11.11 and Figure 11.13 compare the original results against the 2009 re-assays. The results highlight a significant variance between the two datasets, with the potential influence of a nugget effect being identified as a contributor, as is typical for this type of mineral deposit. As a result of this natural variability, repeatability of assay results from the historical drilling may be difficult to obtain.

Table 11.11: Comparison of Average Original Assays Versus 2009 Re-assays

Hole ID	From (m)	To (m)	Length (m)	Original Assays (g/t Au)	Re-assays (g/t Au)	Difference (%)
DQN90-94	21.5	29.36	7.86	3.38	2.06	164
DQN90-94	37.74	40.75	3.01	2.38	2.33	102
DQN90-96	15	20	5	6.64	2.13	312
DQN90-96	46.5	72.6	26.1	4.71	4.97	95
DQN87-36	89.38	96.2	3.93	1.46	1.13	129
DQN87-33	8.6	13.42	4.82	2.6	0.6	433
DQN90-100	64.9	68.15	3.25	8.6	8	108
DQN90-100	72.34	77.07	4.73	2.6	1.33	195
DQN90-99	26	45.85	19.85	0.9	0.85	106
DQN87-32	37.22	43.72	13.6	2.09	0.82	255
DQN87-38	18.28	32.1	14.7	3.4	3.4	100

(Rioux, 2016)

Figure 11.13: Comparison of Original Results Versus 2009 Re-assays



(Rioux, 2011 reissue 2016)

11.4.4.3 2010 Drilling Program

During the 2010 drilling program, eight CRMs were used (Table 11.12). In general, the results of the CRM samples fall within accepted tolerance. The original control charts can be found in the Rioux (2016) report.

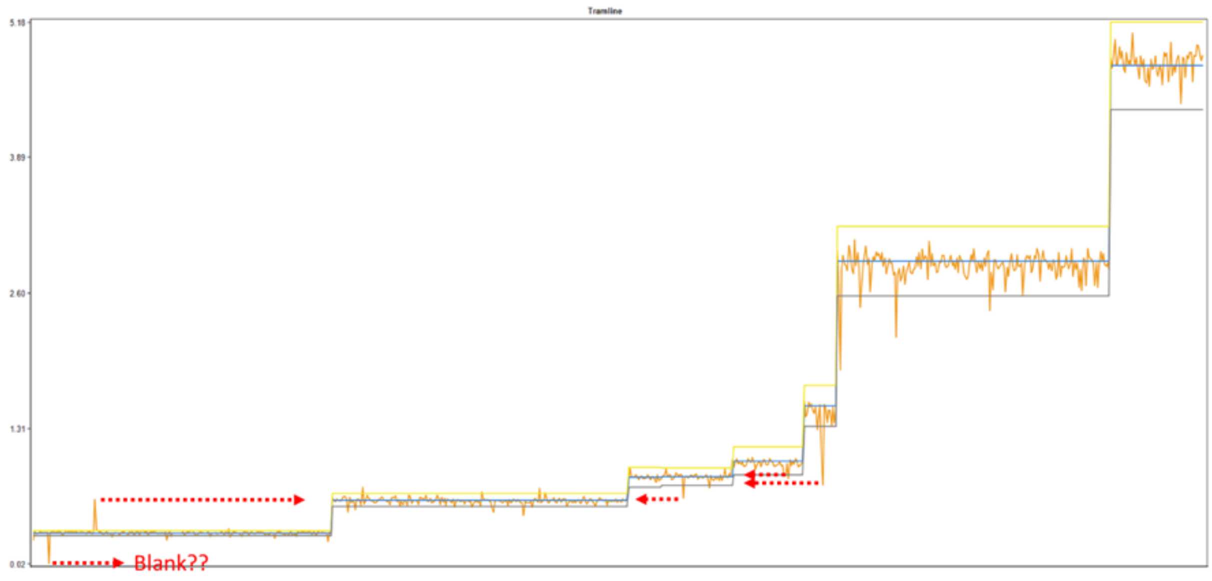
A number of the failures could be attributed to CRM insertion errors, potentially indicating switching of standards. Figure 11.14 shows a CRM tramline whdddere the possible CRM inversion can be seen.

The blanks used during the 2010 drilling program were composed of commercial decorative rock available in hardware stores. It was assumed they have no metal content. Out of 372 samples, one sample had an unacceptable value (Figure 11.15).

Table 11.12: CRM Statistics

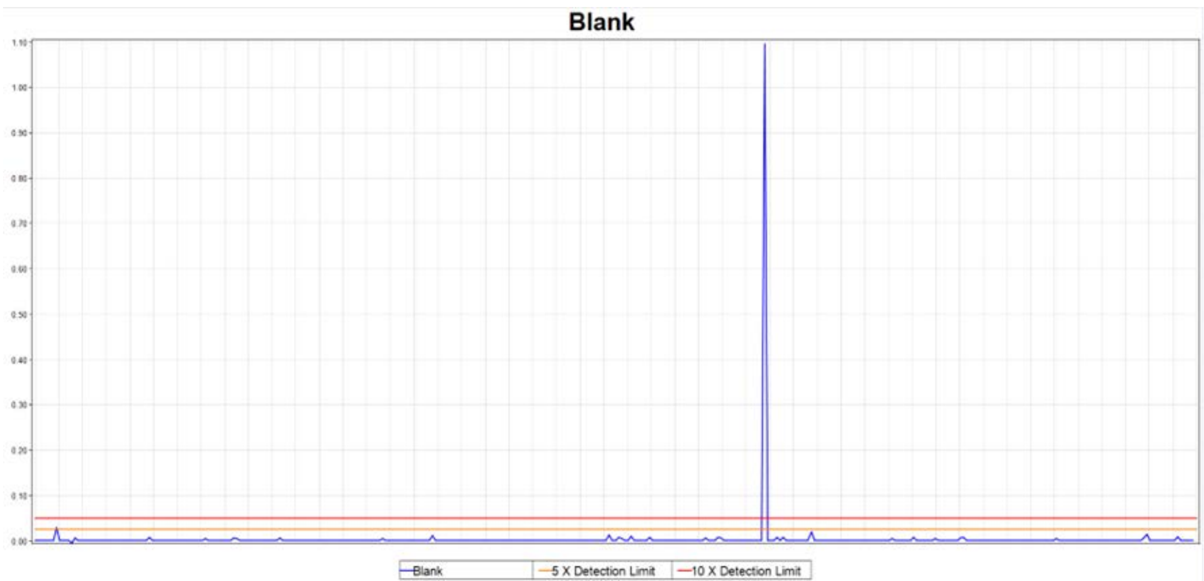
CRM Quality Control							
CRM	Count	Value	Sigma	Pass	Warning	Failed	% Failed
O50Pb	23	0.84	0.03	22	1	-	-
O52Pb	208	0.31	0.01	168	20	20	9.62
O53Pb	206	0.62	0.02	178	16	12	5.83
O54Pa	190	2.9	0.11	176	10	4	2.11
O61d	65	4.76	0.14	63	2	-	-
O6Pc	23	1.52	0.07	17	3	3	13.04
SF45	50	0.85	0.03	45	2	3	6
SG31	49	1	0.04	46	1	2	4.08

Figure 11.14: Tramline Showing all Standards on One Graph



Source: InnovExplo, 2023

Figure 11.15: Results of Blank Samples



Source: InnovExplo, 2023

11.4.5 Conclusion

Duplicate sample IDs in the QAQC dataset provided could not be correlated with their parent sample, as sample IDs for the latter are missing in the current assay database. For the purposes of the QP data review for the PEA, information on any duplicate analyses was referenced in the Rioux (2016) report.

A statistical analysis of QA/QC data has been conducted on the CRM samples and the blanks. Globally, this analysis meets accepted industry standards. Most observed errors are probably linked to CRM switches (Figure 11.4).

The QP's validation of the statistical analysis of QA/QC data extracted from the Rioux (2016) report for the 2002-2008 program has identified some analytical discrepancies. The author's opinion is the sample preparation, analysis, QA/QC, and safety protocols used for those programs met generally accepted industry standards at the time, but currently prevent a higher level of estimation confidence. As such, the Duquesne Mineral Resource Estimate is entirely classified as Inferred. Improvements to the QA/QC program are recommended, including re-analyzing historical drilling in economic zones, adding a third laboratory to validate the other laboratory results and adding twin holes for validation

12 DATA VERIFICATION

12.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

First Mining has not conducted any work on these claim blocks prior to the database close-out date for the 2022 MRE (Iund et al., 2022).

The following information was adopted and modified from Iund et al. (2022).

Data verification included visits to the Project and an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

12.1.1 Site Visits

This section covers the verification of all the new data that was added to the previously validated diamond drill hole ("DDH") database used in the 2014 MRE (Poirier et al., 2014). The 2014 MRE database close-out date was February 28, 2013. The close-out date for the current MRE database for these claim blocks is October 20, 2021.

Marina Iund (P.Geo.) visited the Project on October 20, 2021, and Carl Pelletier (P.Geo.) on November 16, 2011, and February 7, 2012.

12.1.2 Core Review

The core boxes are stored in core racks. The QPs found the core boxes to be in good order and properly labelled; the sample tags were still present. The wooden blocks at the beginning and end of each drill run were still in the boxes, matching the indicated footage on each box. The QPs validated the sample numbers and visually confirmed the presence of mineralization in the reference half-core samples (Figure 12.1).

Figure 12.1: Drill Core Review

A) Core racks; B and C) Proper labelling of the core racks and drill core boxes; D) Sample tag stapled in the core box; E) Mineralization in hole BD10 117

12.1.3 Database

Fifty-seven new diamond drill holes were added to the previously compiled and verified master database:

- 24 on the Beattie claim block
- 27 on the Donchester claim block
- 6 on the Central Duparquet claim block

Two holes drilled on Beattie in 2014 and 2015 (BD-14-01 and BD-15-01) had undergone later additional sampling of the mineralized zones, as noted during the drill core review, but the re-assay results were not reported in the available drill logs. For that reason, those holes were not included in the database.

The updated master database for the Beattie, Donchester, Dumico and Central Duparquet claim blocks contains 904 diamond drill holes, totalling 270,119 m and 173,831 sampled intervals.

12.1.3.1 Drill Hole Locations

Collar position coordinates and azimuths presented in the database use the UTM system (NAD 83, Zone 17).

The hole collars from the 2013 to 2018 diamond drilling programs were surveyed by Patrick Descarreaux Arpenteur-Géomètre Inc. of La Sarre using a Differential GPS with an established base station.

The author confirmed the coordinates of six surface holes using a handheld GPS (Figure 12.2 and Table 12.1). The readings were compared to the database, and the results were found to have acceptable precision.

The collar locations in the database are considered adequate and reliable.

Figure 12.2: Examples of Onsite Collar Location Verification (A) D13-27 collar; (B) B17-01 Collar

Table 12.1: Original Collar Survey Data Compared to InnovExplo's Checks

Hole ID	Original Coordinates		Checked Coordinates		Difference (m)	
	Easting UTM	Northing UTM	Easting UTM	Northing UTM	Easting UTM	Northing UTM
BD-16-01	630841.3	5374344	630840	5374345	1.3	-1.1
BD-13-38	630258.1	5374229	630258	5374233	0.1	-4.2
BD-17-01	631409.9	5374282	631409	5374291	0.9	-9.4
BD-18-01	631417.6	5374289	631417	5374290	0.6	-0.8
D-13-20	631627.2	5374496	631626	5374497	1.2	-1.3
D-13-27	632098.3	5374410	632090	5374410	8.3	-0.1

12.1.3.2 Downhole Surveys

Downhole surveys (Acid, Gyro, Pajari, Deviflex, Flexit and Reflex) were conducted on the majority of surface holes. The downhole survey information was verified for 5% of the holes used in the 2022 MRE. The holes were selected based on their representativeness in terms of the drilling program they were part of (with more focus on new drilling programs) and their geographical position with respect to the interpreted mineralized zones.

Minor errors of the type normally encountered in a project database were identified and corrected.

12.1.3.3 Assays

The QP had access to the assay certificates. The assays in the database were compared to the original certificates provided by the laboratory. The verified holes represent 5% of the First Mining database. The holes were selected based on their representativeness in terms of the drilling program they were part of (with more focus on new drilling programs) and their geographical position with respect to the interpreted mineralized zones.

Minor errors of the type normally encountered in a project database were identified and corrected.

12.1.3.4 Channel Sample Data

A total of 2,371 samples from 892 channels (for a total length of 1,827 m) had already been entered and validated in the master database (Poirier et al., 2014). As First Mining provided no new channel samples, no further verification of the channel data was deemed necessary.

The results of Clifton Star's 2013 channel sampling program were not included in the 2014 MRE, nor could they be included in the 2022 MRE because the results were not available to the author.

12.1.4 Conclusion

The author believes that the data verification process demonstrates the validity of the data and the protocols for the Beattie, Donchester, Dumico and Central Duparquet claim blocks. The author considers the database to be valid and of sufficient quality for use in the 2023 MRE herein.

12.2 Porcupine East Claim Block

First Mining has not performed any data verification for Porcupine East since it acquired the property. There are currently no Mineral Resource Estimates defined on the Porcupine East claim block.

12.3 Pitt Gold Claim Block

12.3.1 Site Visit

This item covers the verification of data supplied by First Mining for the Pitt Gold claim block and used in the current MRE. The close-out date of the 2023 MRE database is July 7, 2023.

Data verification included a site visit as well as an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

The author, Olivier Vadnais-Leblanc, visited the claim block on June 1, 2023, accompanied by Louis Martin from First Mining.

The author visited the core shack and offices in the town of Duparquet, where a First Mining geologist was logging drill core.

12.3.2 Collar Locations

Ten independent collar location surveys were conducted using a handheld GPS (Garmin 60 CSx). Many casings were no longer present or could not be located. For those that could, the locations corresponded to collar coordinates in the database. Azimuths and dips measured on the casings sometimes matched the database values, but other times were slightly different. However, casings with a different azimuth or dip often seem to have been physically disturbed.

Figure 12.3: Unidentified Casing on Pitt Claim Block

12.3.3 Core Review

The core boxes from the Pitt Gold claim block are stored outside on stacked palettes on the Duquesne claim block. Most labels are still on the boxes, but some of the plastic labels have fallen off. The boxes for some drill holes are stacked in an orderly fashion on the palettes, but those for other holes appear scattered between piles.

The author validated sample numbers and confirmed the presence of mineralization in the reference half-core samples.

The author conducted independent sampling, collecting eleven half core samples from a single drill hole and sending them to the ALS laboratory in Val d'Or to validate gold grades. Rock density was also measured on the same half core samples. The samples, representing mineralization and waste rock, were collected from the same drill hole given the difficulty of locating specific boxes in the stacked palettes. Independent analysis results are similar to original assay results.

Table 12.2: Pitt Gold Independent Sampling

Original Value Au g/t	InnovExplo Duplicate Value Au g/t	Difference Au g/t
0.06	0.04	0.02
0.11	0.5	0.39
1.26	1.08	0.18
1.57	2.02	0.45
18.69	23.3	4.61
1.65	1.19	0.46
34.43	39.8	5.38
0.82	0.7	0.12
0.11	0.08	0.03
0.23	0.29	0.06
0.15	0.16	0.01

Figure 12.4: Core Boxes from the Pitt Gold Claim Block Stacked on the Duquesne Claim Block

12.3.4 Database

The QPs reviewed all the drilling information from the Pitt Gold claim block that was used for the 2023 MRE. First Mining has not drilled any holes since the 2017 MRE was published (Lewis and San Martin, 2017).

The 2023 validation included all aspects of the drill hole database i.e., collar locations, drilling protocols, down-hole surveys, logging protocols, sampling protocols, QA/QC protocols, validation sampling, density measurements and checks against assay certificates.

12.3.4.1 Drill Hole Locations

The 5% validation of collar location coordinates has not been completed because the author would need to obtain the original paper registers containing local coordinates and compile the information within. No certificates of location were provided either. All collars were provided without elevation values (Z). Collar elevations have been projected onto a topographic surface obtained from: https://diffusion.mffp.gouv.qc.ca/Diffusion/DonneeGratuite/Foret/IMAGERIE/Produits_derives_LiDAR/.

12.3.4.2 Downhole Surveys

The downhole survey information was verified for 5% of the holes included in the 2023 MRE. Almost 43% of these holes could be validated, corresponding to drilling programs dating back to 2005. No errors were found in the data for these holes. Pre-2005 data would require compilation, although visual validation and interpretation show a general correspondence with the surveys.

12.3.4.3 Assays

The author had access to assay certificates and PDF drilling logs from 2005 and beyond that First Mining received through project data handover. This represents 39% of the 5% selection. The assays in the database were compared to the assay certificates and logs and no significant errors were detected. The author did not have access to the pre-2005 certificates or drilling logs. It is recommended that copies of the original certificates of analysis and historical drilling logs be sourced and made available.

12.3.5 Conclusion

The author is of the opinion that the sample preparation, analysis, QA/QC and safety protocols used for the Pitt Gold drill programs met generally accepted industry standards at the time but currently prevent a higher level of estimation confidence. As such the Pitt Gold Mineral Resource Estimate is wholly classified into the Inferred category. Recommendations from the author to improve the QA/QC program and overall data confidence are listed in Section 26.

12.4 Duquesne Claim Block

12.4.1 Site Visit

This item covers the verification of data supplied by First Mining for the Duquesne claim block and used in the current MRE. The close-out date of the 2023 MRE database was February 28, 2023.

Data verification included a site visit and an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

The author, Olivier Vadnais-Leblanc, visited the claim block on June 1, 2023, accompanied by Louis Martin from First Mining.

The author visited the core shack and offices in the town of Duparquet, the drill site, and the outcrops.

12.4.2 Collar Locations

The area is mostly covered by swamps and only select drill casings were accessed during the visit. Four collar locations were independently surveyed with a handheld GPS (Garmin 60CSx), and the readings correspond to the drill hole coordinates in the database. The azimuth and dip measured on the casings also correspond to the collar orientations in the database.

Figure 12.5: Casing on the Duquesne Claim Block

12.4.3 <u>Core Review</u>

Recent Duquesne core boxes are stored outside on the Beattie site in properly identified racks (Figure 12.6).

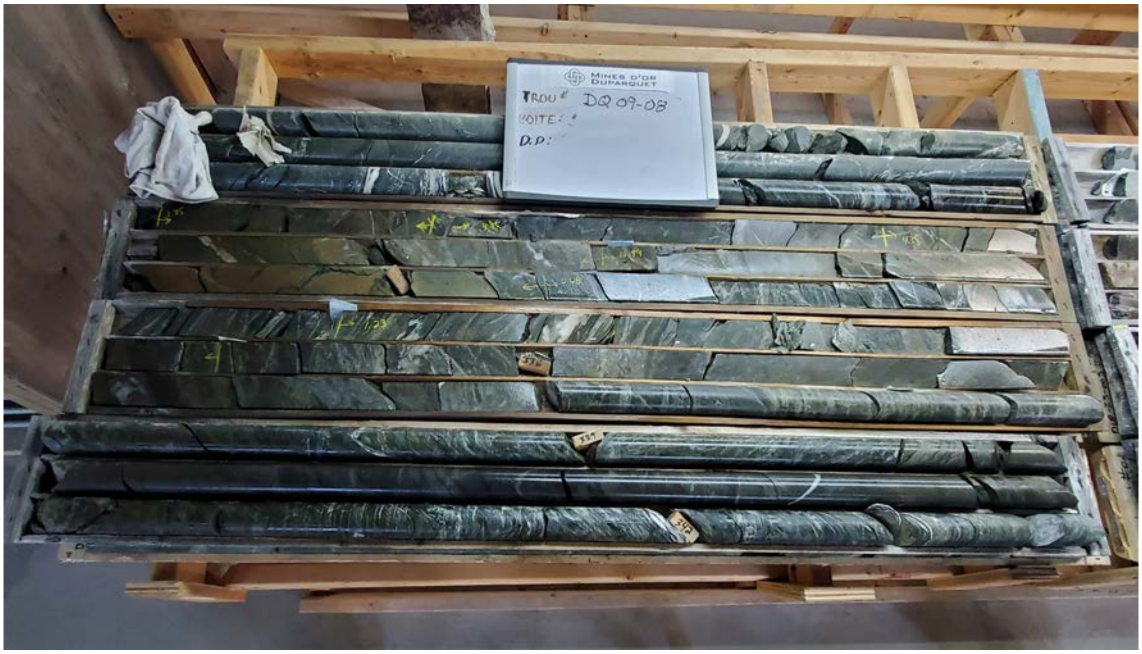
Figure 12.6: Duquesne Core Boxes in Racks

Figure 12.7: Old Stacked Duquesne Core Boxes

Older core boxes are stacked outside on palettes. The palettes have not moved for many years, and vegetation has started to grow between them. A portion of core boxes have lost their identification (Figure 12.7) and require re-indexing.

The author validated sample numbers in selected boxes and confirmed the presence of mineralization in the half-core reference samples (Figure 12.8).

Figure 12.8: Duquesne Core Review



The author conducted independent sampling, collecting eight half-core samples from four holes and sending them to the ALS laboratory in Val-d'Or to validate gold grades. Rock density was also measured on the same half-core samples. Samples were collected from mineralized zones.

Table 12.3: Duquesne Independent Sampling

Original Value (Au g/t)	InnovExplo Duplicate Value (Au g/t)	Difference (Au g/t)
5.42	4.35	1.07
11.5	12.99	1.49
2.64	3.22	0.58
5.89	8.56	2.67
2.96	4.66	1.7
4.11	6.27	2.16
0.77	1.07	0.30
15.9	11.3	4.6

12.4.4 Database

The QPs reviewed all the drilling information from the Duquesne claim block that was used for the 2023 MRE. First Mining has not drilled any holes since the 2016 MRE was published (Rioux, 2016).

The 2023 validation included all aspects of the drill hole database i.e., collar locations, drilling protocols, down-hole surveys, logging protocols, sampling protocols, QA/QC protocols, validation sampling, density measurements and checks against assay certificates.

12.4.5 Drill Hole Locations

Approximately 5% of the collar location coordinates were validated using the historical data in Excel files. Certificates on drill hole locations for 71 surface drill holes were provided to the author. Based on a visual validation of the elevation data in relation to the 2017 LiDAR topographic surface, fourteen drill holes showed significant deviations and were corrected. However, when compared to the historical information in the Excel files, the elevation data showed a good match. The collar surveys are considered adequate for the purpose of a resource estimate. It is recommended that all collars not historically surveyed, be professionally surveyed.

12.4.5.1 Assays

The QP had access to assay certificates and PDF drilling logs from 2004 and later. This represents 37% of the 5% selection. The assays in the database were compared to the assay certificates and drill logs and no significant errors were detected. The author did not have access to the pre-2004 certificates or drilling logs. It is recommended that copies of the original certificates of analysis and historical drilling logs be sourced and made available.

12.4.5.2 Downhole Surveys

The downhole survey information was verified for 5% of the holes included in the 2023 MRE. Almost 65% of these holes could be validated, corresponding to drilling programs dating to 2004. No errors were found in the data for these holes. Pre-2004 data would require compilation, although visual validation and interpretation show a general correspondence with the surveys.

12.4.6 Outcrop and Channels

The author visited the outcrop on the Duquesne claim block (Figure 12.9). Channels had been sawed on the stripped outcrop surface but not surveyed (Figure 12-10). For that reason, the channel sample results could not be used in the current MRE.

Figure 12.9 – Duparquet Outcrop, Duquesne Claim Block

Figure 12.10: One of the Channels on the Duquesne Outcrop

12.4.6.1 Conclusion

The author is of the opinion that the sample preparation, analysis, QA/QC and safety protocols used for the Duquesne drill programs met generally accepted industry standards at the time, but currently prevent a higher level of estimation confidence. As such, the Duquesne Mineral Resource Estimate is entirely classified as Inferred. The QP recommends corrections to improve the QA/QC program and overall data confidence, and these are listed in Section 26.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

This section discusses and summarizes the relevant results used as the basis for the process plant design and recovery methods presented in Section 17. Metallurgical test work was previously completed on the Project and has been documented in the 2014 NI 43-101 Technical Report by Clifton Star et al., which provides a description of metallurgical test work, analysis, and interpretation of relevant test work results completed up to 2013. Currently, no new metallurgical test work has been completed on samples since 2013 and additional test work has been recommended to support the subsequent development of this PEA.

Several metallurgical test work programs have been completed on the Project, with the most recent test work program completed in 2013 by SGS, and involved flotation, pressure oxidation (POX), cyanidation, rheology, and environmental bench scale test work. Pilot plant testing was undertaken, and vendor filtration test work was completed by Outotec in 2013.

After a comprehensive trade-off study, a conventional comminution and gold flotation flowsheet was selected as the appropriate treatment of mineralized material from the Duparquet deposit to produce a gold-bearing concentrate for sale.

13.2 Previous Test Work

Metallurgical test work completed by SGS during 2012 involved flotation, POX, and cyanidation test work performed to investigate the recovery of gold from ore and tailings samples. Preliminary comminution tests and environmental tests were also conducted during this program.

Metallurgical test work was conducted on six samples and two in-situ tailing samples. The gold grade of the ore samples ranged from 1.3 to 3.5 g/t Au. The sulphide content ranged from 0.5% to 2.0% S.

The Bond Work Index of the samples varied from 17.2 to 20.2 kWh/t, classifying the samples as hard to very hard ore.

The preliminary gravity separation test work on ground samples indicated low gold recovery ranging from 3.7% to 14.9% and averaging 8.6%.

Recovery of gold to concentrate by flotation was greater than 90% for most samples. The Central Duparquet Main sample was the exception with 84.6% gold recovery, increasing to 87.9% with finer grinding. Gold recovery by pressure oxidation and cyanidation treatment of the flotation concentrate was also investigated and was consistently high.

Samples of the flotation tailings were leached under conventional cyanidation conditions. Standard bottle roll tests were conducted at 40% solids and pH 10.5 with 0.5 g/L NaCN for 48 hours. These tests gave poor gold extractions varying from 26.2% to 56.3%, confirming the refractory nature of the ore.

Test work was performed on two samples of existing tailings on the Duparquet Property. The overall gold recovery results using the flotation-POX/CIL flowsheet ranged from 83.5% to 93.3%.

Subsequent metallurgical test work was completed on six flotation concentrate samples produced from the tests above. The objective of this subsequent program was an attempt to reduce costs of POX and carbon-in-leach (CIL) process by optimizing conditions and reducing reagent requirements. Previous investigation showed high lime consumption in CIL which was attributed to the slow breakdown of basic iron sulphates produced during POX. To address this problem, the POX products were kept at 95°C for four hours in what is known as a hot cure process, allowing the precipitated basic iron sulphate to solubilize back into solution. With this approach, the lime consumption in the CIL circuit was reduced by up to 95%.

Acid additions in the pre-acidulation stage before POX were reduced by approximately half (by 60 kg/t H_2SO_4) from the initial tests, while maintaining the high degree of sulphide oxidation and high gold recoveries. In addition, the hot cure product solution was successfully used as the source of acid in the pre-acidulation step, eliminating the fresh acid requirement and the cost of neutralizing the POX product. Furthermore, the test work showed similar gold recovery values in the range of 96-99% at a lower POX temperature of 210°C compared to 225°C applied in previous test work. This would result in additional savings in pressure oxidation costs.

The second objective of the subsequent test work was to generate final products for environmental studies. This included the flotation tailings, detoxified CIL pulp, and hot cure neutralization sludge, with each sample to be evaluated separately, as well as a combined tailing product which included all three tailing streams.

13.3 Pilot Plant Test Work

Pilot plant flotation test work was conducted on Duparquet samples by SGS in April 2013. The pilot plant was operated to confirm previous laboratory test results and to generate concentrate for a POX pilot plant and high-grade concentrate for direct sale market evaluation. Cyanidation tests were conducted on the flotation tailing to investigate the extraction of gold from this product. Flotation test work results from these pilot plant tests have been used as a basis for process plant design and gold recoveries for this PEA.

13.3.1 Sample Preparation

Approximately 12 t of full drill core diameter 63.5mm (HQ core) samples were used for the test work. Core pieces were randomly selected to obtain a 40 kg subsample from each tote bag. The fifteen 40 kg subsamples were blended, and the pilot plant feed composite (PP Feed) was used for a grindability test program. All remaining core was crushed to minus six mesh and blended. Approximately 50 kg of the minus six mesh ore was removed for laboratory test work. Ten kilograms was used for a Bond ball mill work index test. The remaining sample was crushed to minus ten mesh and rotary split into 2 kg test charges. A head sample was riffled out of one test charge and submitted for analysis. The head analysis is shown in Table 13.1. The bulk minus six mesh sample was placed in 200 L drums as feed for the pilot plant.

Table 13.1: Head Analysis of Pilot Plant Feed Sample

Element		PP Feed	Element		PP Feed
Au	g/t	1.84, 1.83	S	%	1.16
Au*	g/t	1.84	$S^=$	%	1.15
Ag	g/t	2.2	CT	%	1.60
As	%	0.055	CO_3	%	7.61
Hg	g/t	3.5	TCM	%	0.08
Te	g/t	<4			
ICP Scan					
Al	g/t	72,900	Na	g/t	11,400
Ba	g/t	1,580	Ni	g/t	< 20
Be	g/t	1.7	P	g/t	1,050
Bi	g/t	< 20	Pb	g/t	31
Ca	g/t	39,800	Sb	g/t	< 20
Cd	g/t	< 2	Se	g/t	< 20
Co	g/t	16	Sn	g/t	< 20
Cr	g/t	42	Sr	g/t	533
Cu	g/t	29.3	Ti	g/t	3,430
Fe	g/t	35,400	Tl	g/t	< 30
K	g/t	51,400	U	g/t	< 20
Li	g/t	< 5	V	g/t	126
Mg	g/t	7,000	Y	g/t	20.1
Mn	g/t	1,040	Zn	g/t	64
Mo	g/t	23			

** Average direct assay of PP Feed samples taken during the pilot plant campaign*
TCM = total carbonaceous matter ($C_{T:}$ C as CO_3)
$S^=$ = sulphide sulphur
Source: SGS (2013a)

13.3.2 Bench Scale Flotation Test Work

Bench scale flotation test work was first completed to establish test conditions for the pilot plant work. Preliminary laboratory flotation tests were conducted on a composite of samples in storage at SGS Lakefield. Equal weights of the A Zone, South Zone, RW Zone, Donchester North and Donchester South composites were blended for “Comp 1”. The calculated head analysis of this composite (based on the assays of the individual components) was 2.39 g/t Au, 3.9 g/t Ag, 1.44% S, 1.25% $S^=$, 0.061% As and 9.4% CO_3.

The recovery of gold in a bulk sulphide flotation concentrate was investigated following two flowsheets. The first flowsheet included rougher flotation followed by regrinding and cleaning based on the results of a previous test work program. In the second flowsheet, the initial high-grade rougher concentrate was kept as final product and the concentrates from the subsequent rougher stages were combined and cleaned. The rougher concentrates were recovered with stage additions of potassium amyl xanthate (PAX) and Cytec’s Di thiophosphate collector R208. Flotation was conducted at the natural pH of the ore which was approximately 8.2. After regrinding, the rougher concentrates were cleaned with additional PAX. Bench scale test results are summarized in Table 13.2.

Table 13.2: Results of Bench Scale Tests (Comp 1)

Test No	Sample	Grind Size (P_{80}, µm)		Product	Weight (%)	Assays			Distribution	
		Ro Tail	Regrind			Au (g/t)	S (%)	CO^3 (%)	Au (%)	S (%)
F28	Comp 1	99	23	1st Cl Conc 1	3.3	54.6	26.2	3.72	73.9	70.6
				1st Cl Conc 1-2	4.5	46.4	23.2	4.53	85.0	84.7
				1st Cl Conc 1-3	5.5	39.1	19.7	5.33	87.8	88.1
				Rougher Conc	**15.7**	**14.3**	**7.21**		**91.4**	**91.8**
				Rougher Tail	84.3	0.25	0.12		8.6	8.2
				Head (calc.)	100.0	2.45	1.23		100.0	100.0
F31	Comp 1 No 208	99	23	1st Cl Conc 1	3.7	51.0	28.3	3.97	77.7	76.3
				1st Cl Conc 1-2	5.0	41.9	23.4	4.89	85.6	84.6
				1st Cl Conc 1-3	5.9	35.9	20.1	5.60	87.3	86.5
				Rougher Conc	**15.3**	**14.4**	**8.02**		**90.6**	**89.5**
				Rougher Tail	84.7	0.27	0.17		9.4	10.5
				Head (calc.)	100.0	2.42	1.37		100.0	100.0
F29	Comp 1	91	10	Ro Conc 1	7.3	27.6	17.5	6.54	83.4	85.1
				Ro 1 + Cl Conc 1	8.1	26.1	16.4	6.67	87.7	89.0
				Ro 1 + Cl Conc 1-2	8.9	24.2	15.3	6.83	89.3	90.7
				Ro 1 + Cl Conc 1-3	9.5	23.0	14.5	6.96	90.2	91.3
				Rougher Conc	**15.1**	**14.7**	**9.22**		**91.9**	**92.7**
				Rougher Tail	84.9	0.23	0.13		8.1	7.3
				Head (calc.)	100.0	2.42	1.50		100.0	100.0
F30	Comp 1	108	22	Ro Conc 1 A	3.6	36.6	19.6	6.86	53.8	52.2
				Ro Conc 1 A + B	5.2	33.0	18.1	7.13	70.0	69.7
				Ro Conc 1 A: C	6.5	29.5	16.4	7.41	77.7	78.3
				Cl Conc 1	1.4	14.0	8.35	8.79	7.7	8.3

Test No	Sample	Grind Size (P_{80}, µm)		Product	Weight (%)	Assays			Distribution	
		Ro Tail	Regrind			Au (g/t)	S (%)	CO^3 (%)	Au (%)	S (%)
				Cl Conc 1-2	3.1	8.62	5.20	9.58	10.8	11.8
				Ro 1 + Cl Conc 1	7.9	26.8	15.0	7.65	85.4	86.7
				Ro 1 + Cl Conc 1-2	9.6	22.8	12.8	8.11	88.5	90.2
				Rougher Conc	**16.4**	**15.0**	**8.28**		**91.2**	**92.0**
				Rougher Tail	83.6	0.26	0.13		8.8	8.0
				Head (calc.)	100.0	2.47	1.36		100.0	100.0

Source: SGS (2013a)

Following the conventional flowsheet in test F28 resulted in 87.8% gold recovery in a concentrate assaying 39.1 g/t Au and 19.7% S. Omitting the R208 additions in test F31 had very little effect on the results.

Keeping the concentrate from the initial stage of the rougher circuit as final concentrate in test F29 did not result in improved gold recovery or a lower carbonate content in the concentrate. The kinetics of the first stage of the rougher were investigated in test F30 to determine if a lower carbonate product could be recovered at the start of flotation. The concentrate recovered over from the first minute (Ro Conc 1A) analyzed 6.86% CO_3 indicating that there was no advantage to keeping any rougher concentrate as final product. Regrinding the entire rougher concentrate resulted in a higher-grade product with a lower-carbonate content.

13.3.3 Pilot Plant Feed Flotation Test Work

Based on the results of the Comp 1 flotation tests, a test was conducted on the pilot plant feed sample using the conditions of test F28. The kinetics of the cleaner were examined. A second test was performed to examine the production of a higher-grade concentrate for direct sale. The conditions were similar to the first test, but with the addition of a second cleaning stage. The results are summarized in Table 13.3.

Table 13.3: Results of Flotation Tests on the Pilot Plant Feed

Test No	Sample	Grind Size (P_{80}, µm)		Product	Weight (%)	Assays			Distribution	
		Ro Tail	Regrind			Au (g/t)	S (%)	CO^3 (%)	Au (%)	S (%)
F28	Comp 1	99	23	1st Cl Conc 1	3.3	54.6	26.2	3.72	73.9	70.6
				1st Cl Conc 1-2	4.5	46.4	23.2	4.53	85.0	84.7
				1st Cl Conc 1-3	5.5	39.1	19.7	5.33	87.8	88.1
				Rougher Conc	15.7	14.3	7.21		91.4	91.8
				Rougher Tail	84.3	0.25	0.12		8.6	8.2
				Head (calc.)	100.0	2.45	1.23		100.0	100.0
F32	PP Feed	87	16	1st Cl Conc 1	3.9	37.5	23.3	3.94	80.3	78.4
				1st Cl Conc 1-2	5.2	30.9	19.3	4.76	87.5	86.1
				1st Cl Conc 1-3	7.1	23.4	14.7	5.69	90.6	89.6
				Rougher Conc	16.1	10.6	6.70		93.2	92.1
				Rougher Tail	83.9	0.15	0.11		6.8	7.9
				Head (calc.)	100.0	1.84	1.17		100.0	100.0
F33	PP Feed	109	23	2nd Cl Conc 1	2.4	56.5	32.9		70.7	67.9
				2nd Cl Conc 1-2	3.1	50.4	29.8		82.0	80.0
				1st Cl Conc	5.5	31.3	18.8		88.9	88.2
				Rougher Conc	14.4	13.4	8.13		92.0	91.2
				Rougher Tail	85.6	0.18	0.12		8.0	8.8
				Head (calc.)	100.0	1.93	1.17		100.0	100.0

Source: SGS (2013a)

The results for the pilot plant feed sample were slightly better than achieved for Comp 1 with 89-90% gold recovery in the first cleaner concentrate. The grade was 31.3 g/t Au, which was slightly lower than the Comp 1 cleaner concentrate grade, but the feed was also a lower grade. When the second cleaning stage was added, the concentrate grade increased to 50.4 g/t Au with 82.0% gold recovery.

A locked cycle test was conducted following the conditions of test F32 to investigate the effect of middling recirculation and to provide a baseline to compare to the pilot plant results. The first cleaner tailing was recirculated to the start of the rougher. The recovery of gold in the cleaner concentrate was 90.8% in a concentrate assaying 27.4 g/t Au and 16.8% S. The results are summarized in Table 13.4.

Table 13.4: Locked Cycle Test Results

Product	Weight (%)	Assays		Distribution	
		Au (g/t)	S (%)	Au (%)	S (%)
1st Cleaner Conc	6.4	27.4	16.8	90.8	89.8
Rougher Conc	15.5	10.3	6.53	91.2	90.9
Rougher Tail	93.6	0.19	0.13	9.2	10.2
Head (calc.)	100.0	1.92	1.19	100.0	100.0

Source: SGS (2013a)

13.3.4 Pilot Plant Flowsheet and Operation

The pilot plant was fed at a rate of 200 kg/h. Dry minus six mesh ore was fed to a ball mill by conveyor from the ore hopper. The mill was operated in closed circuit with a Kason vibrating screen fitted with a 94 TBC (180 µm opening) or 90 TBC (194 µm opening) screen. The target P80 of the screen undersize was 100 µm.

The screen undersize was pumped to a series of three banks of cells providing 33-36 minutes of rougher flotation. PAX, R208 and MIBC were added at four stages of the rougher circuit including the screen undersize pump. The rougher concentrate was pumped to a Mozley cyclone for classification before regrinding. The cyclone underflow fed the regrind mill and the cyclone overflow was pumped to the cleaning stage. The cleaner concentrate was collected in drums and the cleaner tailing was recirculated to the head of the rougher. The flowsheet is shown in Figure 13.1 and the major equipment used is listed in Table 13.5.

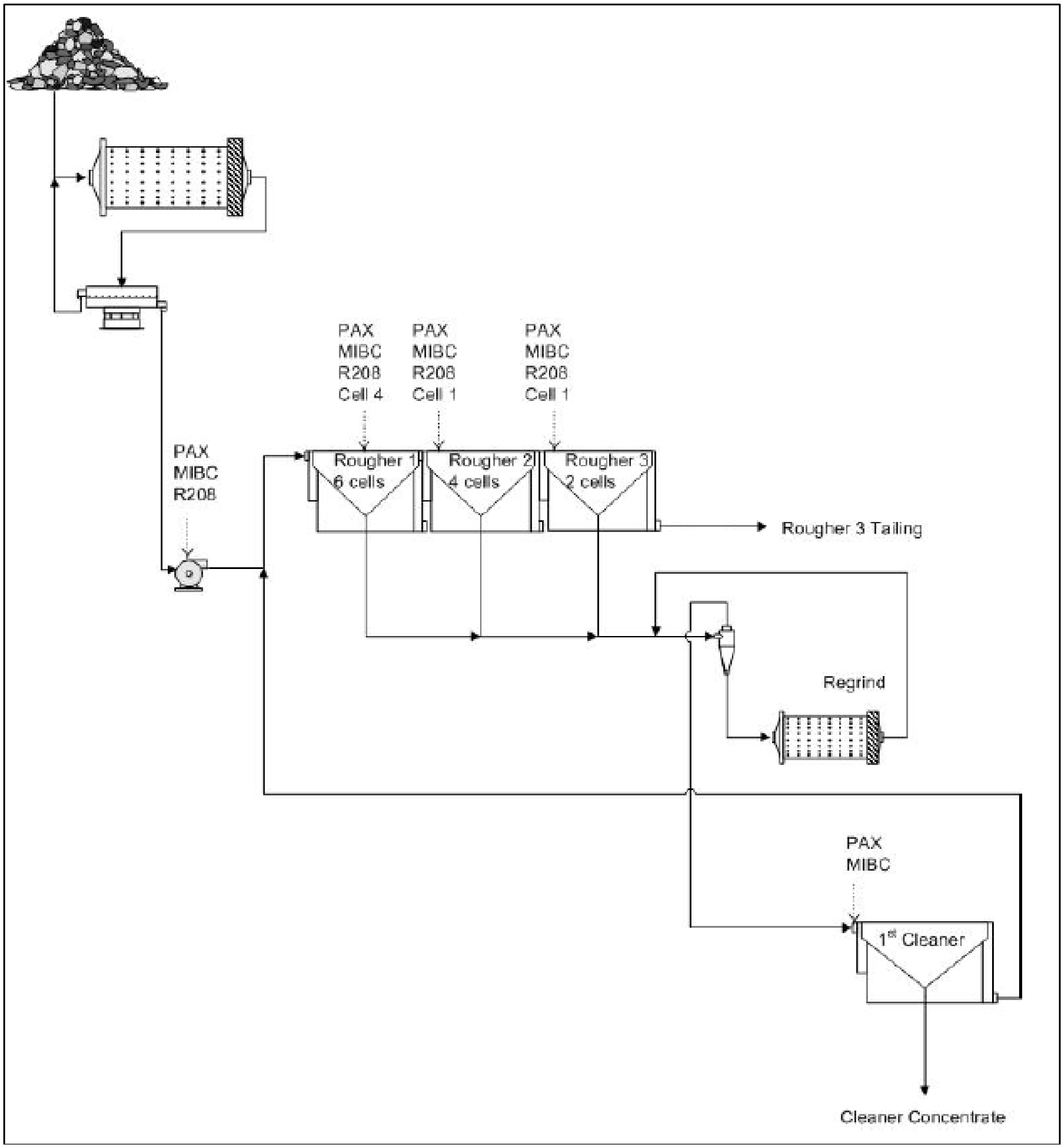
In tests PP-07 to PP-09, a second cleaning stage was added to produce the higher-grade concentrate. The regrind configuration was changed so that the rougher concentrate was pumped to the regrind mill rather than the cyclone in PP-07 and PP-08. In test PP-09, the cyclone was removed from the circuit because the flow to the cyclone was insufficient for proper operation.

Table 13.5: Pilot Plant Equipment List

Circuit		Equipment
Primary Grind Circuit	Ore Bin/Feeder	500 kg capacity hopper with Dual Eriez pan feeders configured for gravimetric federate control
	Primary Ball Mill	3' diameter 4' length Sala
	Primary Classification	48" Kason screen
Regrind Circuit	Secondary Ball Mill	16" dia. X 32" length Denver
	Secondary Classification	25.4 mm cyclone
	Pulp Transfer Pumps	1½" Sala/Minpro vertical pumps and Masterflex
Rougher Circuit	Rougher 1	6 x Denver Sub A7 (28L) PP-01 to PP-03
		5 x Denver Sub A7 (28L) PP-04 to PP-09
	Rougher 2	4 x Minpro D7 Tank (28L)
	Rougher 3	2 x Denver D7 Tank (28L)
Cleaner Circuit	1st Cleaner	4 x Denver Sub A5 (7.7 L) PP-01 to PP-02
		6 x Denver Sub A5 (7.7 L) PP-03 to PP-09
	2nd Cleaner	2 x Titan D7 Tank (7.7 L) PP-07 to PP-09
Sample Handling	Cleaner Concentrate	200 L plastic drums
	Rougher 3 Tailings	1 skid with 4 x 200 L plastic drums per run except all PP-07 tailing collected
	Rougher 3 Tailings	Sump/wedge

Source: SGS (2013a)

Figure 13.1: Pilot Plant Flowsheet

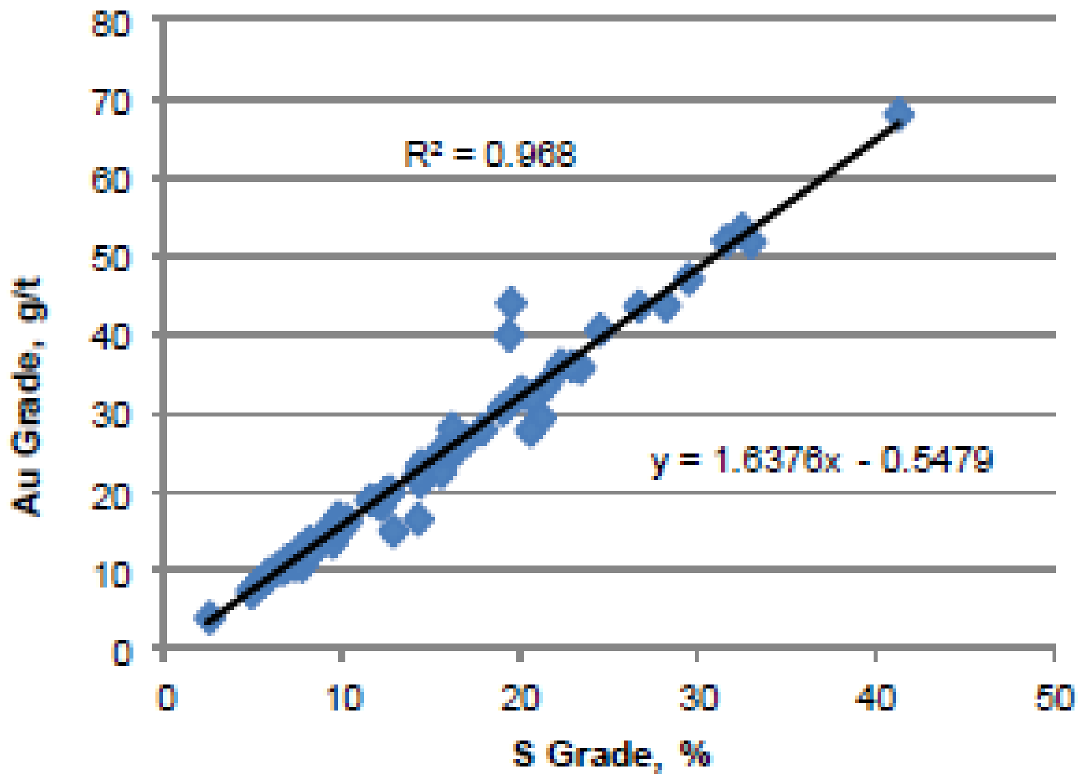


Source: SGS (2013a)

Hourly grab samples were taken of the screen undersize for size analysis to monitor the primary grind until the target was achieved and stabilized. Similarly, hourly grab samples were taken of the first cleaner feed for size analysis by cyclosizer to adjust the regrind conditions. In addition, selected samples were taken of products around the regrind/cyclone circuit for Malvern or cyclosizer size analysis, to aid in monitoring and adjusting the regrind circuit.

Hourly grab samples were taken of the rougher concentrate, the cleaner concentrate and the rougher tailing for gold (Au) and sulphur (S) analysis. The quick turnaround for the S analyses enabled the flotation circuit to be monitored and adjusted during operation. There was a strong direct relationship between the Au and S analysis as shown in Figure 13.2. This relationship was used to target a specific gold grade in PP-07 to PP-09.

Figure 13.2: Sulphur vs. Gold Analyses for Pilot Plant Concentrates



Source: SGS (2013a)

A complete set of survey samples was taken for most runs over a period of 2-3 hours (5-6 cuts) and the products were assayed for Au and S. In addition, kinetic samples were taken during selected runs through the rougher and cleaner circuits and the products were assayed for Au and S.

13.3.5 Pilot Plant Results

13.3.5.1 Flotation Circuit Results

The pilot plant metallurgical test results are summarized in Table 13.6 and the relationship between gold grade and recovery is shown in Figure 13.3.

Tests PP-01 to PP-06 were operated with one cleaning stage to produce concentrate analyzing 15-18% S to be fed for the pressure oxidation pilot plant. In the first few runs, the circuit was filled, and the conditions were adjusted to achieve the targets. The exception was the regrind size which remained fine despite changes to the regrind circuit. Test PP-05 operated for 8.4 hours with good stability. The gold recovery was 91.7% in a concentrate assaying 26.8 g/t Au and 16.1% S. These results were slightly better than those achieved in the locked cycle test.

In tests PP-07 to PP-09, the second cleaning stage was added to produce a higher-grade concentrate assaying greater than 40 g/t Au. During PP-07, the circulating load in the cleaning circuit built up and the froth in the second cleaning stage was poor due to the concentration of reagents in this stage. This contributed to poor selectivity. Although reagents were adjusted, the circulating load continued to build in PP-08 (as shown in the Bilmat balance) while trying to maintain a low tailing grade. The rougher mass pull was reduced part way through the run to help reduce the circulating load. Tests PP-07 and PP-08 did not achieve stability. Additional capacity in the second cleaner might have been beneficial.

The pulp densities in the regrind and cleaning circuits were very low although no additional water was added to the rougher concentrate. This contributed to inefficiencies in the regrind and retention times in the cleaners that were significantly shorter than designed. During PP-08, there was insufficient flow to the cyclone for it to operate properly. For this reason, the cyclone was removed in PP-09 and the rougher concentrate was fed directly to the regrind mill. PP-09 operated for 9.5 hours with good stability for most of the run and reduced circulating load.

Table 13.6: Pilot Plant Metallurgical Balances based on Bilmat or Two-product Formula

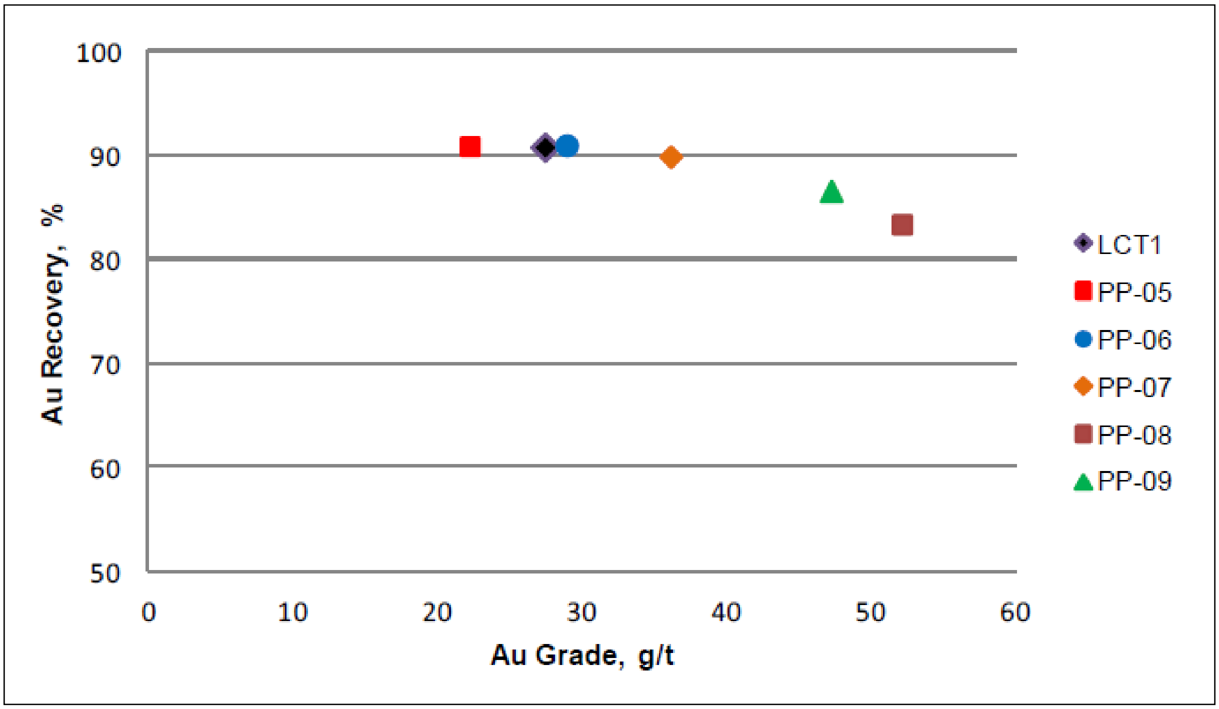
Test	P_{80} µm	Operating Time (h)	Product	Weight (%)	Assays		Distribution	
					Au (g/t)	S (%)	Au (%)	S (%)
PP2*	101	3.3	PP Feed	100.0	1.80	1.14	100.0	100.0
			Rougher Tail	95.0	0.23	0.14	12.0	11.9
			Cleaner Conc	5.0	31.7	20.1	88.0	88.1
PP3*	90	4.8	PP Feed	100.0	2.18	1.14	100.0	100.0
			Rougher Tail	94.4	0.20	0.12	8.4	9.5
			Cleaner Conc	5.6	35.7	18.5	91.6	90.5
PP4	97	5.7	PP Feed	100.0	1.87	1.15	100.0	100.0
			Rougher Feed	108.3	1.91	1.21	110.6	113.4

Test	P_{80} µm	Operating Time (h)	Product	Weight (%)	Assays		Distribution	
					Au (g/t)	S (%)	Au (%)	S (%)
			Rougher Conc	14.5	12.9	8.2	100.1	102.9
			Rougher Tail	93.8	0.21	0.13	10.6	10.5
			1st Cleaner Conc	6.2	26.9	16.6	89.4	89.5
			1st Cleaner Tail	8.3	2.40	1.86	10.6	13.4
PP5	96	8.4	PP Feed	100.0	1.81	1.09	100.0	100.0
			Rougher Feed	113.9	1.72	1.06	108.4	110.5
			Rougher Conc	20.1	9.01	5.51	100.1	101.8
			Rougher Tail	93.8	0.16	0.10	8.3	8.6
			1st Cleaner Conc	6.2	26.8	16.1	91.7	91.4
			1st Cleaner Tail	13.9	1.09	0.82	8.4	10.5
PP6*	101	5.5	PP Feed	100.0	1.78	1.14	100.0	100.0
			Rougher Tail	94.4	0.17	0.09	9.0	7.7
			Cleaner Conc	5.6	28.9	18.8	91.0	92.3
PP7	95	8.8	PP Feed	100.0	1.75	1.09	100.0	100.0
			Rougher Feed	108.1	1.68	1.08	103.8	106.6
			Rougher Conc	12.4	13.1	8.47	93.4	96.2
			Rougher Tail	95.7	0.19	0.12	10.5	10.5
			1st Cleaner Feed	20.7	14.3	9.16	169.8	173.2
			1st Cleaner Conc	12.6	23.1	14.5	165.9	166.5
			1st Cleaner Tail	8.1	0.82	0.89	3.8	6.63
			2nd Cleaner Conc	4.3	36.3	22.8	89.5	89.5
			2nd Cleaner Tail	8.3	16.2	10.2	76.4	77.0

Test	P_{80} µm	Operating Time (h)	Product	Weight (%)	Assays		Distribution	
					Au (g/t)	S (%)	Au (%)	S (%)
PP8	94	6.0	PP Feed	100.0	1.86	1.11	100.0	100.0
			Rougher Feed	106.6	2.23	1.45	128.3	138.4
			Rougher Conc	9.5	22.4	14.6	114.7	124.6
			Rougher Tail	97.1	0.26	0.16	13.6	13.9
			1st Cleaner Feed	19.6	28.9	19.3	306.2	340.8
			1st Cleaner Conc	13.1	39.5	25.8	277.9	302.3
			1st Cleaner Tail	6.6	7.98	6.51	28.3	38.4
			2nd Cleaner Conc	2.9	54.8	32.8	86.4	86.1
			2nd Cleaner Tail	10.1	35.1	23.8	191.5	216.2
PP9	92	9.5	PP Feed	100.0	1.81	1.12	100.0	100.0
			Rougher Feed	108.1	1.91	1.22	113.0	117.1
			Rougher Conc	12.4	17.1	11.1	99.5	104.3
			Rougher Tail	95.7	0.25	0.15	13.5	12.8
			1st Cleaner Feed	20.6	16.6	10.9	106.4	112.5
			1st Cleaner Conc	12.5	39.0	24.6	93.5	95.4
			1st Cleaner Tail	8.1	3.23	2.64	13.0	17.1
			2nd Cleaner Conc	4.3	47.8	29.8	86.5	87.2
			2nd Cleaner Tail	8.2	11.9	8.71	6.97	8.23

**Based on 2 product formula calculated from S analyses*
Source: SGS (2013a)

Figure 13.3: Gold Grade vs. Gold Recovery



Source: SGS (2013a)

The flotation kinetics were examined in tests PP-05, PP-07 and PP-09. The concentrate from each bank of rougher cells was sampled and assayed. Similarly, the first cleaner flotation kinetics in PP-05 and PP-09 were examined by sampling the concentrate from the first three cells and the final three cells separately. The cleaner kinetics were not evaluated in PP-07 due to the instability in the cleaner circuit during this run. The results are summarized in Table 13.7. The recovery figures are based on the distribution of gold in the feed to each circuit based on the Bilmat balance. Therefore, the rougher recovery was based on the rougher feed which included the first cleaner tailing, and the cleaner recovery was based on the first cleaner feed.

Table 13.7: Flotation Kinetics

Stage		PP-05			PP-07			PP-09		
		Time (min.)	Au Rec'y (%)	S Rec'y (%)	Time (min.)	Au Rec'y (%)	S Rec'y (%)	Time (min.)	Au Rec'y (%)	S Rec'y (%)
Roughers	Ro 1	13.1	88.5	88.3	13.5	82.1	80.5	13.6	81.5	82.5
	Ro 1-2	27.6	91.8	92.0	25.4	85.9	84.0	26.8	90.1	91.7
	Ro 1-3	35.6	92.7	92.9	32.4	86.1	84.1	33.7	91.4	93.1
Cleaners	Cl 1	5.5	88.7	86.4				9.6	85.7	82.8
	Cl 1-2	13.7	93.7	91.8				16.4	93.7	91.5

Source: SGS (2013a)

A summary of the reagent additions is provided in Table 13.8. The PAX was prepared fresh daily to prevent any degradation effects. The reagent additions were reduced in PP-08 and PP-09 to aid in the froth quality in the cleaning circuit after the addition of the second cleaner.

Table 13.8: Summary of Reagent Additions

Addition Point	Reagent	Dosage								
		PP-01 (g/t)	PP-02 (g/t)	PP-03 (g/t)	PP-04 (g/t)	PP-05 (g/t)	PP-06 (g/t)	PP-07 (g/t)	PP-08 (g/t)	PP-09 (g/t)
Screen U/S Pump	PAX	53.0	53.8	51.3	47.9	45.3	46.1	53.6	52.9	50.8
	MIBC	11.0	11.2	10.6	11.0	10.4	10.4	11.1	10.3	10.6
	R208	20.5	20.8	19.7	22.3	20.6	20.7	22.6	22.3	21.1
Rougher 1 Cell # 4	PAX	26.5	26.9	29.1	27.5	25.1	24.8	25.7	16.3	18.1
	MIBC	11.0	11.2	10.6	9.2	8.7	8.9	9.3	8.6	8.3
	R208	20.5	20.8	19.7	21.4	20.1	20.7	20.0	13.9	0
Rougher 2 Cell # 1	PAX	26.5	26.9	25.5	22.0	20.7	21.3	21.6	15.5	15.5
	MIBC	5.5	5.6	5.3	4.7	4.5	4.4	4.9	4.6	4.5
	R208	20.5	20.8	0	11.1	9.0	9.2	9.8	0	0
Rougher 3 Cell # 1	PAX	26.5	26.9	25.5	22.0	20.7	21.3	21.6	15.5	18.1
	MIBC	5.5	5.6	5.3	3.8	3.6	3.7	4.0	0	3.8
	R208	20.5	20.8	0	12.3	10.1	10.3	10.2	0	0
1st Cleaner Cell # 1	PAX	26.5	26.9	26.9	29.9	31.0	31.9	28.1	18.5	18.1
	MIBC	5.5	0	5	4.6	3.6	3.7	4.3	3.9	0
2nd Cleaner Cell # 1	MIBC	-	-	-	-	-	-	1.6	0	0
Total	PAX	159.1	161.3	158.2	149.3	142.8	145.3	150.6	118.7	120.7
	MIBC	38.7	33.6	37.1	33.3	30.8	31.1	35.1	27.4	27.2
	R208	82.1	83.2	39.4	67.1	59.8	60.9	62.7	36.2	21.1

Source: SGS (2013a)

The flotation times have been estimated based on average pulp densities and cell volumes as shown in Table 13.9.

Table 13.9: Flotation Kinetics

Stage	Flotation Time				
	PP-04 (min.)	PP-05 (min.)	PP-07 (min.)	PP-08 (min.)	PP-09 (min.)
Rougher	34	36	35	33	34
1st Cleaner	15	13	10	11	13
2nd Cleaner	-	-	6	5	5

Source: SGS (2013a)

13.3.5.2 Detailed Concentrate Analysis

The approximate weights of the various concentrates produced after all samples were removed are shown in Table 13.10.

Table 13.10: Estimated Weight of Concentrate Produced

Test No.	Weight (estimated) (kg)	Concentrate Grade	
		Au (g/t)	S (%)
PP2	16.5	30.1	18.7
PP3	15.7	29.7	18.7
PP4	55.6	24.9	15.4
PP5	78.9	23.2	14.0
PP6	47.9	31.1	19.3
Comb 1st Cl Conc	**214.6**	**26.4**	**16.2**
PP7	67.3	46.6	28.3
PP8	30.5	49.5	30.7
PP9	49.2	50.4	32.1
PP9A*	10.1	37.3	23.0
Comb 2nd Cl Conc	**157.1**	**47.8**	**29.6**

**Collected while running out the circuit*
Source: SGS (2013a)

The second cleaner concentrates from PP-08 and PP-09 were sampled and submitted for detailed analysis and the results are shown in Table 13.11.

Table 13.11: Detailed Concentrate Analysis

Element		2nd Cl Conc	
		PP-08	PP-09
Au	g/t	49.5	50.4
Ag	g/t	49.3	50.8
S	%	30.7	32.1
$S^{=}$	%	30.6	31.6
Fe	%	27.5	29.1
As	%	1.06	1.25
Cu	%	0.069	0.061
Cl	g/t	71	88
F	%	0.045	0.037
Hg	g/t	64.8	63.4
Te	g/t	76	69
CO_3	%	2.68	1.76
TOC	%	0.16	0.19
SiO_2	%	23.1	22.0
ICP Scan			
Al	g/t	29,200	28,200
Ba	g/t	559	524
Be	g/t	1.38	1.3
Bi	g/t	< 20	< 20
Ca	g/t	14,100	14,600
Cd	g/t	< 20	< 20
Co	g/t	186	191
Cr	g/t	45	63
K	g/t	23,700	23,200
Li	g/t	< 20	< 10
Mg	g/t	3,160	2,960
Mn	g/t	418	397
Mo	g/t	281	310
Na	g/t	2,290	1,990

Element		2nd Cl Conc	
		PP-08	PP-09
Ni	g/t	78	81
P	g/t	613	604
Pb	g/t	406	405
Sb	g/t	117	121
Se	g/t	< 30	< 30
Sn	g/t	< 20	< 20
Sr	g/t	169	160
Ti	g/t	5,680	5,670
Tl	g/t	< 30	< 30
U	g/t	< 50	< 60
V	g/t	135	125
Y	g/t	37.9	34.1
Zn	g/t	289	279

$S^=$ = sulphide sulphur
TOC = total organic carbon
Source: SGS (2013a))

13.4 Grindability Tests

13.4.1 Pilot Plant Feed Sample

A pilot plant feed sample (PP Feed) was submitted for a series of grindability tests. The results are summarized in Table 13.13. The PP Feed sample was characterized as very hard with respect to resistance to impact (“A x b”), abrasion breakage (ta) and RWI. The sample was hard with respect to the BWI and HPGR tests. The sample was found to be abrasive.

13.5 Pilot Plant Grinding Circuit Results

A summary of the grinding circuits from the pilot plant runs is provided in Table 13.14. Additional steel was added to the mill over the first three runs to achieve a reasonable circulating load. The screen was changed after PP-01 and PP-04 as the mill load was adjusted to achieve the target grind and acceptable operating conditions (i.e., circulating load). The net power consumption in the primary grind averaged 21.5 kWh/t over PP-05 to PP-09 during which time no changes were made to the primary grind. The calculated work index over this period varied from 25.4 to 27.3 and averaged 26.4. This was higher than the BWI value, 17.6, indicating that the grinding in the pilot plant mill was operating less efficiently than predicted by the BWI. The screen undersize P80 was consistent at ~100 µm.

13.6 Concentrate Filtration Test Work

Concentrate filtration test work was completed by Outotec in 2013 using flotation cleaner concentrate samples using a Larox Pressure Filter to achieve filter cake with moisture content of less than 8%. The test work evaluated filter cloth selection, filter, cake thickness, filtration rate, moisture content of the cake, and cake handling, characteristics. The results are summarized in Table 13.12.

Table 13.12: Flotation Concentrate Filtration Test Results

Sample: Unit	pH	Air Drying Time (min)	Filtration Rate (kg/m²/h)	Filter Cake Moisture (% W/W Water)	Filter Cake Thickness (mm)	Pumping Pressure (Bar)	Pressing Pressure (Bar)	Air Pressure (Bar)
Conc.: Larox 100	8	1-4	699-1,097	5-8	46-54	6	12	7-10

Source: Outotec (2013)

Table 13.13: Grindability Test Summary

Sample Name	Relative Density	JK Parameters			Locked-cycle HPGR			Batch	CWI	RWI	BWI (kWh/t)		AI (g)
		A x b[1]	A x b[2]	t_a	kWh/t	N/mm^2	ts/hm^3	kWh/t	kWh/t	kWh/t	Feed	HPGR Prod	
PP Feed	2.73	27.0	29.0	0.20	2.82	3.42	233	1.97	7.5	19.1	18.5	16.6	0.547
Bulk PP Feed*	-	-	-	-					-	-	17.6	-	-
DON-11 147M	2.74	-	34.4	-	-	-	-	-	-	18.4	18.8	-	0.472
BD-11 333M	2.68	-	25.0	-	-	-	-	-	-	18.2	18.5	-	0.668
BD-11-336M	2.53	-	25.9	-	-	-	-	-	-	18.5	20.3	-	0.618
CD-11-01MM	2.88	-	31.0	-	-	-	-	-	-	17.3	18.4	-	0.836

[1]A x b from DWT
[2]A x b from SMC
Results presented in grey are from previous project 13054-002
**Mill feed sample collected after the bulk sample crushing*
Source: SGS (2013a)

Table 13.14: Pilot Plant Grinding Summary

Parameter		Point	PP-01	PP-02	PP-03	PP-04	PP-05	PP-06	PP-07	PP-08	PP-09
Feed Rate	kg/h		190	187	198	196	209	203	187	195	199
Steel Charge	kg	Primary ball mill	346	496	571	571	571	571	571	571	571
Screen Size	-	Primary ball mill	TBC 90	TBC 94	TBC 94	TBC 94	TBC 90	TBC 90	TBC 90	TBC 90	TBC 90
Screen Opening	µm	Primary ball mill	193	180	180	180	193	193	193	193	193
Pulp Density	g/L	Primary ball mill	1,745	1,658	1,583	1,520	1,610	1,610	1,629	1,653	1,695
Net Power	kWh/t	Primary ball mill	32.46	42.22	23.02	21.82	20.46	21.07	22.61	21.82	21.54
F_{80}	µm	Primary ball mill	2,251	2,251	2,251	2,362	2,190	2,190	2,346	2,396	2,398
P_{80}	µm	Screens U/S	123	101	90	97	96	101	95	94	92
Work Index	Metric	Primary ball mill	-	-	27.3	27.0	25.4	27.0	27.5	26.4	25.8
Steel Charge	Kg	Regrind mill	120	120	96	96	65	65	35	100	100
1st Cl Feed P_{80}	µm	Cyclone O/F		< 20	< 20	< 20	< 20	< 20	70	53	36

Source: SGS (2013a)

13.7 Process Design Criteria

The metallurgical parameters used for the flotation process design criteria for the PEA are based on test PP-07 of the pilot plant tests and grindability tests from the PP Feed and are summarized in Table 13.15.

Table 13.15: Key Process Design Criteria

Criteria	Unit	Nominal Value
Abrasion	g	0.547
A x b	-	27
RWI	kWh/t	19.1
BWI	kWh/t	18.5
Rougher Residence Time (lab)	min	35
First Cleaner Residence Time (lab)	min	10
Second Cleaner Residence Time (lab)	min	6
PAX Dosage	g/t	151
MIBC Dosage	g/t	35
R208	g/t	63
Concentrate Grade	g/t Au	36.3
Gold Recovery to Concentrate	%	89.5

Source: GMS (2023)

13.8 Conclusions and Recommendations

Previous bench scale metallurgical test work and pilot plant testing have demonstrated a saleable gold concentrate can be produced from samples from the Duparquet Project via a conventional three-stage flotation-regrind circuit. Further test work is required to optimize the flowsheet, improve gold recoveries, and optimize the reagent scheme.

The Duparquet mineralized material is considered very hard with respect to A x b, abrasion breakage (ta) and RWI, and hard with respect to the BWI and HPGR tests. Samples were found to be abrasive. Further variability comminution test work is required to further characterize the mineralized material and waste rock.

It is recommended to complete additional metallurgical test work on representative samples from the Duparquet project to support the current flowsheet as follows:

- Comminution tests
- Flotation (individual domains):
    - Head assays (ICP & multi-element scan)
    - Mineralogy (PMA)
    - Bench scale tests (rougher/cleaner tests)
    - Lock cycle tests
    - Concentrate assays
- Flotation (variability composites):
    - Head assays (ICP & multi-element scan)
    - Grind calcs
    - Bench scale tests (rougher/cleaner tests)
- Flotation (Blends):
    - Head assays (ICP & multi-element scan)
    - Mineralogy (PMA)
    - Bench scale tests (rougher/cleaner tests)
    - Lock cycle tests
    - Regrind signature plots
    - Concentrate assays
- Dewatering Tests:
    - Flocculant scoping
    - Static settling tests

14 MINERAL RESOURCE ESTIMATES

The Mineral Resource Estimate update for the Project (the "2023 MRE") was prepared using all available information. The main objective was to update the 2016 MRE for the Pitt Gold claim block (Lewis et al., 2016) and the Duquesne claim block (Rioux, 2016). A new geological interpretation has been done for both deposits.

The 2022 MRE for the Duparquet depositis included in this report and is not modified from original publication.

The effective date of the current mineral resource for the Duparquet deposit is September 12, 2022.

The effective date of the current mineral resource for the Duquesne deposit is August 31, 2023.

The effective date of the current mineral resource for the Pitt Gold deposit is September 15, 2023.

The effective date of this report is September 15, 2023.

14.1 Duparquet Deposit

14.1.1 Methodology

The resource area for the Duparquet deposit has an E-W strike length of 4.5 km, a width of approximately 1 km, and a vertical extent of 1,050 m below surface. The deposit, as defined herein, encompasses the mineralization in the former Beattie and Donchester mines and the Beattie mine tailings and covers four contiguous claim blocks (from west to east): Beattie, Donchester, Dumico, and Central Duparquet.

The MRE for the deposit was prepared using GEOVIA GEMS 6.8.2.2 ("GEMS") and GEOVIA Surpac 2021 ("Surpac") software. GEMS was used to update the mineralized domains and for the compositing. Surpac was used for the resource estimation, which consisted of 3D block modelling and the ID2 interpolation method. Statistical, capping, and variography studies were completed using Snowden Supervisor v8.13 and Microsoft Excel software.

The main steps in the methodology were as follows:

- Review and validation of the database
- Validation of the geological model and interpretation of the mineralized units

- Validation of the drill hole intercepts database, compositing database and capping values for geostatistical analysis and variography
- Validation of the block model and grade interpolation
- Revision of the classification criteria and validation of the clipping areas for mineral resource classification
- Assessment of resources with "reasonable prospects for economic extraction" and selection of appropriate cut-off grades and pit shell
- Generation of a mineral resource statement

14.1.2 Drill Hole and Channel Sample Database

The database contains 904 diamond drill holes ("DDH") and 892 channels with gold assay results and coded lithologies from the drill core logs and channel descriptions. It contains 173,831 sampled intervals taken from 270,119 m of drilled core and 2,371 analyses from 1,827 m of channels.

The 904 DDH cover the 4.5 km strike length of the resource area at a reasonably regular drill spacing of 50 m. The 892 channels are centred mostly on two mineralized domains, South and RWRS, with the remaining channels unevenly distributed in the eastern part of the Beattie claim block and on the Central Duparquet claim block.

In addition to the basic tables of raw data, the Surpac database includes several tables containing the calculated drill hole composites and wireframe solid intersections required for the statistical analysis and resource block modelling.

14.1.3 Geological Model

At the Beattie mine, the main mineralized domain, the North Zone, is hosted by a shear zone (the BFZ) at the northern contact of the syenite intrusion. A second gold-bearing lens, also hosted by a shear zone (the DFZ) but occurring at the south contact of the syenite body, is also known at the Beattie mine and is referred to as the South Zone herein.

Gold mineralization at the Donchester mine was of higher grade and associated with an E-W shear zone cutting across some volcanic rocks and syenitic dykes (Goutier and Lacroix, 1992). This mineralized domain is interpreted herein as the east extension of the South Zone. At both the Beattie and Donchester mines, the South Zone can be subdivided into several mineralized domains, modelled herein as ten individual mineralized domains. Six other major mineralized domains occurring within the Beattie-Donchester area have been interpreted.

Mineralization on the Central Duparquet property is hosted by the CDFZ and is of a similar nature as the South and North domains (Bevan, 2011). Three mineralized domains were interpreted at Central Duparquet.

The Dumico property is the eastern extension of the Central Duparquet property. Five mineralized domains were interpreted at Dumico. Three of these strike E-W and are interpreted as the extensions of the CD domains found at Central Duparquet. The other two domains, which strike NW-SE, occur on the eastern portion of the Dumico Project. Based on the current interpretation, they are thought to be associated with a subsidiary structure subparallel to the regional DPMFZ.

Thirty-four secondary mineralized domains have been interpreted within the previously defined “inter-zone” mineralized envelope. The interpretation of these secondary mineralized domains, most of which strike SW-NE, is based on field observations and grade continuity throughout the sample point dataset. These domains are interpreted to be hosted by subsidiary structures associated with the BFZ and DPFMZ.

Approximately 60 mineralized domain wireframes were created by digitizing an interpretation onto cross sections spaced 25 m apart, or 12.5 m in areas with a higher drill hole density. The interpretation of the main mineralized domains extends up to 100 m past the last known occurrence of mineralization. However, if barren intervals were encountered, the mineralized zones were extended to the mid-distance between the last known occurrence of mineralization and the barren hole. A 50 m extension around the zones was used for the secondary mineralized domains.

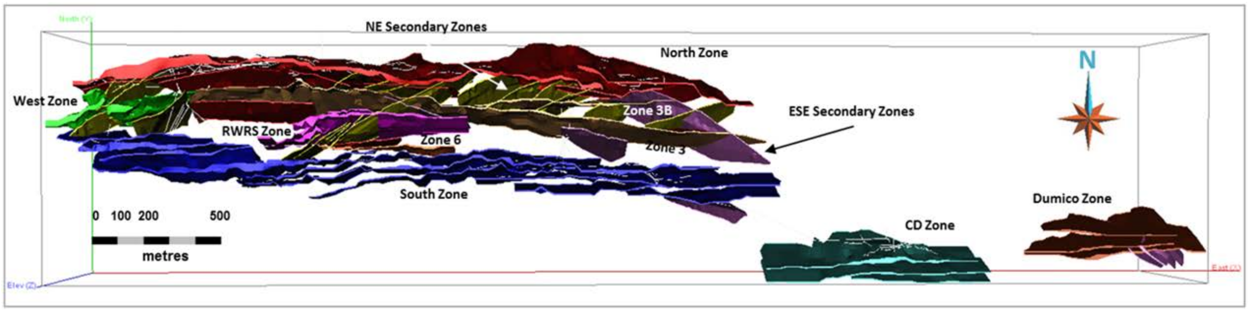
A dilution envelope was defined as the parts of the block model that are not included in any of the mineralized domain solids. The solid for the envelope contains isolated gold intersects for which continuity has not yet been demonstrated or interpreted.

The mineralized domains of the Project can be separated into three groups based on their geometry:

- A dominant E-W group with very steep to vertical dips (Group 1)
- A NE- to ENE-trending group with moderate to steep dips (Group 2)
- An ESE-trending group with moderate to steep dips (Group 3)

Figure 14.1 shows a 3D isometric view of all the mineralized domains, including Group 2 (yellow) and Group 3 (magenta). The geometry defined by these three groups can be observed on several outcrops on the Project (Figure 14.2 and Figure 14.3). Cross-cutting relationships observed in the field suggest the contemporaneous development of these different groups. Such observations are compatible with the interpreted protracted structural evolution of the DPFZ, as presented in Sections 7.2 and 7.4.

Figure 14.1: General Isometric View Showing the Main and Secondary Interpreted Mineralized Domains (Zones)



Source: InnovExplo, 2023

Figure 14.2: Photographs of Structural Features in an Outcrop in the RWRS Area. A) Relationship between an E-W penetrative fabric and a NE-trending secondary fabric, subparallel to RWRS; B) Dominant SE-trending fault zone and E-W penetrative sigmoidal fabric.

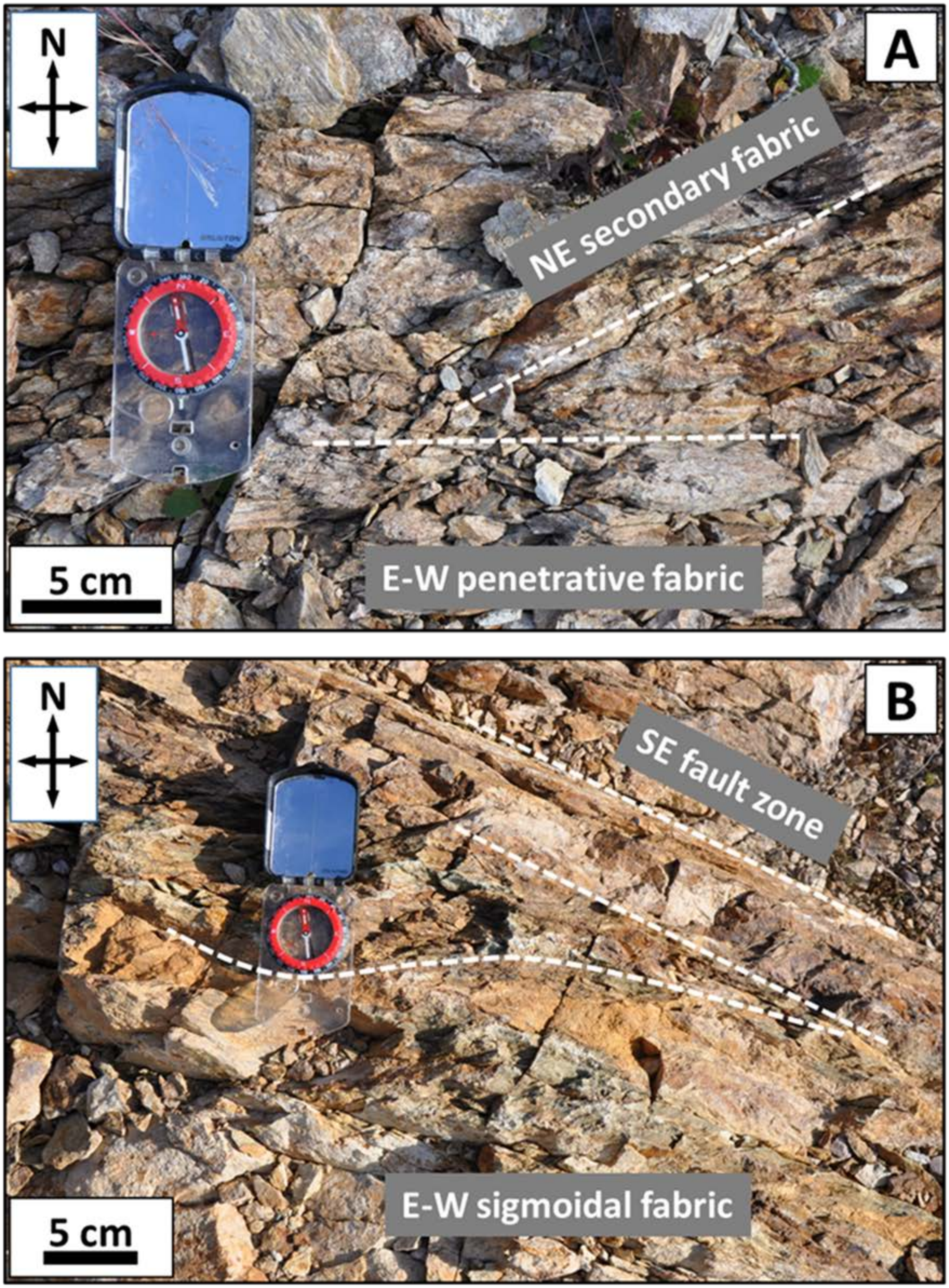
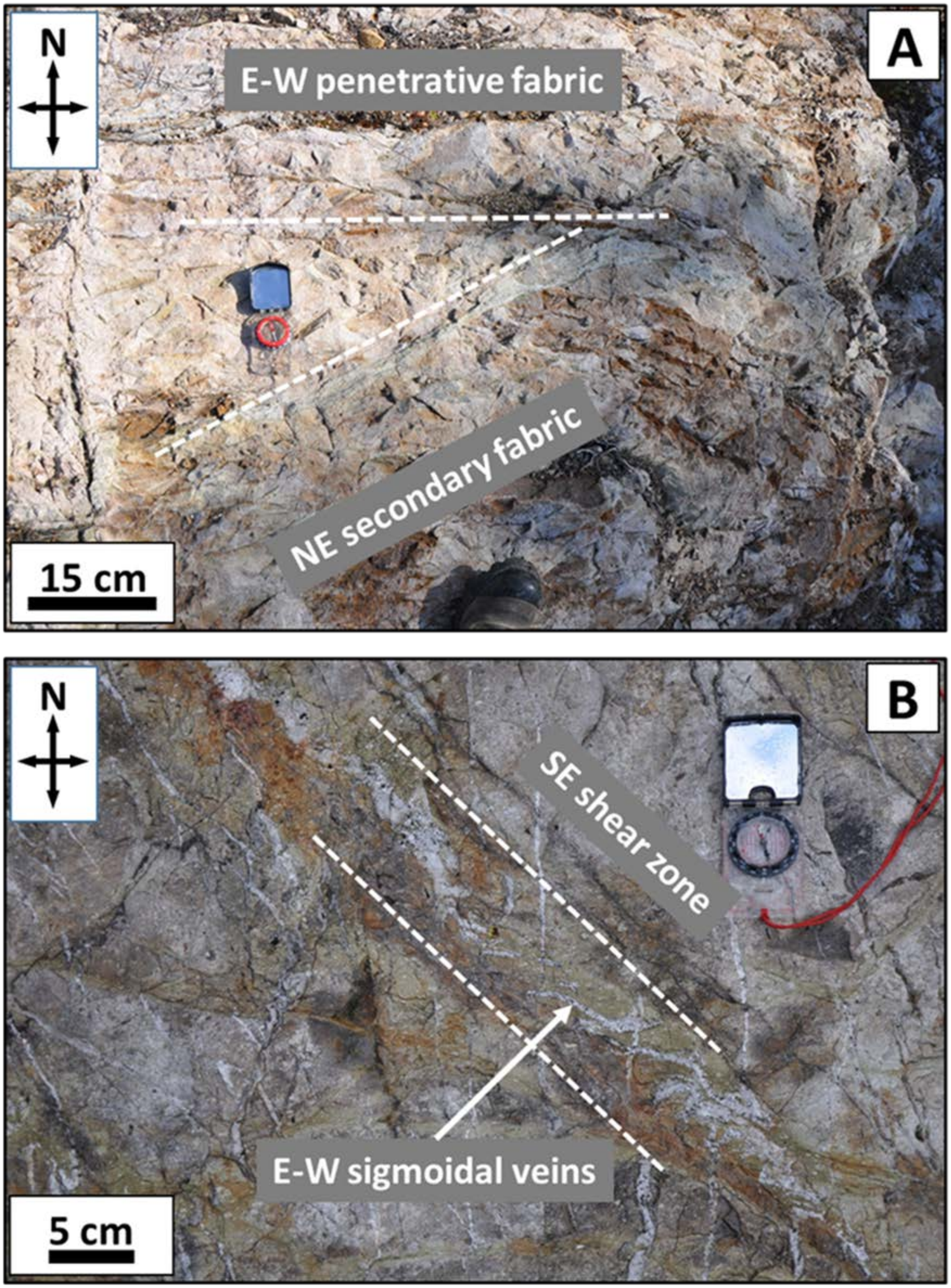


Figure 14.3: Photographs of Structural Features in Outcrops in the South Zone and Dumico Areas. A) South Zone area: Relationship between an E-W penetrative fabric and a secondary NE-trending secondary fabric. B) Dumico area: A dominant SE-trending shear zone containing E-W trending sigmoidal quartz veins.



14.1.4 High-grade Capping

Basic univariate statistics were performed on the raw assay datasets, grouped by zone. The following criteria were used to decide if capping was warranted:

- The coefficient of variation of the assay population is above 3.0
- The quantity of metal contained in the top 10% highest grade samples is above 40%, and/or the quantity in the top 1% highest grade samples is higher than 10%
- The probability plot of the grade distribution shows abnormal breaks or scattered points outside the main distribution curve
- The lognormal distribution of grades shows erratic grade bins or distanced values from the main population

The capping threshold decided for all domains is consistent with the combination of three criteria:

- A break in the probability plot
- A coefficient of variation below 3.0 after capping
- The total metal contained in the top 1% of the highest-grade samples is below 10% after capping

High-grade capping was set at 25 g/t Au for all zones, including the envelope zone. Twenty-two DDH samples and one channel sample were capped. Table 14.1 summarizes the statistical analysis for domains with more than 100 samples. Figure 14.4 shows an example of graphs supporting the capping threshold decisions.

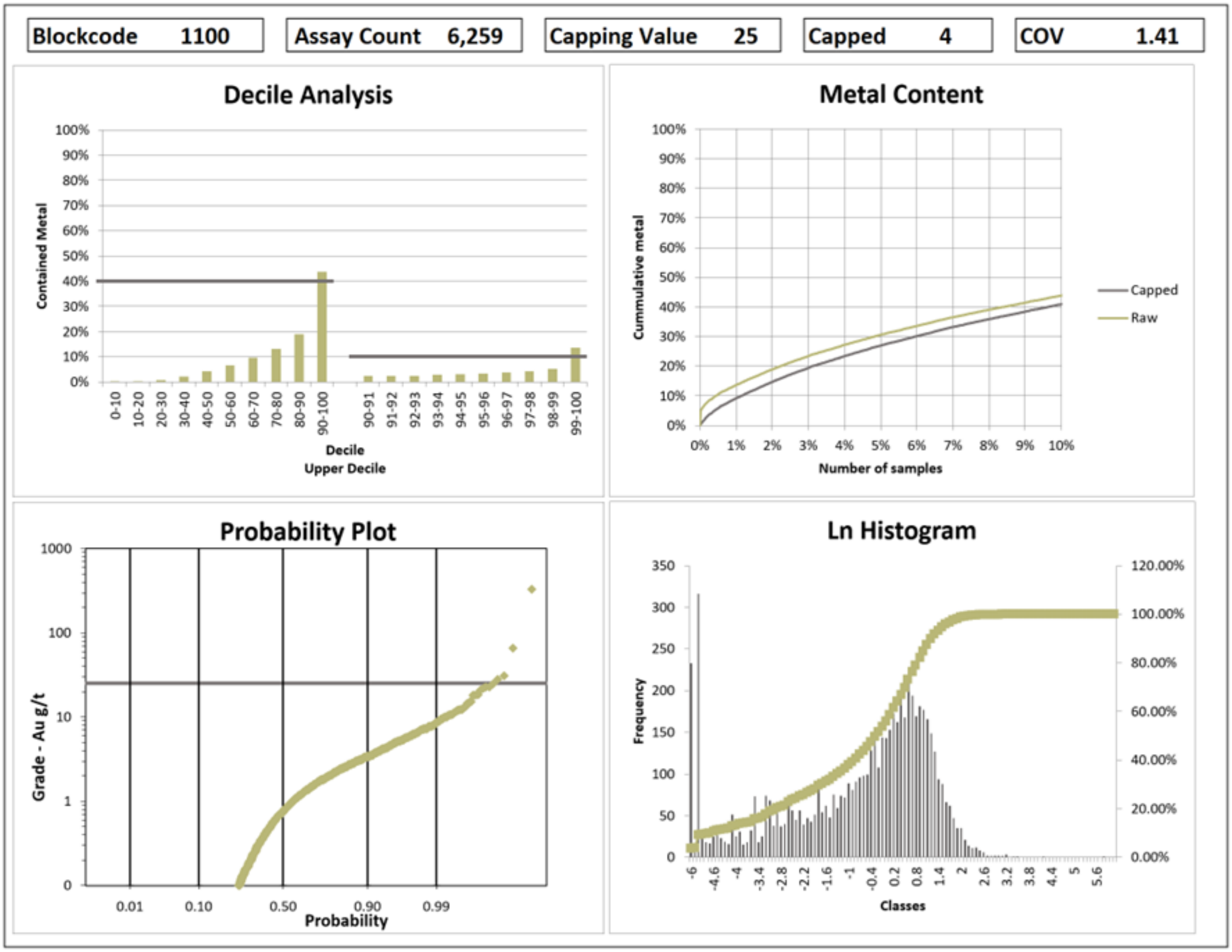
Table 14.1: Summary of Univariate Statistics on Raw Assays (domains with more than 100 samples)

Domain Name	No. of Samples	Uncut Mean Grade (g/t)	Uncut COV	Max Grade (g/t)	High-grade Capping (g/t)	No. of Cut Samples	Cut Mean Grade (g/t)	Cut COV	% Samples Cut	% Loss Metal Factor
NORTH	6,259	1.44	3.17	322	25	4	1.38	1.41	0.06%	4.94%
SOUTH_01	675	0.98	1.43	10.17	25		0.98	1.43		
SOUTH_02	2,135	1.14	2.08	87.8	25	1	1.11	1.39	0.05%	3.14%
SOUTH_03	1,232	0.81	1.53	26.9	25	1	0.81	0.5	0.08%	0.15%
SOUTH_04	2,241	0.89	1.4	11.52	25		0.89	1.4		
SOUTH_05	1,125	0.71	2.07	17	25		0.71	2.07		
SOUTH_06	1,743	0.87	2.56	37.58	25	1	0.87	2.45	0.06%	0.80%
SOUTH_07	378	1.25	2.5	34.9	25	1	1.23	2.35	0.26%	2.67%
SOUTH_08	348	0.95	2.65	33.12	25	1	0.92	2.42	0.29%	2.06%
SOUTH_09	166	0.86	1.89	8.07	25		0.86	1.89		
SOUTH_10	132	0.76	3.16	25.37	25	1	0.75	3.13	0.76%	0.34%
3	1,167	0.89	2.28	44.9	25	2	0.88	1.98	0.17%	1.58%
3B	878	0.99	2.63	59.59	25	2	0.95	1.97	0.23%	3.85%
WEST_1	1,361	1.46	2.5	119.5	25	2	1.39	1.31	0.15%	5.09%
WEST_2	721	1.88	1.44	37.67	25	1	1.88	1.35	0.14%	0.66%
WEST_3	220	1.39	0.81	5.82	25		1.39	0.81		
RWRS	2,699	1.3	1.58	24.01	25		1.3	1.58		

Domain Name	No. of Samples	Uncut Mean Grade (g/t)	Uncut COV	Max Grade (g/t)	High-grade Capping (g/t)	No. of Cut Samples	Cut Mean Grade (g/t)	Cut COV	% Samples Cut	% Loss Metal Factor
6	427	1.14	2.39	24.48	25		1.14	2.39		
CD	339	1.82	1.39	15.71	25		1.82	1.39		
CD_SOUTH	162	0.43	2.29	8.01	25		0.43	2.29		
O_01	215	1.2	1.76	16.15	25		1.2	1.76		
O_02	149	0.5	2.23	9.21	25		0.5	2.23		
O_07	161	0.52	2.13	7.24	25		0.52	2.13		
O_08	112	0.69	1.71	6.03	25		0.69	1.71		
O_09	275	0.51	1.64	8.05	25		0.51	1.64		
O_11	183	0.6	2.93	11.55	25		0.6	2.93		
O_12	127	0.97	1.82	12.87	25		0.97	1.82		
O_14	124	0.3	1.57	2.22	25		0.3	1.57		
O_15	232	0.47	1.91	5.62	25		0.47	1.91		
O_16	139	0.44	1.52	3.57	25		0.44	1.52		
O_17	248	0.77	1.92	10.2	25		0.77	1.92		
O_18	182	0.43	2.34	8.33	25		0.43	2.34		
O_19	121	0.29	2.19	3.53	25		0.29	2.19		
O_20	195	0.87	2.34	22.39	25		0.87	2.34		
O_25	119	0.97	2.21	16.03	25		0.97	2.21		

Domain Name	No. of Samples	Uncut Mean Grade (g/t)	Uncut COV	Max Grade (g/t)	High-grade Capping (g/t)	No. of Cut Samples	Cut Mean Grade (g/t)	Cut COV	% Samples Cut	% Loss Metal Factor
O_27	101	0.77	2.82	18.85	25		0.77	2.82		
O_28	117	0.42	1.75	4.31	25		0.42	1.75		
O_29	277	0.51	2.11	8.58	25		0.51	2.11		
O_30	109	0.62	2.41	11.87	25		0.62	2.41		
O_31	119	0.39	2.64	9.32	25		0.39	2.64		
O_33	181	0.27	2.4	5.6	25		0.27	2.4		
O_38	330	0.3	2.19	4.98	25		0.3	2.19		
O_46	171	0.74	1.54	8.27	25		0.74	1.54		
O_49	105	0.35	1.24	2.57	25		0.35	1.24		
O_50	123	0.76	4.58	37.3	25	1	0.66	3.69	0.83%	14.38%
DUM_03	124	1.36	2.58	27.89	25	1	1.33	2.5	0.82%	1.56%
Envelope	143,808	0.08	12.56	341	25	3	0.08	4.52	0.01%	4.00%

Figure 14.4: Example of Graphs Supporting the Capping Decision for the North Mineralized Domain



Source: InnovExplo, 2023

14.1.5 Density

The resource estimate relied on 3,633 bulk density measurements and a 12 t composite drill core bulk sample collected by Clifton Star in 2013 for metallurgical purposes (Servelle and Pelletier, 2014), which averaged 2.73 g/cm^3 (mean density of the syenite) for all 60 mineralized domains and the envelope (Poirier et al., 2014). A density of 2.00 g/cm^3 was assigned to the overburden, and 1.00 g/cm^3 was assigned to excavation solids (drifts and stopes) assumed to be filled with water.

Density analyses were performed on selected pulps from core samples by ALS Canada in North Vancouver, British Columbia, and by Accurassay in Thunder Bay, Ontario. The selected method employs an automated gas displacement pycnometer to determine density by measuring the pressure change of helium within a calibrated volume.

14.1.6 Compositing

The capped assays were composited within each mineralized domain to minimize any bias introduced by variations in sample lengths. The thickness of the mineralized domains, the proposed block size and the original sample lengths were considered when selecting the composite length.

The intervals defining each mineralized domain were composited to equal 1 m lengths. A grade of 0.00 g/t was assigned to missing sample intervals as it was assumed that the geologist logging the core had considered the unsampled intervals unmineralized. A total of 257,705 composites were generated from the DDH database, discarding tails less than 0.25 m long, and 2,298 composites were generated from the channel database. No composites were filtered out of the channel sample dataset due to the small amount of data and the fact that such filtering would be statistically meaningless.

Table 14.2 summarizes the basic statistics for the raw data and composites for the major domains (domains with more than 500 samples).

Table 14.2: Summary Statistics for the Raw Data and Composites (Major Mineralized Domains)

Domain Name	No. of Raw Assays Samples	Raw Assays Max Grade (g/t)	Raw Assays Mean Grade (g/t)	Raw Assays COV	No. of Comp.	Comp. Max Grade (g/t)	Comp. Mean Grade (g/t)	Comp. COV
NORTH	6,259	322	1.44	3.17	7,726	25	1.26	1.43
SOUTH_01	675	10.18	0.98	1.43	914	8.06	0.8	1.46
SOUTH_02	2,135	87.8	1.14	2.08	2,885	23.72	1.01	1.39
SOUTH_03	1,232	26.9	0.81	1.53	1,853	22.67	0.73	1.45
SOUTH_04	2,241	11.52	0.89	1.4	2,952	10.96	0.81	1.36
SOUTH_05	1,125	17	0.71	2.07	1,536	16.97	0.6	2.13
SOUTH_06	1,743	37.58	0.87	2.56	2,496	25	0.71	2.51
3	1,167	44.9	0.89	2.28	1,631	24.99	0.78	1.81
3B	878	59.59	0.99	2.63	1,201	25	0.84	2.09
WEST_1	1,361	119.5	1.46	2.5	1,840	25	1.39	1.27
WEST_2	721	37.67	1.88	1.44	909	20.95	1.82	1.29
RWRS	2,699	24.01	1.3	1.58	3,761	23.98	1.2	1.53
ENVELOPE	143,808	341	0.08	12.56	225,747	25	0.06	4.27

Source: InnovExplo, 2023

14.1.7 Block Model

A block model was developed to enclose a volume large enough to span the extent of an open pit. The model corresponds to a sub-blocked model in Surpac with no rotation. The user block size was defined as 5 m x 5 m x 5 m with a minimal sub-block size of 1.25 m x 1.25 m x 1.25 m. Block dimensions reflect the sizes of mineralized domains and plausible mining methods. All blocks with more than 50% of their volume falling within a selected solid were assigned the corresponding solid block code. Table 14.3 lists the properties of the block model. Table 14.4 details the naming conventions for the corresponding solids and the rock codes and precedence assigned to each solid.

Table 14.3: Block Model Properties

Properties	Y (rows)	X (columns)	Z (levels)
Min. Coordinates	5,373,300	628,500	-760
Max. Coordinates	5,375,075	634,400	370
User Block Size	5	5	5
Min. Block Size	1.25	1.25	1.25
Rotation	0	0	0

Source: InnovExplo, 2023

Table 14.4: Block Model Naming Convention and Rock Codes

Domain Name	Description	Rock Code	Precedence
Air	Air	5	1
Stope	Mined out	8	2
Drift Duparquet	Mined out	9	3
Drift CD	Mined out	9	3
OB	Overburden	6	6
NORTH	Mineralized domain	1100	10
SOUTH_01	Mineralized domain	1210	21
SOUTH_02	Mineralized domain	1220	22
SOUTH_03	Mineralized domain	1230	23
SOUTH_04	Mineralized domain	1240	24
SOUTH_05	Mineralized domain	1250	25
SOUTH_06	Mineralized domain	1260	26
SOUTH_07	Mineralized domain	1270	27
SOUTH_08	Mineralized domain	1280	28
SOUTH_09	Mineralized domain	1290	29
SOUTH_10	Mineralized domain	1295	21
3	Mineralized domain	1300	30

Domain Name	Description	Rock Code	Precedence
3B	Mineralized domain	1310	31
WEST_1	Mineralized domain	1410	41
WEST_2	Mineralized domain	1420	42
WEST_3	Mineralized domain	1430	43
RWRS	Mineralized domain	1500	50
6	Mineralized domain	1600	60
CD	Mineralized domain	1700	70
CD_SOUTH	Mineralized domain	1710	71
CD_S2	Mineralized domain	1720	72
O_01	Mineralized domain	2010	201
O_02	Mineralized domain	2020	202
O_05	Mineralized domain	2050	205
O_06	Mineralized domain	2060	206
O_07	Mineralized domain	2070	207
O_08	Mineralized domain	2080	208
O_09	Mineralized domain	2090	209
O_10	Mineralized domain	2100	210
O_11	Mineralized domain	2110	211
O_12	Mineralized domain	2120	212
O_13	Mineralized domain	2130	213
O_14	Mineralized domain	2140	214
O_15	Mineralized domain	2150	215
O_16	Mineralized domain	2160	116
O_17	Mineralized domain	2170	217
O_18	Mineralized domain	2180	218

Domain Name	Description	Rock Code	Precedence
O_19	Mineralized domain	2190	219
O_20	Mineralized domain	2200	220
O_24	Mineralized domain	2240	224
O_25	Mineralized domain	2250	225
O_27	Mineralized domain	2270	227
O_28	Mineralized domain	2280	228
O_29	Mineralized domain	2290	229
O_30	Mineralized domain	2300	230
O_31	Mineralized domain	2310	231
O_33	Mineralized domain	2330	233
O_38	Mineralized domain	2380	238
O_40	Mineralized domain	2400	240
O_41	Mineralized domain	2410	241
O_42	Mineralized domain	2420	242
O_46	Mineralized domain	2460	146
O_48	Mineralized domain	2480	248
O_49	Mineralized domain	2490	249
O_50	Mineralized domain	2500	250
DUM_01	Mineralized domain	3110	311
DUM_02	Mineralized domain	3120	312
DUM_03	Mineralized domain	3130	313
DUM_04	Mineralized domain	3510	314
DUM_05	Mineralized domain	3520	315
ENVELOP	Envelope	4000	400

Source: InnovExplo, 2023

14.1.8 Variography and Search Ellipsoids

Individual mineralized domains and the envelope were estimated separately using their own search ellipsoid. The available geological and geostatistical information was used to establish the size of each search ellipsoid.

Eight of the mineralized domains were divided into panels based on variations in internal geometry. The criteria used for determining whether a mineralized domain should be subdivided were the intensity of the curvature along-strike or down-dip and/or the presence of 'splays' associated with the given domain.

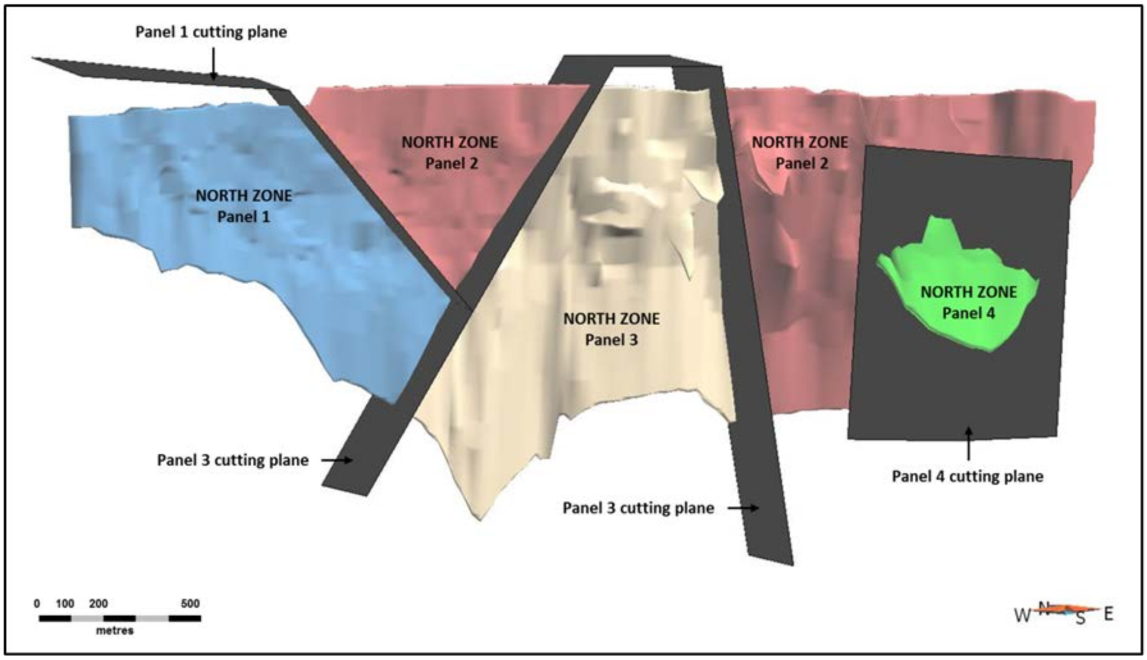
Table 14.5 lists the mineralized domain's panels, block codes, and mean orientations. Figure 14.5 illustrates the panel subdivisions of the North Zone domain and the cutting planes used.

Table 14.5: Mean Orientation of the Panels for the Geometrically Irregular Mineralized Domains

Domain	Panel	Block Code	Azimuth (°)	Dip (°)
NORTH	1	1101	80	80
	2	1102	275	80
	3	1103	265	80
	4	1104	90	70
SOUTH_1	1	1211	275	85
	2	1212	95	75
SOUTH_2	1	1221	275	85
	2	1222	85	87.5
SOUTH_3	1	1231	90	70
	2	1232	280	80
SOUTH_4	1	1241	85	87.5
	2	1242	280	70
SOUTH_8	1	1281	265	90
	2	1282	275	85
SOUTH_10	1	1296	275	85
	2	1297	265	80
RWRS	1	1501	90	80
	2	1502	90	75
	3	1503	65	75
	4	1504	85	85

Source: InnovExplo, 2023

Figure 14.5: NNE Vertical Section Showing the Panel Subdivisions of the North Zone



Source: InnovExplo, 2023

Seventy-two distinct mineralized domains were studied. The domains were based on the variables outlined in the preceding text. Each domain's mean azimuth and dip were used to define 23 search ellipsoids, grouping zones of similar geometry. The most representative result for the envelope zone was obtained using an orientation of N090/90, corresponding to the average attitude of the structural trend on the Project.

Ellipsoid radiuses were established using a combination of the ranges determined from the geostatistical analysis of the main zones and the interpretation of the true thickness of each zone. The radius of the third axis (Z) varies from 15 to 30 m, reflecting the density data for each zone and the confidence level of the geological interpretation.

Table 14.6 summarizes the parameters of the ellipsoids used for interpolation.

Table 14.6: Search Ellipsoid Parameters

Ellipsoid	Rotation			Radius			Orientation		Domain Rock Code	Panel
	Z	X	Z	X	Y	Z	Azimuth	Dip		
	(°)	(°)	(°)	(m)	(m)	(m)	(°)	(°)		
1	50	75	0	80	80	15	40	75	2050	
2	40	70	0	80	80	15	50	70	2280	
3	40	87	0	80	80	15	50	87	2120	
									2080	
									2100	
									2110	
									2070	
									2170	
4	30	75	0	80	80	15	60	75	2420	
									2240	
									2060	
									2310	
									2190	
									2250	
									2300	
									2150	
									1500	1503
5	30	85	0	80	80	15	60	85	2490	
									2500	
6A	15	80	0	80	80	15	65	80	1410	
6B	20	80	0	80	80	15	70	80	2140	
							70	80	2130	
7	15	40	0	80	80	15	75	40	1420	

Ellipsoid	Rotation			Radius			Orientation		Domain Rock Code	Panel
	Z	X	Z	X	Y	Z	Azimuth	Dip		
	(°)	(°)	(°)	(m)	(m)	(m)	(°)	(°)		
8	15	85	0	80	80	15	75	85	1400	
9	10	75	0	110	110	15	80	75	2020	
				110	110	25	80	80	1100	1101
10	5	85	0	110	110	15	80	85	2010	
				110	110	25	85	85	1500	1504
				110	110	25	85	85	1240	1241
				110	110	25	85	85	1270	
				110	110	25	85	85	1250	
				110	110	25	85	85	1260	
				110	110	25	85	85	1220	1222
11	0	70	0	110	110	25	90	70	1100	1104
				110	110	25	90	70	1230	1231
				110	110	25	90	75	1500	1502
				110	110	25	95	75	1210	1212
12A1	0	80	0	110	110	25	90	80	1500	1501
12A2	-5	80	0	110	110	15	95	80	1300	
				110	110	15	95	80	2330	
				110	110	15	95	80	2270	
12B	0	85	0	110	110	15	90	85	1600	
				110	110	15	95	85	2180	
				110	110	15	95	85	2460	
				110	110	15	90	90	1310	
13	-20	85	0	110	110	15	110	85	2400	
14	-35	65	0	110	110	15	125	65	2380	

Ellipsoid	Rotation Z (°)	Rotation X (°)	Rotation Z (°)	Radius X (m)	Radius Y (m)	Radius Z (m)	Orientation Azimuth (°)	Orientation Dip (°)	Domain Rock Code	Panel
15	5	-85	0	110	110	25	265	80	1100	1103
				110	110	25	265	80	1295	1297
				110	110	25	265	90	1280	1281
				110	110	25	265	90	1290	
16	0	-75	0	110	110	30	270	75	1700	
				110	110	30	270	75	1710	
				110	110	30	270	75	1720	
				110	110	30	270	75	3110	
				110	110	30	270	75	3120	
				110	110	30	270	75	3130	
17	-5	-85	0	110	110	25	275	80	1100	1102
				110	110	25	275	85	1280	1282
				110	110	25	275	85	1210	1211
				110	110	25	275	85	1295	1296
				110	110	25	275	85	1220	1221
				110	110	15	275	85	2160	
				110	110	15	275	85	2480	
				110	110	15	275	85	2290	
				110	110	15	275	85	2200	
				110	110	15	275	85	2090	
				110	110	15	275	85	2410	
18	-10	-75	0	110	110	25	280	70	1240	1242
				110	110	25	280	80	1230	1232
19	-45	-70	0	110	110	30	300	65	3510	

Ellipsoid	Rotation			Radius			Orientation		Domain Rock Code	Panel
	Z	X	Z	X	Y	Z	Azimuth	Dip		
	(°)	(°)	(°)	(m)	(m)	(m)	(°)	(°)		
				110	110	30	300	65	3520	
20	0	-90	0	50	50	15			4000	
**Block model system: positive rotation is counterclockwise.*										

Source: InnovExplo, 2023

14.1.9 Grade Interpolation

The variography study provided the parameters for interpolating the grade model using composites. The interpolation was run in Surpac on point area workspaces extracted from the composite datasets, flagged by domain. The interpolation profiles were applied to each mineralized domain using hard boundaries.

The method used for the resource estimation was ID2.

The two strategies and the parameters for the grade estimation are summarized in Table 14.7.

Table 14.7: Interpolation Strategies

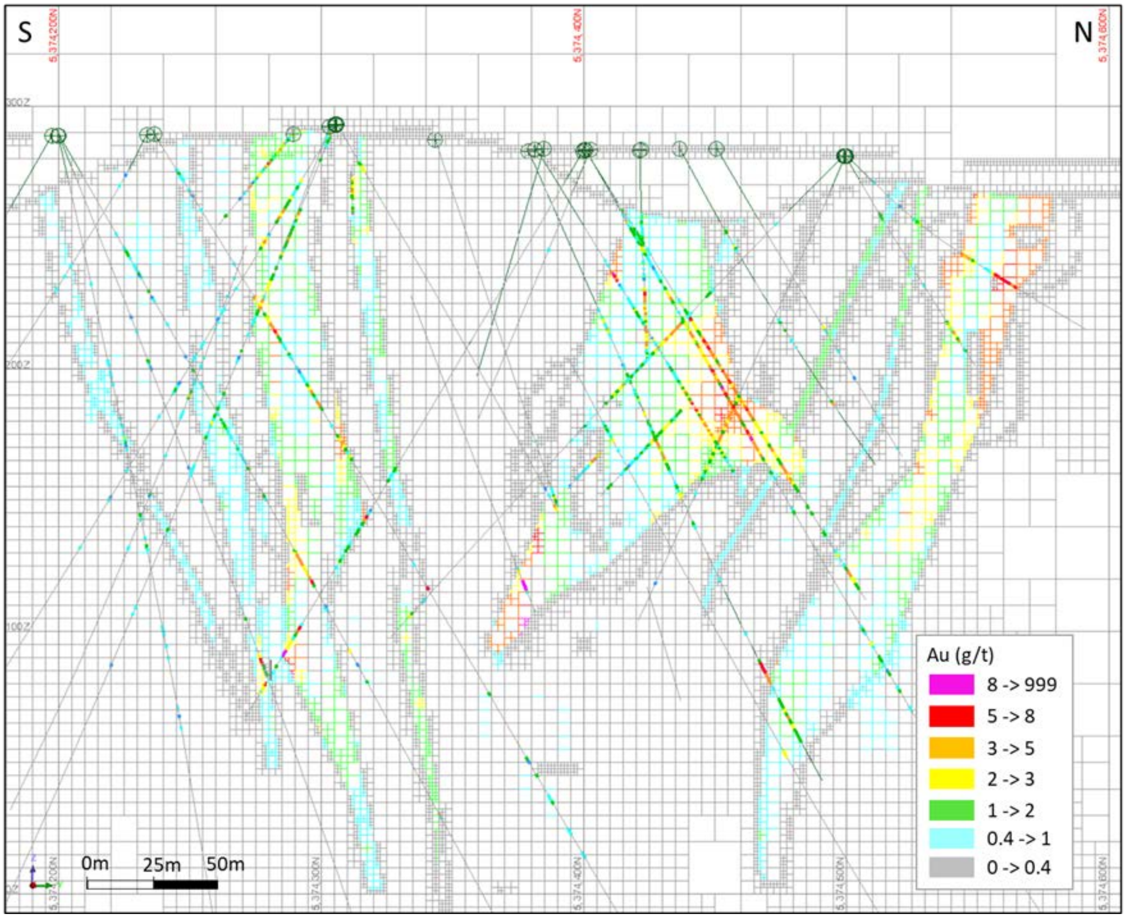
Folder	Search Ellipsoid Range	Number of Composites		
		Min	Max	Max per Hole
Mineralized Domains	X 1	2	12	4
Envelope	X 1	2	6	0

Source: InnovExplo, 2023

14.1.10 Block Model Validation

Block model grades and composite grades were visually compared on sections, plans and longitudinal views for densely and sparsely drilled areas. The grade distribution had a good match without excessive smoothing in the block model. The process confirmed that the block model honours the drill hole composite data (Figure 14.6).

Figure 14.6: Block Model Interpolated Gold Values Versus Drill Hole Gold Assays (Section 630,100E)



Source: InnovExplo, 2023

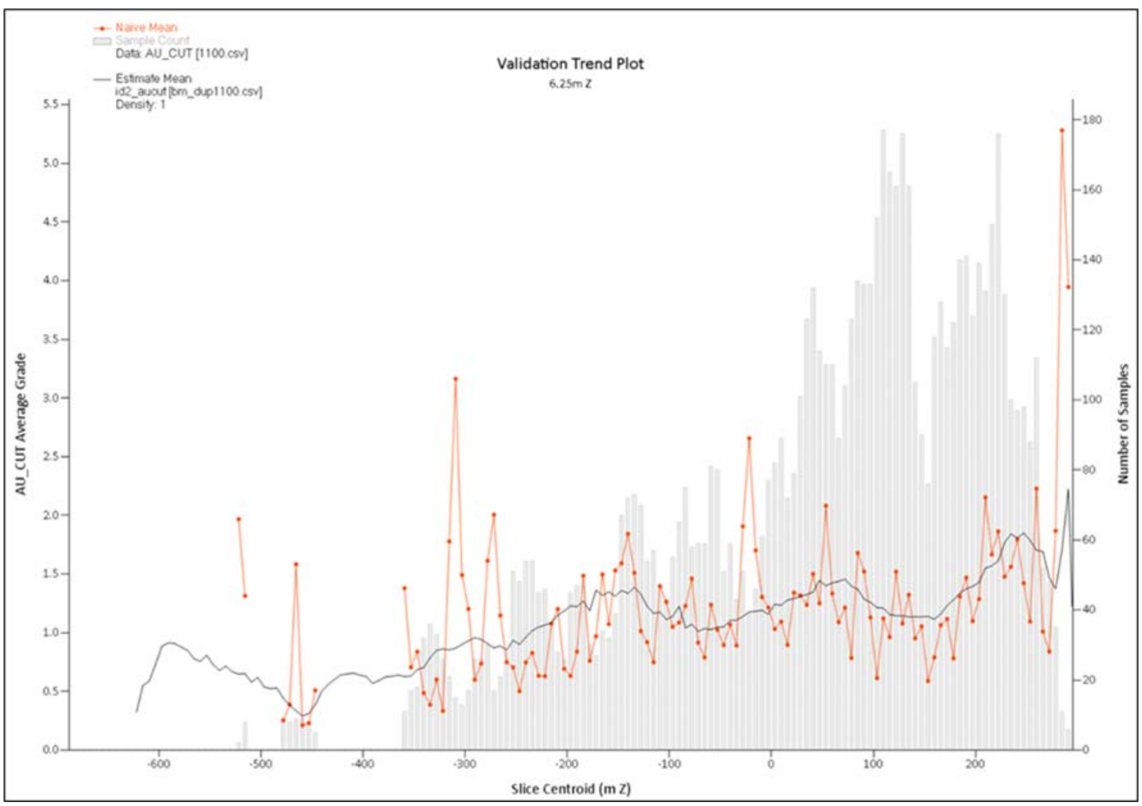
The trend and local variations of the estimated ID2 model were compared to the composite data using statistics and swath plots in three directions (North, East and Elevation). Table 14.8 compares the global block model mean and the composite grades for three domains. The comparison between the composite and block grade distribution did not identify any significant discrepancies. Figure 14.7 is an example of the swath plot used to compare the block model grades to the composite grades. In general, the model correctly reflects the trends demonstrated by the composites, with the expected smoothing effect.

Table 14.8: Comparison of Block Model and Composite Mean Grades for Three Domains

Domain Rock Code		Composites	ID2 Model	Difference
1100	Number	7,828	2,489,635	
	Mean (g/t)	1.24	1.20	96%
	COV	1.44	0.97	68%
1300	Number	1,631	885,681	
	Mean (g/t)	0.78	0.76	97%
	COV	1.81	0.89	49%
1600	Number	527	92,578	
	Mean (g/t)	1.03	0.99	96%
	COV	2.31	1.16	50%

Source: InnovExplo, 2023

Figure 14.7: Swath Plot Comparing the ID2 Interpolation to the DDH Composites for the 1100 Domain (sliced by elevation)



Source: InnovExplo, 2023

14.1.11 Mineral Resource Classification

Definitions

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document "*CIM Definitions Standards for Mineral Resources and Mineral Reserve*" ("CIM Definition Standards") and are presented below.

Measured Mineral Resource

That part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes that are spaced close enough to confirm both geological and grade continuity.

Indicated Mineral Resource

That part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes that are spaced close enough for geological and grade continuity to be reasonably assumed.

Inferred Mineral Resource

That part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes.

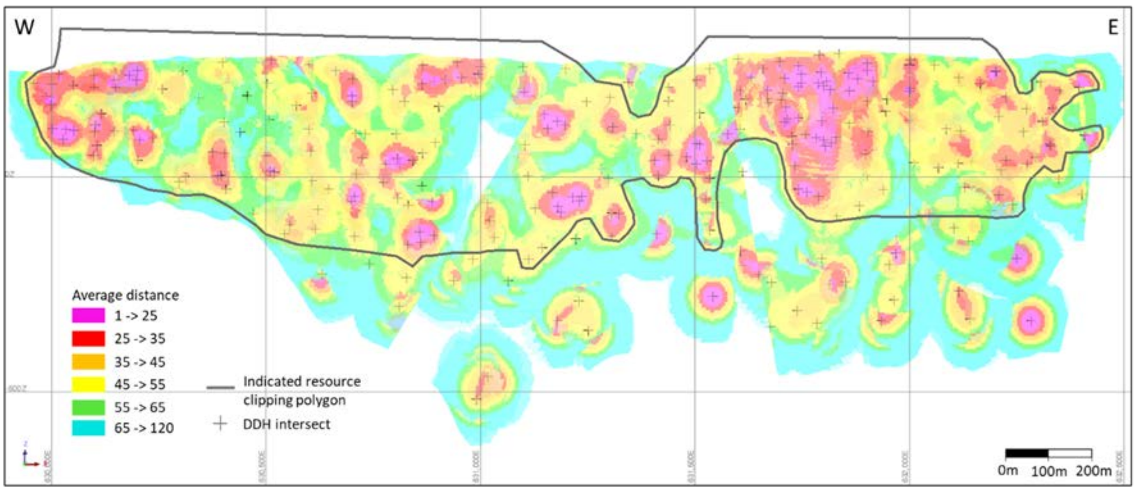
Measured resources for the Duparquet deposit were defined for blocks having a volume of at least 25% within an envelope modelled using a distance of 10 m around existing channel samples.

Indicated resources were defined for blocks meeting at least one of the conditions below:

- Blocks falling within a 15 m wide buffer surrounding existing stopes
- Blocks for which the average distance to composites is less than 45 m

A clipping polygon was generated for each of the 60 mineralized domains using the parameters defined, and the blocks were coded accordingly. Only blocks for which reasonable geological and grade continuity have been demonstrated were selected. In some cases, isolated blocks were upgraded or downgraded in classification to homogenize the model. All remaining interpolated blocks were classified as Inferred resources. Figure 14.8 illustrates an example of the clipping polygon used to classify the Indicated resource for the North domain.

Figure 14.8: Longitudinal View of the Indicated Resource Clipping Polygon Used for the North Domain (looking north)



Source: InnovExplo, 2023

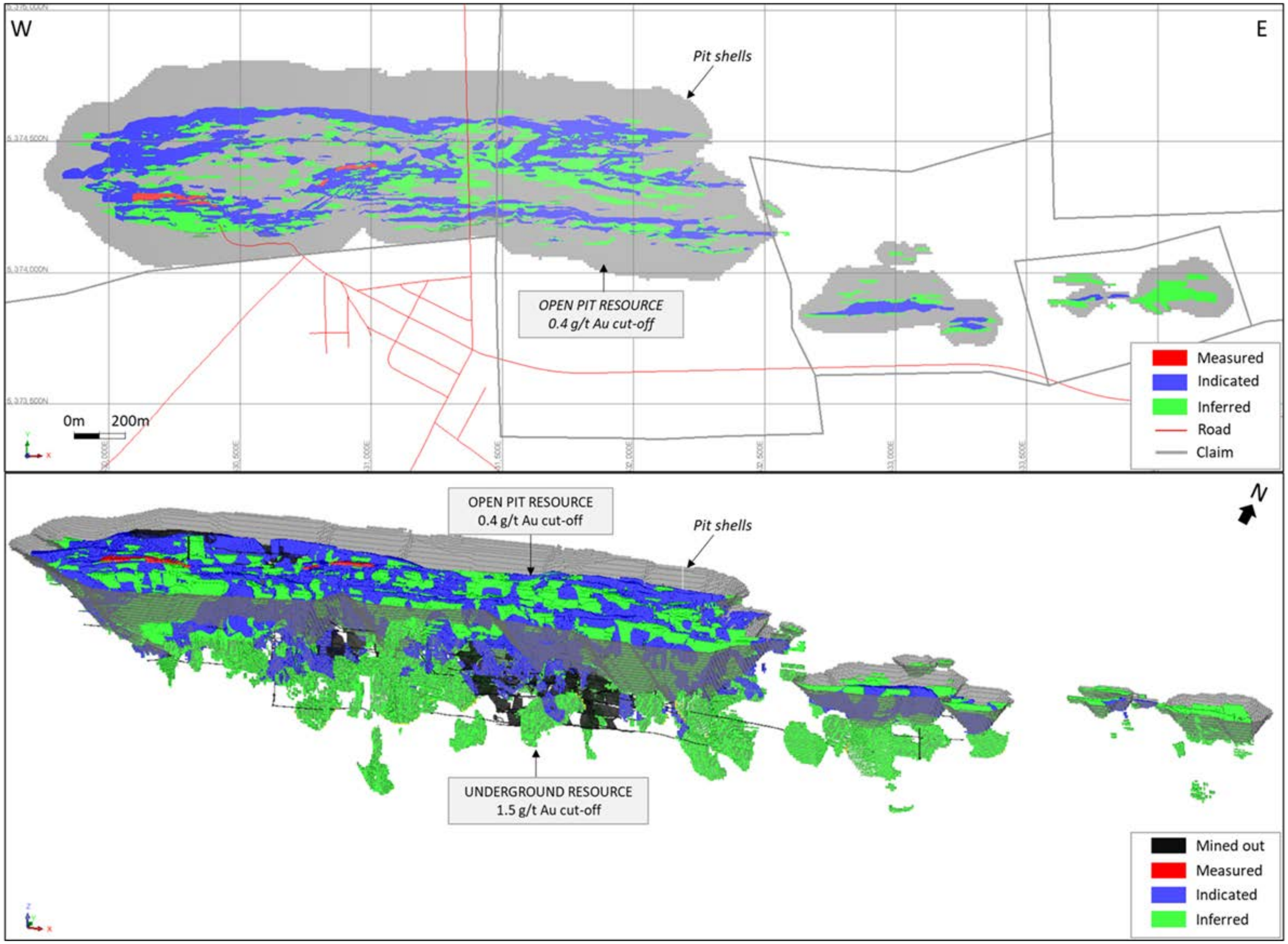
Blocks interpolated in the envelope were all classified as Inferred resources.

14.1.12 Cut-off Grade for Mineral Resources

Under CIM MRMR Best Practice Guidelines, mineral resources should have "reasonable prospects of eventual economic extraction".

A Whittle pit shell was used to constrain the MRE for its near-surface potential. Resource-level optimized pit shells and the corresponding open-pit cut-off grades are used for the open pit resource statement. The remaining (out-pit) mineralized material was then flagged for its underground potential. Deswik Stope Optimizer (DSO") was used to apply constraining volumes to any blocks in the potential underground extraction scenario to address the reasonable prospect for eventual economic extraction of underground resources. Isometric and plan views (Figure 14.9) showing the optimized pit-shell and DSO stope designs of the classified mineral resources are provided to visualize relationships between the two.

Figure 14.9: Plan View and Isometric View of the Categorized Mineral Resources and the Whittle Optimized Pit Shells (block selection: in pit-shells or DSO and above the respective COG)



Source: InnovExplo, 2023

Mineral resources were compiled using a minimum cut-off grade for two combined potential extraction scenarios: 0.4 g/t Au for open pit and 1.5 g/t Au for underground mining.

The cut-off grade parameters and assumptions are presented in Table 14.9.

Table 14.9: Input Parameters Used to Estimate the Cut-Off Grade

Parameter	Unit	Value for Open Pit	Value for Underground Mining
Gold Price	USD/oz	1,650	1,650
Exchange Rate	USD/CAD	1.31	1.31
Royalty	%	0	0
Refining Cost	USD/oz	5	5
Cost of Selling	USD/oz	5	5
Total Processing Cost	CAD/t treated	11.9	17
Metallurgical Recovery	%	93.9	93.9
Mining Method			Long hole
Mining Cost	CAD/t treated		70
G & A	CAD/t treated	8.75	8.75
Total Mineralized Material Based Cost	CAD/t treated	22.9	95.75
Cut-off Grade	Au g/t	0.4	1.5

Source: InnovExplo, 2023

14.1.13 Mineral Resource Estimate

14.1.13.1 In-pit and Underground Resource Estimates

The QPs have classified the current Mineral Resource Estimate as Measured, Indicated, and Inferred resources based on data density, search ellipse criteria, drill hole spacing and interpolation parameters. The QPs also believe that the requirement of “reasonable prospects for eventual economic extraction” has been met by having:

- Resources constrained by a pit shell, with a 50° angle in rock and a 30° angle in overburden

- Constraining volumes applied to any blocks (potential underground extraction scenario) using DSO for the out-pit resources
- Cut-off grades based on reasonable inputs amenable to potential open-pit and underground extraction scenarios

The MRE is considered reliable and based on quality data and geological knowledge. The estimate follows CIM Definition Standards.

Table 14.10 presents the results of the in-pit and underground portions of the MRE, combining potential open pit and underground mining scenarios at respective cut-off grades of 0.4 g/t Au and 1.5 g/t Au.

Table 14.11 presents the sensitivity of the in-pit and underground resources at different cut-off grades for each mining method. The figures provided in the sensitivity table should not be interpreted as a mineral resource statement. The reported quantities and grade estimates at different cut-off grades are presented to demonstrate the resource model's sensitivity to the selection of a reporting cut-off grade.

Table 14.10: Duparquet Deposit 2022 Mineral Resource Estimate by Mining Method

Area (potential mining method)	Cut-off (g/t)	Measured Resource			Indicated Resource			Inferred Resource		
		Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces
Open pit	0.4	163,700	1.37	7,200	59,410,600	1.52	2,909,600	28,333,000	1.07	970,400
UG mining	1.5	-	-	-	5,506,900	2.26	399,300	9,038,900	2.29	665,600
Total	-	163,700	1.36	7,200	64,917,474	1.59	3,308,880	37,371,851	1.36	1,636,044

Notes to accompany the Duparquet Deposit Mineral Resource Estimate:

1. *The independent and qualified persons for the Mineral Resource Estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P. Eng., all from InnovExplo, and Guy Comeau, P. Eng. from Soutex. The effective date of the estimate is September 12, 2022.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of economic viability.*
4. *The estimate encompasses sixty (60) mineralized domains and one dilution envelope using the grade of the adjacent material when assayed or a value of zero when not assayed.*
5. *High-grade capping of 25 g/t Au supported by statistical analysis was done on raw assay data before compositing.*
6. *The estimate was completed using a sub-block model built in GEOVIA SURPAC 2021, a block size of 5 m x 5 m x 5 m and a minimum block size of 1.25 m x 1.25 m x 1.25 m. Grade interpolation was obtained by ID2 using hard boundaries.*
7. *A density value of 2.73 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
8. *The Mineral Resource Estimate is classified as measured, indicated and inferred. The Measured category is defined by blocks having a volume of at least 25% within an envelope built at a distance of 10 m around existing channel samples. The Indicated category is defined by blocks meeting at least one of the following conditions: (i) blocks falling within a 15-m buffer surrounding existing stopes, and/or (ii) blocks for which the average distance to composites is less than 45 m. A clipping polygon was generated to constrain indicated resources for each of the 60 mineralized domains. Only the blocks for which reasonable geological and grade continuity have been demonstrated were selected. All remaining interpolated blocks were classified as Inferred resources. Blocks interpolated in the envelope were all classified as Inferred resources.*
9. *The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the requirement of reasonable prospects for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. It is reported at a rounded cut-off grade of 0.4 g/t Au (in-pit) and 1.5 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 70.00 (UG); processing cost = CAD 11.9 to $17.0; G&A = CAD 8.75; refining and selling costs = CAD 5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
10. *The number of metric tons and ounces was rounded to the nearest hundred, following NI 43-101 recommendations, and any discrepancies in the totals are due to rounding effects.*
11. *The QPs are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.*

Table 14.11: Cut-off Grade Sensitivity for the Inpit and Underground Portions of the Duparquet Deposit Resource

Area (mining method)	Cut-off (g/t)	Measured Resource			Indicated Resource			Inferred Resource		
		Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces
Open Pit	0.5	156,938	1.41	7,122	41,152,335	1.7	2,253,068	11,007,061	1.13	400,881
	0.45	161,081	1.39	7,187	53,548,726	1.58	2,722,586	22,032,449	1.16	824,601
	0.4	163,709	1.37	7,222	59,410,612	1.52	2,909,551	28,332,980	1.07	970,424
	0.35	165,800	1.36	7,248	66,307,600	1.46	3,117,172	37,354,222	0.96	1,147,282
UG mining	1.9	-	-	-	5,891,904	2.67	505,871	7,168,869	2.91	669,750
	1.7	-	-	-	5,224,787	2.47	414,153	7,378,504	2.51	595,956
	1.5	-	-	-	5,506,861	2.26	399,356	9,038,871	2.29	665,629
	1.3	-	-	-	5,302,381	2.1	357,603	11,459,118	2.05	756,440

Source: InnovExplo, 2023

14.1.13.2 Tailings Resource Estimate

In August 2009, Clifton Star contracted Genivar to produce a NI 43-101 compliant resource estimate for the Beattie mine tailings (Fillion, 2009), but the report was never published (Figure 14.10). On November 7, 2011, Clifton Star engaged InnovExplo to audit the 2009 results to incorporate them into a consolidated Mineral Resource Estimate, which was published in an NI 43-101 technical report on July 5, 2012 (Brousseau et al., 2012).

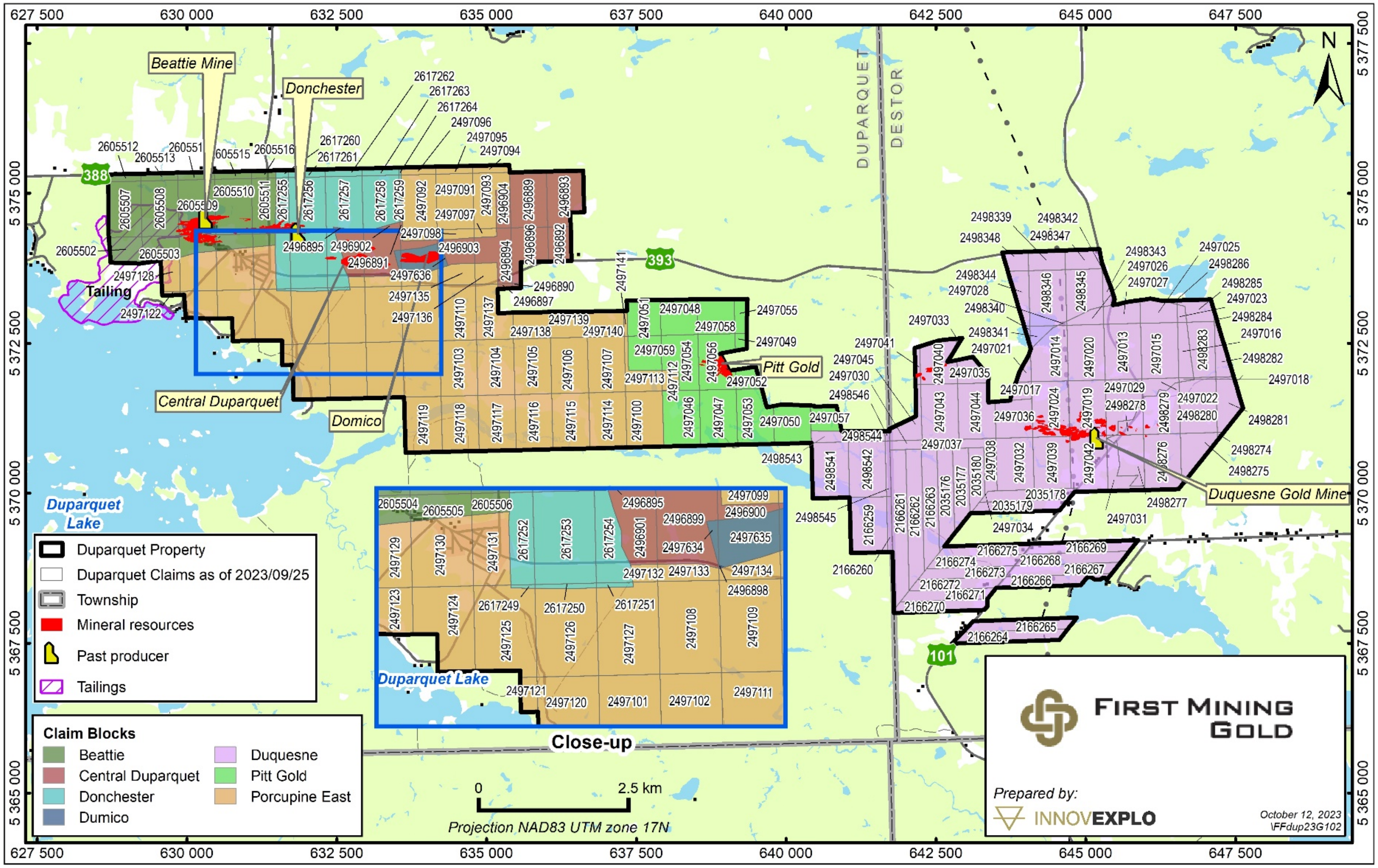
For the MRE conducted in 2022 on the Duparquet deposit, the authors reviewed the parameters of both MREs. The only change from 2009 to 2012 was that the volumetrics were re-calculated using a cut-off grade closer to the cut-off grade defined for the in-pit component of the 2022 MRE.

Genivar’s 2009 MRE was based on fieldwork performed in May, June, and September 2009. During the fieldwork:

- 271 stations were surveyed
- 449 samples were assayed for gold and specific gravity measurements were taken
- 24 samples were collected for bulk density measurements.

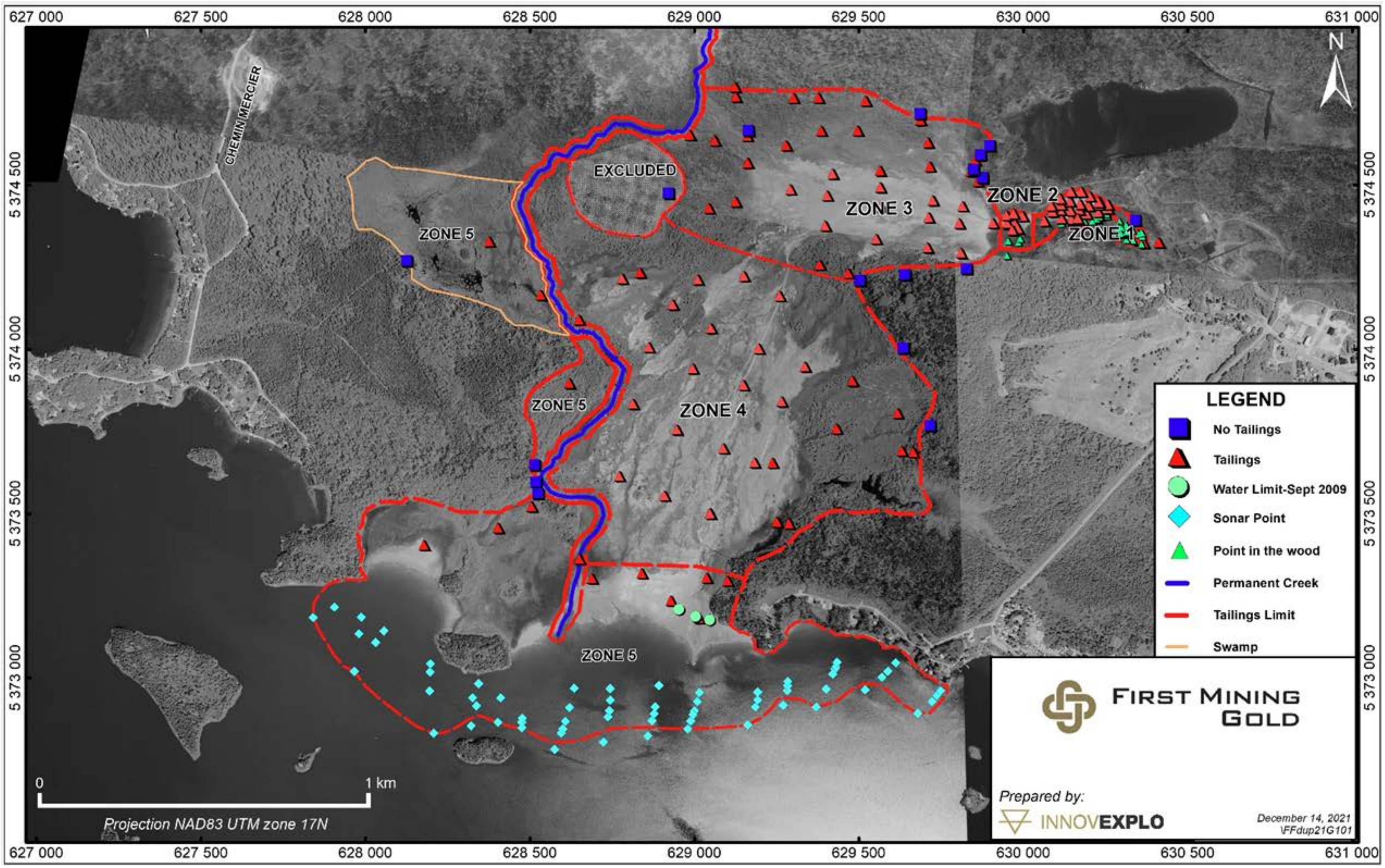
Figure 14.11 shows the location of the different tailings zones and the sample distribution.

Figure 14.10: Location Map Showing the Mining Titles Comprising the Duparquet Deposit and the Location of the Tailings Resource



Source: InnovExplo, 2023

Figure 14.11: Tailings Coverage and Location of Sampling Points



From

Source: Genivar, 2009
InnovExplo, *2021*

The boundaries of the tailings were surveyed with a high-precision GPS (Mobile GPS – Leica, System 1200), which provided the topography. The holes were drilled down to the bottom contact with the clays, 'gumbo' (basal clay) and organic material.

The block model was built using GEMS software. The dimensions of the blocks were 5 m x 5 m x 1 m. The intervals defining each favourable lithology were composited to equal lengths of 0.5 m. The high values were capped as follows:

- Zone 1: 13.0 g/t Au
- Zone 2: 3.5 g/t Au
- Zone 3: 1.7 g/t Au
- Zone 4: 2.2. g/t Au

The grades were estimated using the ID2 method with spherical search ellipsoids and a minimum of two to a maximum of 12 samples. The radius of the spherical search ellipsoids was as follows:

- Zone 1: 20 m
- Zone 2: 25 m
- Zone 3: 105 m
- Zone 4: 175 m
- Zone 5: 150 m

The specific gravity measurements on 24 samples were used for the resource calculation, yielding an average bulk density of 1.45 g/cm^3.

InnovExplo excluded Zone 5 (Figure 14.11) from the current estimate due to its location (swamps, lake) and the small amount of data.

Table 14.12 displays the results of the tailings at a cut-off grade of 0.4 g/t Au.

Table 14.13 presents the sensitivity of the tailings portion at different cut-off grades. The figures provided in this table should not be interpreted as a mineral resource statement. The QPs have presented the quantities and grade estimates at different cut-off grades to demonstrate the resource model's sensitivity to the selection of a reporting cut-off grade.

The cut-off grade sensitivity analysis (Figure 14.24) demonstrates the homogeneity of the gold grade distribution within the tailings. Despite variations in the cut-off grade, there is no real variation in the tonnage or associated grade. The only variations occur when the cut-off grade tends toward the mean grade of the tailings resource.

Table 14.12: Tailings Portion of the Duparquet Deposit 2022 Mineral Resource Estimate

Domain	Cut-off (g/t)	Measured Resource			Indicated Resource		
		Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces
Zones 1 and 2	0.4	19,900	2.03	1,300	-	-	-
Zones 3 and 4		-	-	-	4,105,200	0.93	123,200

Notes to accompany the Mineral Resource Estimate:

1. *The independent and qualified persons, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P. Eng., all from InnovExplo and Guy Comeau, P.Eng. from Soutex. The effective date of the estimate is September 12, 2022.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of economic viability.*
4. *The estimate encompasses four tailing zones.*
5. *High-grade capping supported by statistical analysis was done on raw assay data before compositing. High-grade capping was established at 13.0 g/t Au for Zone 1, 3.5 g/t Au for Zone 2, 1.7 g/t Au for Zone 3 and 2.2 g/t Au for Zone 4.*
6. *The estimate used a block model built in GEOVIA GEMS with a block size of 5 m x 5 m x 1 m. Grade interpolation was obtained by ID2 using hard boundaries.*
7. *A fixed density of 1.45g/cm^3 was used in zones and waste.*
8. *The Measured and Indicated categories were defined based on the drill hole spacing (Measured: zones 1 and 2 = 30 m x 30 m grid; Indicated: Zone 3 = 100 m x 100 m grid and Zone 4 = 200 m x 200 m grid).*
9. *The tailings mineral resource is reported at the in-pit cut-off grade of 0.4 g/t Au. The cut-off grade was calculated using the following parameters: processing cost = CAD 11.9; G&A = CAD 8.75; refining and selling costs = CAD 5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
10. *The number of metric tons and ounces was rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
11. *The QPs are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.*

Table 14.13: Cut-off Grade Sensitivity for the Tailings Portion of the Duparquet Deposit Mineral Resource Estimate

Domain	Cut-off (g/t)	Measured Resource			Indicated Resource		
		Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces
Zones 1 and 2	0.9	16,000	2.36	1,215			
	0.8	16,800	2.28	1,233			
	0.7	18,000	2.18	1,262			
	0.6	19,000	2.1	1,284			
	0.5	19,400	2.07	1,290			
	0.45	19,600	2.06	1,295			
	0.4	**19,900**	**2.03**	**1,297**			
	0.35	20,000	2.02	1,299			
Zones 3 and 4	0.9				2,424,500	1.01	79,036
	0.8				3,489,000	0.96	108,111
	0.7				4,053,900	0.94	122,102
	0.6				4,104,400	0.93	123,189
	0.5				4,104,800	0.93	123,196
	0.45				4,105,000	0.93	123,200
	0.4				**4,105,200**	**0.93**	**123,203**
	0.35				4,105,400	0.93	123,206

The tailings produced by the former Beattie mine have spread beyond their original location on the former Beattie mining concession, and a portion now extends onto Crown land (see Figure 14.10). There is a risk that the MRNF will not allow the First Mining to recover the mineral resource contained in the tailings that have spread beyond the Project; however, the QPs emphasize this represents a negligible portion of the Project's total mineral resources. It would have no material impact on the MRE and would not affect the potential viability of the Project.

14.1.13.3 Consolidated Duparquet Deposit Mineral Resource Estimate

Table 14.14 presents the MRE for the Consolidated Duparquet deposit broken down by mining method at the current cut-off grade.

Table 14.15 presents the sensitivity of the MRE at different cut-off grades. The figures provided in this table should not be interpreted as a mineral resource statement. The QPs have presented the quantities and grade estimates at different cut-off grades to demonstrate the resource model's sensitivity to the selection of a reporting cut-off grade.

Table 14.14: 2022 Mineral Resource Estimate for the Global Duparquet Deposit, by Mining Method

Area (Mining Method)	Cut-off (g/t)	Measured Resource			Indicated Resource			Inferred Resource		
		Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au	Ounces
Open pit	0.4	163,700	1.37	7,200	59,410,600	1.52	2,909,600	28,333,000	1.07	970,400
UG mining	1.5	-	-	-	5,506,900	2.26	399,300	9,038,900	2.29	665,600
Tailings	0.4	19,900	2.03	1,300	4,105,200	0.93	123,200	-	-	-
Total	-	183,600	1.43	8,500	69,022,700	1.55	3,432,100	37,371,900	1.36	1,636,000

Notes to accompany the Mineral Resource Estimate:

1. *The independent and qualified persons for the Mineral Resource Estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P. Eng., all from InnovExplo and Guy Comeau, P. Eng. from Soutex. The effective date of the estimate is September 12, 2022.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of economic viability.*
4. *In-pit and Underground estimates encompass sixty (60) mineralized domains and one dilution envelop using the grade of the adjacent material when assayed or a value of zero when not assayed. The tailings estimate encompasses four zones.*
5. *In-pit and Underground: High-grade capping of 25 g/t Au; Tailings: High-grade capping of 13.0 g/t Au for Zone 1, 3.5 g/t Au for Zone 2, 1.7 g/t Au for Zone 3 and 2.2 g/t Au for Zone 4. High-grade capping supported by statistical analysis was done on raw assay data before compositing.*
6. *In-pit and Underground: The estimate used a sub-block model in GEOVIA SURPAC 2021 with a unit block size of 5 m x 5 m x 5 m and a minimum block size of 1.25 m x 1.25 m x 1.25 m. Grade interpolation was obtained by ID2 using hard boundaries. Tailings: The estimate used a GEOVIA GEMS block model with a 5 m x 5 m x 1 m block size. Grade interpolation was obtained by ID2 using hard boundaries.*
7. *In-pit and Underground: A density value of 2.73 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water. Tailings: A fixed density of 1.45 g/cm^3 was used in zones and waste.*
8. *In-pit and Underground: The Mineral Resource Estimate is classified as Measured, Indicated and Inferred. The measured category is defined by blocks having a volume of at least 25% within an envelope built at a distance of 10 m around existing channel samples. The Indicated category is defined by blocks meeting at least one of the following conditions: (i) blocks falling within a 15-m buffer surrounding existing stopes and/or (ii) blocks for which the average distance to composites is less than 45 m. A clipping polygon was generated to constrain Indicated resources for each of the sixty (60) mineralized domains. Only the blocks for which reasonable geological and grade continuity have been demonstrated were selected. All remaining interpolated blocks were classified as Inferred resources. Blocks interpolated in the envelope were all classified as Inferred resources. Tailings: The Measured and Indicated categories were defined based on the drill hole spacing (Measured: Zones 1 and 2 = 30 m x 30 m grid; Indicated: Zone 3 = 100 m x 100 m grid and Zone 4 = 200 m x 200 m grid).*
9. *In-pit and Underground: The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the requirement of reasonable prospects for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. It is reported at a rounded cut-off grade of 0.4 g/t Au (in-pit and tailings) and 1.5 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 70.00 (UG); processing cost = CAD 11.9 to 17.0; G&A = CAD 8.75; refining and selling costs = CAD 5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
10. *The number of metric tons and ounces was rounded to the nearest hundred, following NI 43-101 recommendations. Any discrepancies in the totals are due to rounding effects.*
11. *The QPs are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.*

Table 14.15: Cut-off Grade Sensitivity for the Duparquet Deposit Resource

Area (mining method)	Cut-off (g/t)	Stripping Ratio	Measured Resource			Indicated Resource			Inferred Resource		
			Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces	Tonnage (Mt)	Au (g/t)	Ounces
Open pit	0.7	6.35	137,321	1.53	6,755	23,142,210	2.05	1,525,279	2,592,695	1.62	135,038
	0.65	6.32	141,757	1.5	6,836	25,666,698	1.98	1,633,902	3,334,098	1.48	158,647
	0.6	6.73	149,158	1.46	7,001	32,690,577	1.86	1,954,908	5,716,620	1.34	246,283
	0.55	6.53	154,634	1.42	7,060	36,556,977	1.77	2,080,340	7,727,020	1.23	305,568
	0.5	6.53	156,938	1.41	7,122	41,152,335	1.7	2,253,068	11,007,061	1.13	400,881
	0.45	7.69	161,081	1.39	7,187	53,548,726	1.58	2,722,586	22,032,449	1.16	824,601
	0.4	7.56	163,709	1.37	7,222	59,410,612	1.52	2,909,551	28,332,980	1.07	970,424
	0.35	7.44	165,800	1.36	7,248	66,307,600	1.46	3,117,172	37,354,222	0.96	1,147,282
UG mining	1.9	-	-	-	-	5,891,904	2.67	505,871	7,168,869	2.91	669,750
	1.7	-	-	-	-	5,224,787	2.47	414,153	7,378,504	2.51	595,956
	1.5	-	-	-	-	5,506,861	2.26	399,356	9,038,871	2.29	665,629
	1.3	-	-	-	-	5,302,381	2.1	357,603	11,459,118	2.05	756,440
Tailings	0.6	-	19,000	2.1	1,284	4,104,400	0.93	123,189	-	-	-
	0.5	-	19,400	2.07	1,290	4,104,800	0.93	123,196	-	-	-
	0.45	-	19,600	2.06	1,295	4,105,000	0.93	123,200	-	-	-
	0.4	-	19,900	2.03	1,297	4,105,200	0.93	123,203			
	0.35	-	20,000	2.02	1,299	4,105,400	0.93	123,206			

Source: InnovExplo, 2023

14.2 Pitt Gold Deposit

14.2.1 Methodology

The 2023 MRE for the Pitt Gold deposit was prepared using 3D block modelling and the ID2 interpolation method. Genesis software, v2.21, was used to create the 3D mineralized shapes. Geovia Surpac 2022 software was used to perform the interpolation, and Geovia Whittle™ was used to optimize the mineable pit above the determined cut-off grade. However, for the Pitt Gold deposit, Whittle optimization result didn’t yield to any satisfactory open pit mining operation with the current information. Deswik software was used to optimize the underground mineable shapes. Variography studies were done in Snowden Supervisor v8.14 software.

14.2.2 Drill Holes

First Mining provided InnovExplo with the final database on July 7, 2023.

The database used for the Pitt Gold deposit MRE contains 163 surface DDH, totalling 70,364.67 m.

The database also includes conventional analytical gold assay results, mineralization intervals, structural measurements, and coded lithologies. All collars were provided without an elevation value (Z). Only X (Easting) and Y (Northing) values were available. Collar elevations have been projected on a topographic surface available at:

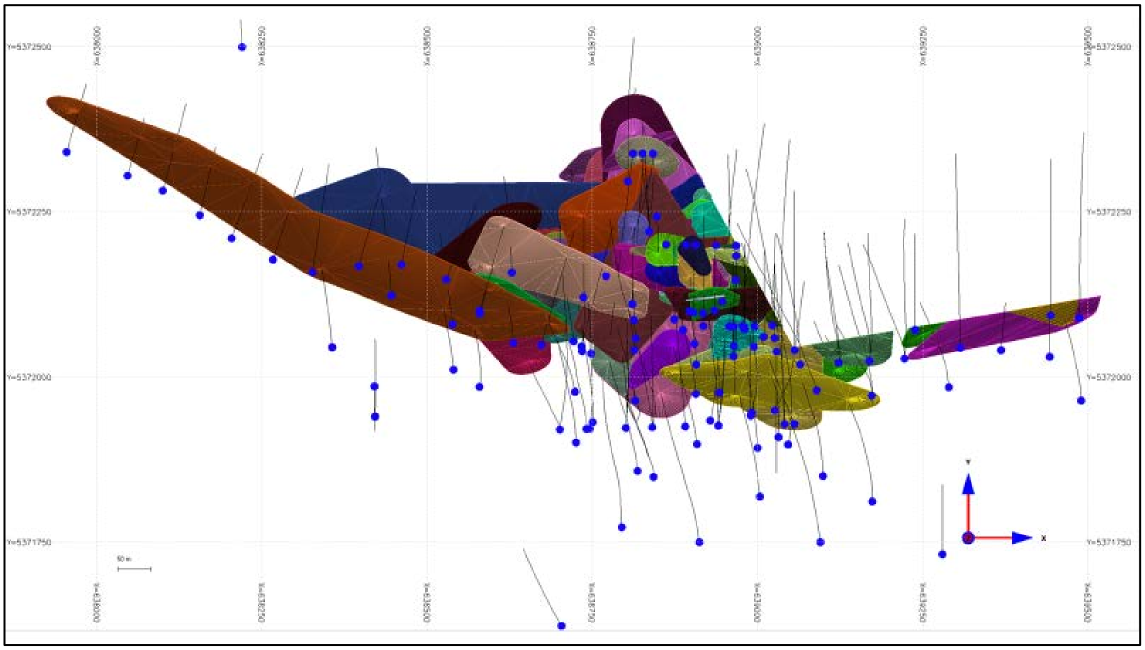
https://diffusion.mffp.gouv.qc.ca/Diffusion/DonneeGratuite/Foret/IMAGERIE/Produits_derives_LiDAR/.

The 163 drillholes cover an area of approximately 1.8 km x 0.8 km, within the limits of the resource estimate area (Figure 14.12).

All header data (collar coordinates), down-hole survey data, lithological information and assay results were integrated into the Genesis database for 3D modelling purposes. Only the mineralized shapes, overburden surface, topographical surfaces and composites were integrated into Surpac to estimate the resources.

The DDH intervals used for the interpretation comprise 904 assays taken from 122 drill holes (1,089.15 m of core).

Figure 14.12: Drill Hole Collars on the Pitt Resource Area



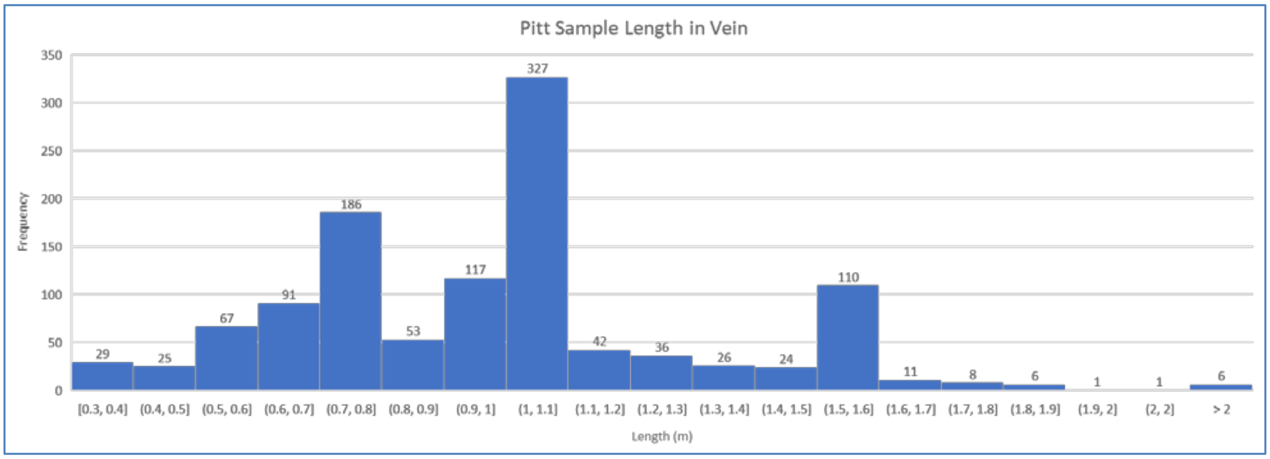
Source: InnovExplo, 2023

14.2.3 Interpretation of Mineralized Zones

InnovExplo was consulted to create a 3D interpretation of the deposit's mineralized system and calculate resources with all data available. A total of 111 mineralized zone wireframes have been created for the Pitt Gold deposit.

Mineralized zones in the deposit vary between 0.71 m and 3.03 m in width, with an interpreted average width of 1.56 m. The typical sample interval length also varies between 0.3 m and 2 m, with a greater frequency at 1 m and 1.5 m (Figure 14.13). The minimum modelling parameters used to construct the interpretation are 0.5 g/t Au over 0.5 m. A 50 m margin has been set around the most external drill hole intercept to constrain the wireframes. If a drill hole was not selected for the interpreted wireframe and is located in the margin area, the margin is automatically set at half the distance between drill holes. The 3D modelling was done using Genesis software.

Figure 14.13: Sample Length in Veins



Source: InnovExplo, 2023

14.2.4 Compositing

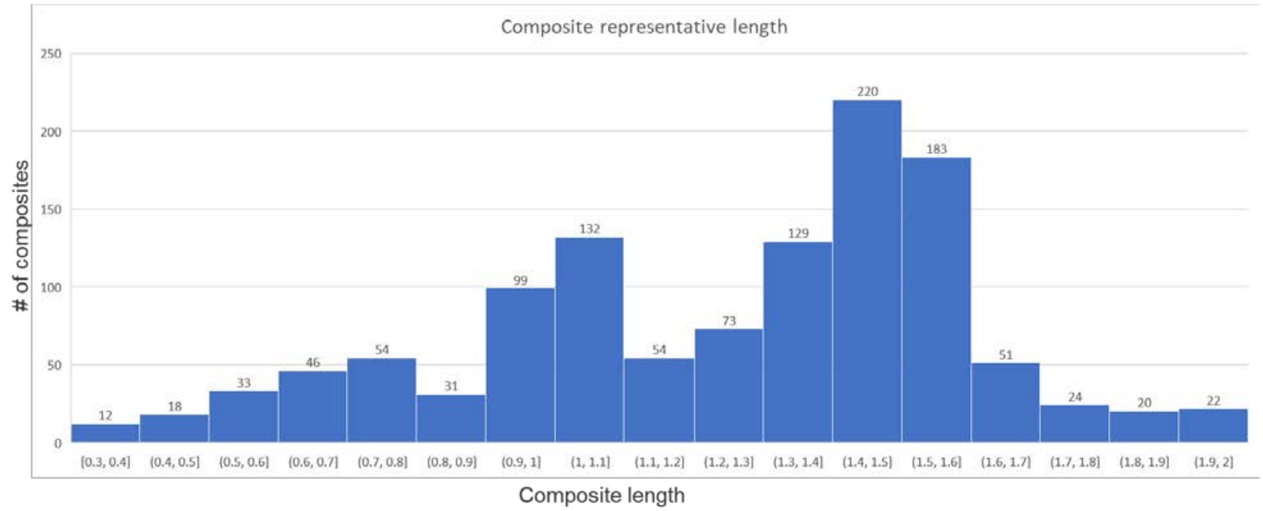
The gold assays were composited to 1.5 m lengths (1.5 m composites) within all the DDH intervals defining each mineralized zone to minimize any bias introduced by variable sample lengths.

Most assays in the mineralized wireframes are 1 m in length (Figure 14.14), and the average thickness of all wireframes is 1.56 m.

The total number of composites used in the DDH dataset is 980. Composites have an average length of 1.24 m, and the median length is 1.34 m. The shortest composites are 0.29 m, and the longest are 1.99 m in length. All DDH composites less than 0.25 cm in length were redistributed among the other composites of this interval (Figure 14.15). Compositing was done in Genesis software from drill hole intervals crossing solids.

Each mineralized wireframe was estimated separately using its own set of composites and hard boundaries. A grade of 0 g/t Au was assigned to missing sample intervals.

Figure 14.14: Composite Representative Length

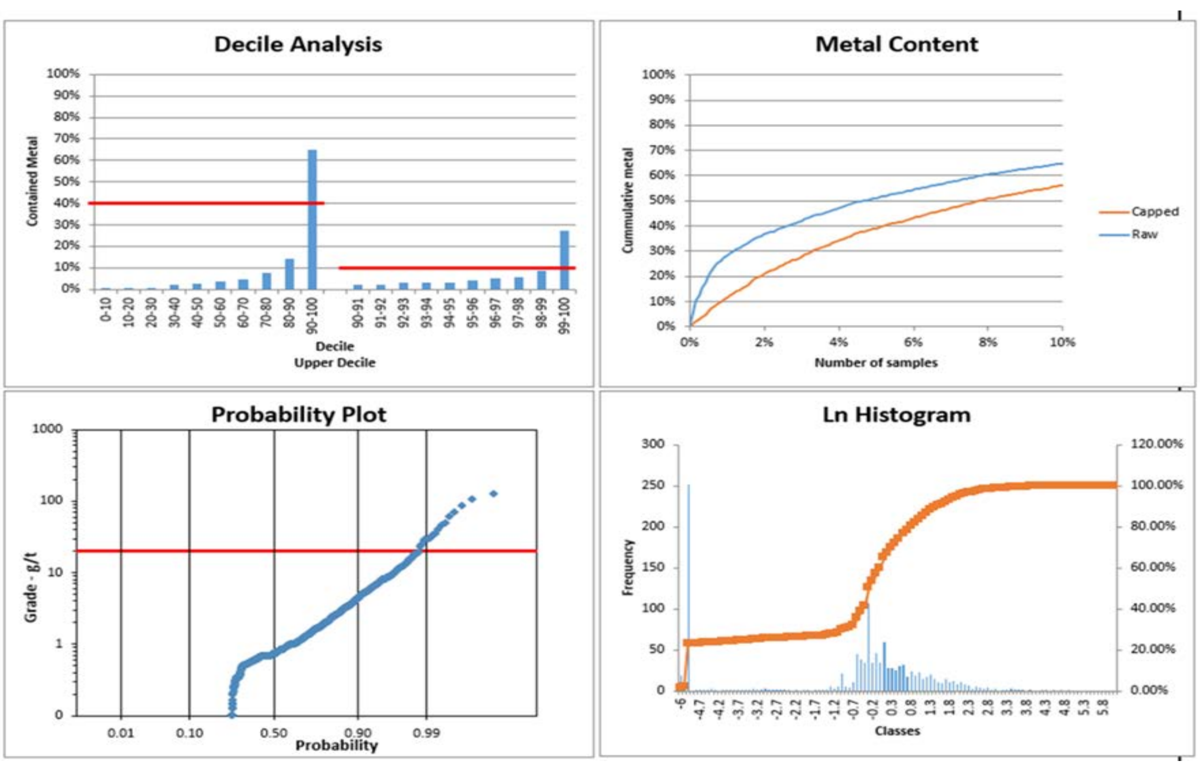


Source: InnovExplo, 2023

14.2.5 Capping

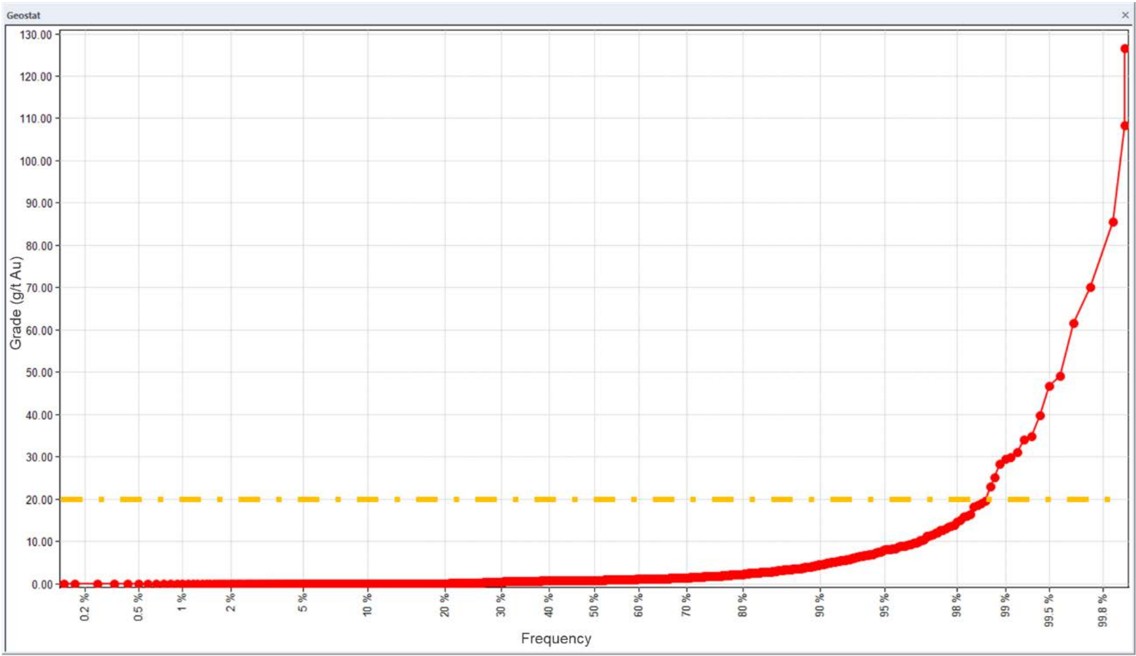
The gold grades of the composites are capped at 20 g/t Au (Figure 14.15 and Figure 14.16). Only 16 composites are capped at 20 g/t Au, representing 1.3% of all composites.

Figure 14.15: Capping Statistics



Source: InnovExplo, 2023

Figure 14.16: Composite Grade Frequency Plot



Source: InnovExplo, 2023

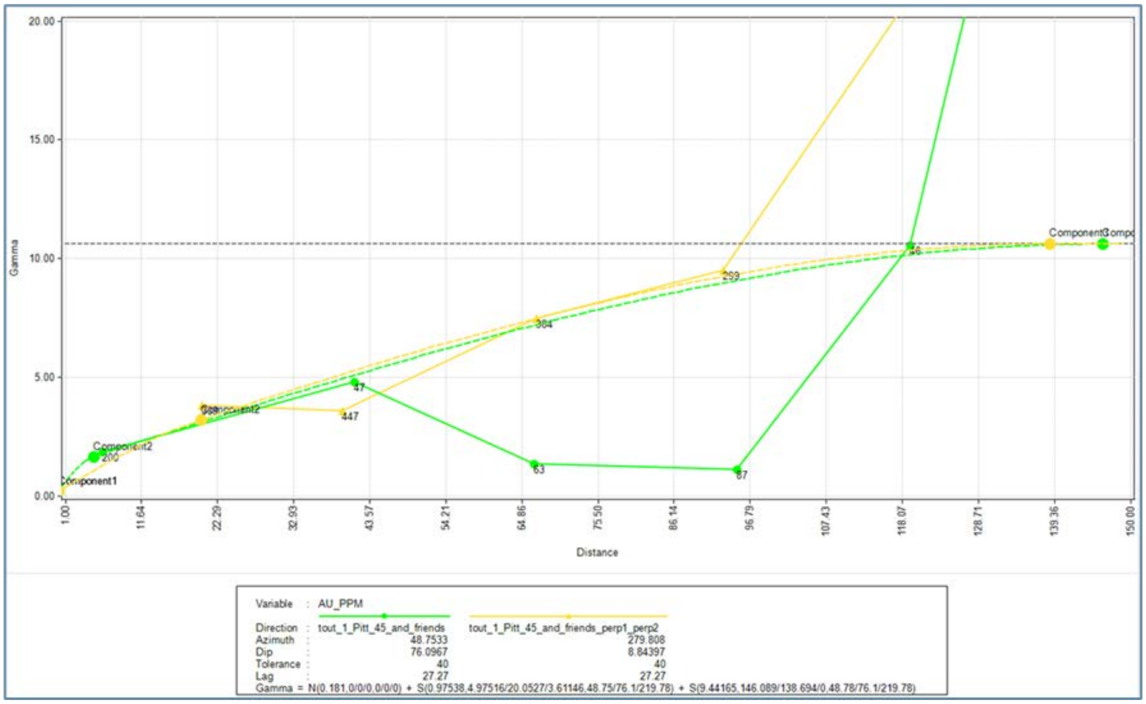
Table 14.16: Capping General Statistics

	Au_ppm	Cap20	Loss (%)
Average	2.22	1.8	-18.9
Variance	51.17	10.88	-78.73
Standard Deviation	7.15	3.3	-53.88
% Variation	3.23	1.83	-43.14
Median	0.73	0.73	0
Max	126.59	20	-84.2
Count	1,200	16	1.33
1% Pop Contribution	26.96	11.12	-15.84

14.2.6 Variography

There are two main vein orientations in the Pitt Gold deposit. Veins are mainly oriented east-west with an approximate dip of either 70 or 25 degrees. Variography was carried out in both orientations individually and once on every vein. When evaluated individually, variography yields scattered results, making kriging difficult, or less reliable. When evaluated on every vein (Figure 14.17), better results are obtained for the long range. This range was used to determine the ellipsoid sizes.

Figure 14.17: Variography on all Veins in the Pitt Gold Deposit



Source: InnovExplo, 2023

14.2.7 Density

Information on specific gravity is referenced from Lewis et al., 2017. In it, a density value of 2.7 g/cm^3 was used for the MRE. The same value has been used in the current 2023 MRE.

In their 2016 report, Lewis et al., note the following in regard to specific gravity:

"While no specific gravity information has been compiled for the Pitt Gold Project, the mineralogical characteristics of the mineralized zones at Pitt: i.e. tabular zones of compact silicification and quartz veins with 5%-10% fine pyrite are sufficiently well demonstrated to permit an assumption of SG as being at or close to that of quartz (2.74). The bulk density applied in the estimate was 2.7 which provides for random void space of 1.5% ignoring sulphide or ankerite content. This value presents a range of SG's within + 10% of 2.7 is 2.43 – 2.97.

Additionally, Watts, Griffis, and McOuat (WGM) discussing density in their October, 2011 technical report for Xmet on the Duquesne-Ottoman Property noted that while there was no record of specific gravity being undertaken by previous operators or Xmet, Reddick used a bulk density factor of 2.70 t/m3 for the

2010 resource estimate which is consistent with that used by other companies operating in the same area."

The QP conducted independent sampling for subsequent testing of Pitt drill core during his site visit. Bulk density was measured by pycnometer at ALS facilities in Val-d'Or and an average result of 2.73 g/cm^3 was determined for the 11 samples analyzed.

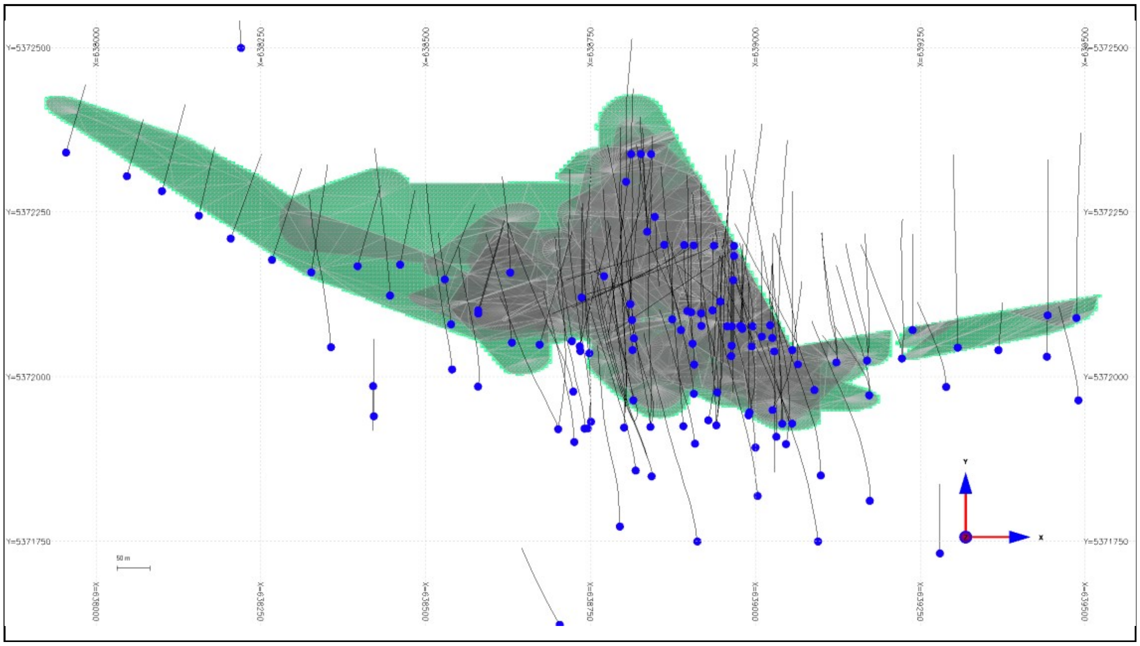
14.2.8 Block Model Geometry

The deposit wireframes were used to constrain composite values chosen for interpolation and the mineral blocks reported in the Mineral Resource Estimate. A block model (Figure 14.18) with the block dimensions of 6 m x 2 m x 2 m in the X (east), Y (north) and Z (level) directions was generated over the wireframe models created for Pitt Gold. Those blocks were locally sub-blocked down to 1.5 m x 0.5 m x 0.5 m where needed. The block size was selected based on the geometry of the mineralized structures, the mining method (underground), the drill hole spacing, and the composite sample lengths.

At the scale of the Pitt Gold deposit, this provides a reasonable block size for discerning grade distribution while still being large enough not to mislead when looking at higher cut-off grade distribution within the model.

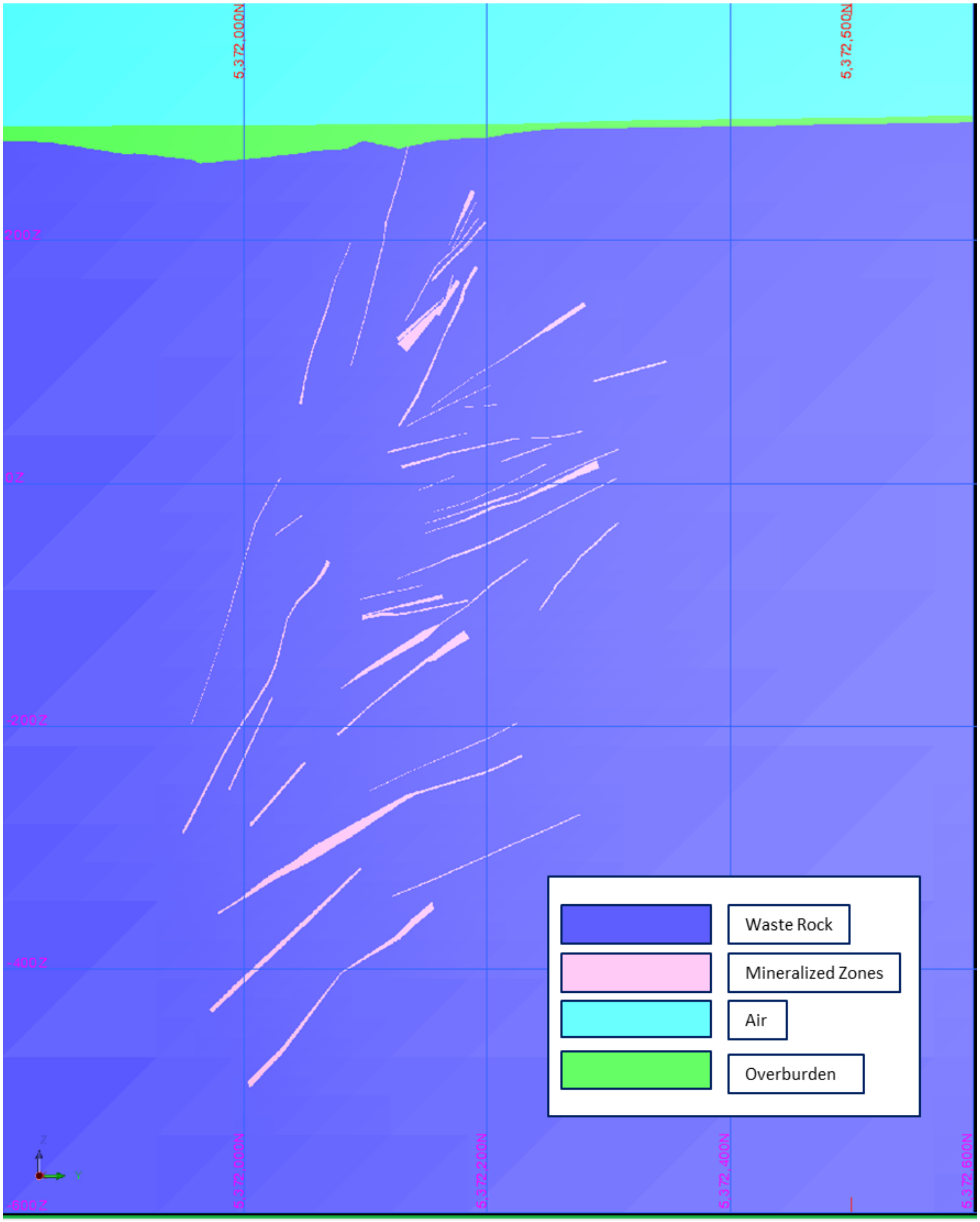
Blocks could be divided into three different types: (i) mineralized zones, (ii) waste rock and (iii) overburden (Figure 14.19).

Figure 14.18: Block Model Geometry



Source: InnovExplo, 2023

Figure 14.19: Block Model Units



Source: InnovExplo, 2023

14.2.9 <u>Grade Block Model</u>

A grade block model was interpolated using the 1.5 m capped composites from conventional assay grade data. The interpolation method used for the final resource estimation was ID2. The ID2 method was preferred because the variography did not yield optimal continuity. The OK interpolation method could have been biased. ID3 and Nearest Neighbour interpolation methods were also reviewed, but the ID2 method was selected to represent a better grade distribution in the deposit. All three methods yield almost identical results in terms of grade and tonnage (Figure 14.19).

14.2.10 Estimation Parameters

ID2 was the interpolation method selected to estimate the blocks in the deposit.

Three estimation passes were used to interpolate the grade of all blocks in the wireframes using the parameters shown in Table 14.17.

Table 14.17: Block Model Estimation Parameters

	Long Axis	Medium Axis	Short Axis	Minimum # of Composites	Maximum # of Composites	Maximum Composites/DDH	Minimum # of DDH
1st Pass	70	70	15	5	15	2	3
2nd pass	140	140	20	3	15	2	2
3rd pass	210	210	25	1	15	2	1

Each wireframe was estimated individually with its own set of composites, and each has an ellipsoid with its own best-fit orientation.

14.2.11 Economic Parameters and Cut-off Grade

Cut-off Grades ("COG") were determined by QP Simon Boudreau P.Eng. using the parameters presented in Table 14.18 and Table 14.19. The deposit is reported at a rounded COG of 0.5 g/t Au using the surface open pit mining method ("OP") and 1.75 g/t Au using the underground Long-Hole mining method (LH). The Deswik Mineable Shape Optimizer (DSO), run using the LH method, addresses the blocks not included in the surface optimization created by Whittle.

The QP considers the selected COGs of 0.50 g/t Au and 1.75 g/t Au adequate based on the current knowledge of the Project. The COGs are considered instrumental in outlining mineral resources with reasonable prospects for eventual economic extraction for an underground mining scenario.

Table 14.18: Pitt Gold Input Parameters for Underground Mining Method

Input Parameter	Value
Gold Price (USD/oz)	1,800
Exchange Rate (USD:CAD)	1.3
Gold Price ($/oz)	2,340
Royalty (%)	1.5
Recovery (%)	90
Global Mining Costs ($/t)	84.86
Processing & Transport Costs ($/t)	21.01
G&A Costs ($/t)	11.75
Total Cost ($/t)	117.67
Mineral Resource Cut-off Grade (g/t Au)	1.75

14.2.12 Mineral Resource Classification

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document "*CIM Definitions Standards for Mineral Resources and Mineral Reserves*" ("CIM Definition Standards") and can be referenced in Section 14.1.11.

Only Inferred Mineral Resources have been estimated for the Pitt Gold deposit MRE.The status of collar elevation data, survey certificates, density evaluation procedures and QA/QC programs prevented a higher level of estimation confidence.

14.2.13 Mineral Resource Estimate

The Pitt Gold deposit MRE includes all blocks ("must-take blocks") that fall within a potentially mineable shape meeting "reasonable prospects for eventual economic extraction", as specified in the CIM MRMR Best Practice Guidelines (2019). The Pitt Gold MRE represents an underground mining scenario and is presented below in Table 14.19.

Table 14.19: Pitt Gold 2023 MRE

Pitt Gold – Potential Underground Long-Hole Mining				
Gold Price ($)	**COG (gt/Au)**	**Sum of Tonnes**	**Sum of Ounces**	**Grade (gt/Au)**
1,800	1.75	2,120,000	187,200	2.75

Notes to accompany the Pitt Gold Mineral Resource Estimate:

1. *The independent qualified persons for the Pitt Gold Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P. Eng. from InnovExplo. The effective date of the estimate is September 15, 2023.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *Underground: High-grade capping of 20 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *The estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6 m x 6 m x 6 m and a minimum block size of 1.5 m x 0.5 m x0.5 m . Grade interpolations were obtained by ID2 using hard boundaries.*
6. *A density value of 2.7 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *The Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Pitt Gold was prepared using 3D block modelling and the inverse distance squared ("ID2") interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 210 m for Inferred in all zones for Pitt Gold.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2 m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *Underground: The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Pitt Gold resources are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD:CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *Royalty NSR % in the MRE input parameters assumes First Mining exercises buy-back option*
13. *The number of metric tons was rounded to the nearest thousand and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
14. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

14.2.14 Block Model Validation

A validation was done visually and statistically by the QP to ensure that the final mineral resource block model was consistent with the primary data.

Block model grades and composite grades were visually compared on sections, plans, and longitudinal views for both densely and sparsely drilled areas, with no significant differences observed. Generally, a good match was noted in the grade distribution without excessive smoothing in the block model (Table 14.22).

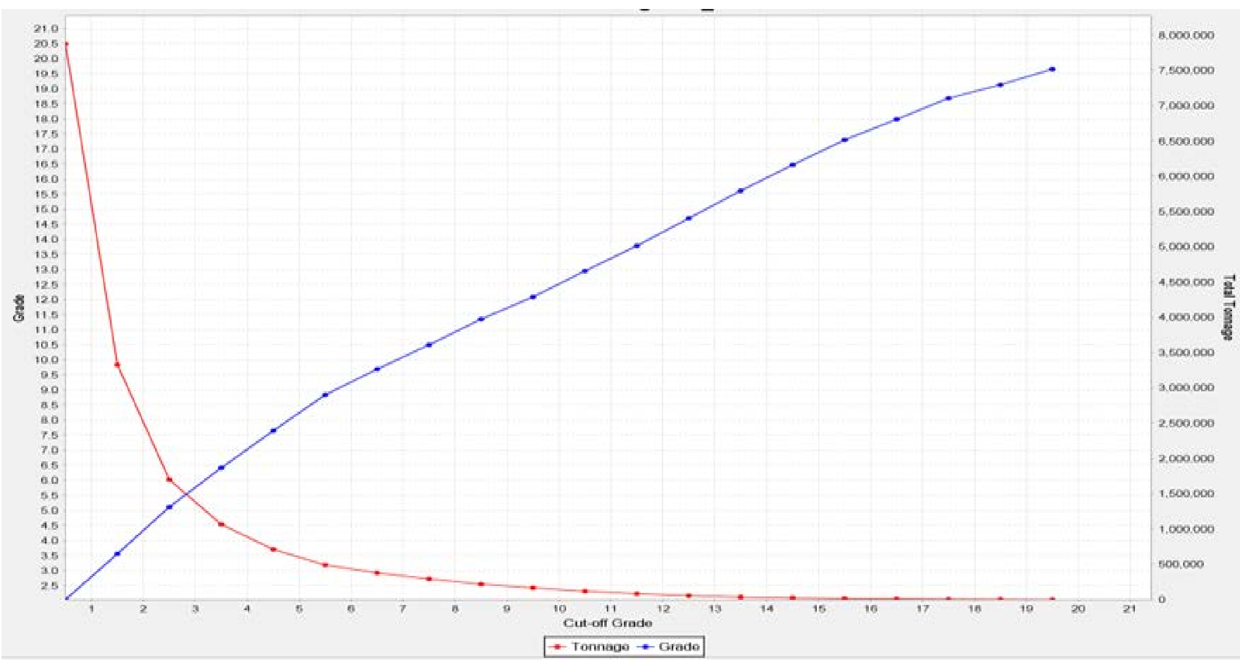
The grade-tonnage curve of the deposit (Figure 14.20) is also a good indicator of grade interpolation. The smooth grade curve reflects good handling of the interpolation and the absence of high-grade blocks.

The comparison between composite and block grade distribution and the overall validation did not identify any significant areas of concern.

A comparison between the different interpolation methods was completed (Figure 14.21) and all three methods produced similar results for the grade and the tonnage analysis. The ID2 method was preferred because it was determined to represent a better grade distribution in the deposit.

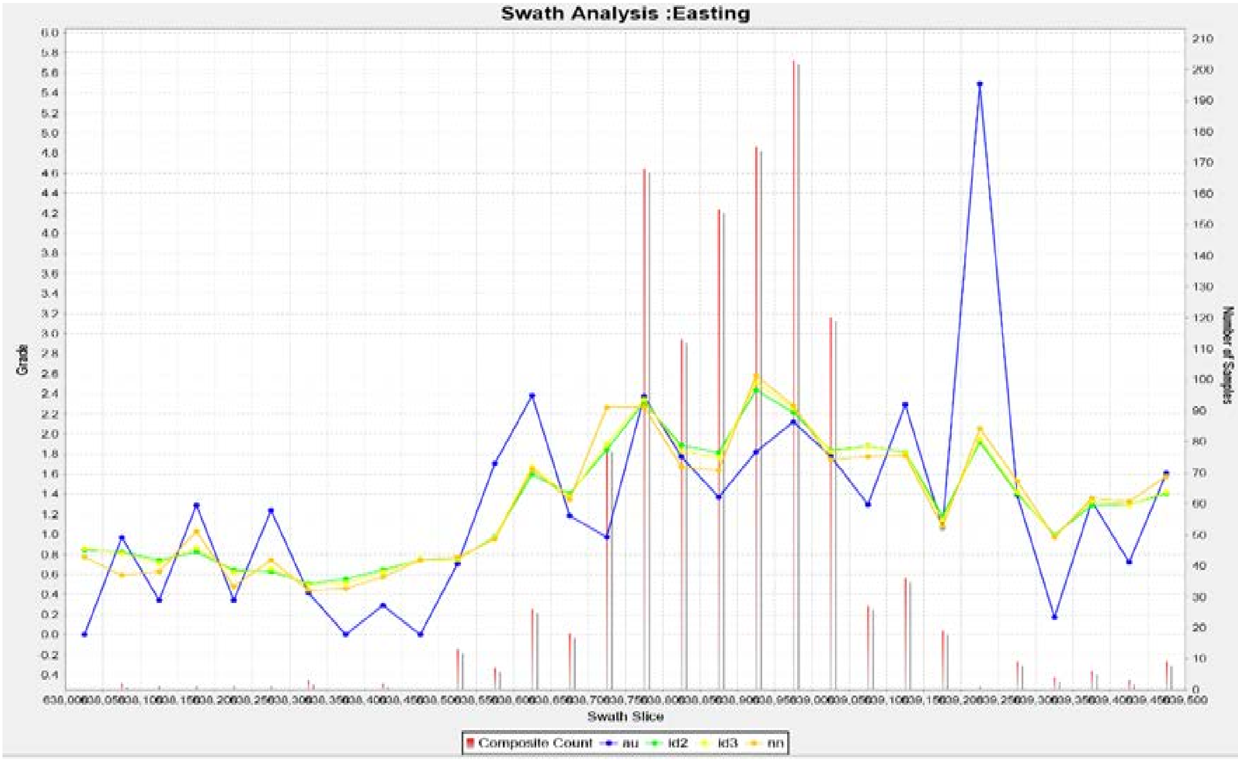
The volume of the mineralized wireframes and the block model was compared and a difference of 0.23% was determined, with a block model volume of 3,387,175.12 m^3 and 3D mineralized solids volume of 3,394,874.9 m^3.

Figure 14.20: Grade/Tonnage Curve



Source: InnovExplo, 2023

Figure 14.21: Swat Plot : ID2 vs ID3 vs Nearest Neighbour (NN)



Source: InnovExplo, 2023

14.2.15 <u>Sensitivity to Cut-off Grade</u>

Table 14.20 presents the resources at different cut-off grades to demonstrate the sensitivity of the deposit. The base case at 1.75 g/t Au for Pitt Gold is the official cut-off grade retained for the resources herein. All other cut-off grades are presented for comparative purposes only. A grade-tonnage curve is also presented in Figure 14.31.

Table 14.20: Sensitivity to Cut-off Grade

Pitt Gold: Underground Long-Hole Mining				
Gold Price ($)	COG (g/t Au)	Sum of Tonnes	Sum of Ounces	Grade (g/t Au)
1620	1.95	1,791,000	171,800	2.98
1710	1.85	1,937,000	179,000	2.87
1800	1.75	2,120,000	187,200	2.75
1890	1.67	2,257,000	193,100	2.66
1980	1.59	2,408,000	199,000	2.57

14.3 Duquesne Deposit

The Duquesne deposit, as defined herein, encompasses the mineralization of the former Duquesne mine and mineralization occurring at the northwest corner of the Duquesne property. The 2023 MRE on the Duquesne deposit was completed by Olivier Vadnais-Leblanc P.Geo and has an effective date of August 31, 2023.

14.3.1 Methodology

The 2023 MRE for the Duquesne deposit was prepared using 3D block modelling and the ID2 interpolation method. Genesis software, v2.21, was used to create the 3D mineralized shapes. Geovia Surpac 2022 software was used to perform the interpolation, Geovia Whittle™ software was used to optimize the mineable pit above the determined cut-off grade, and Deswik software was used to optimize the underground mineable shape. Variography analysis was completed using Snowden Supervisor v8.14 software (“Supervisor”).

14.3.2 Drill Holes

First Mining provided InnovExplo with the final database on July 7, 2023.

The database used for the MRE contains 1,011 underground drill holes totalling 51,957.43 m and 393 surface diamond drill holes totalling 103,888.19 m.

The database also includes conventional analytical gold assay results, mineralization intervals, structural measurements, and coded lithologies.

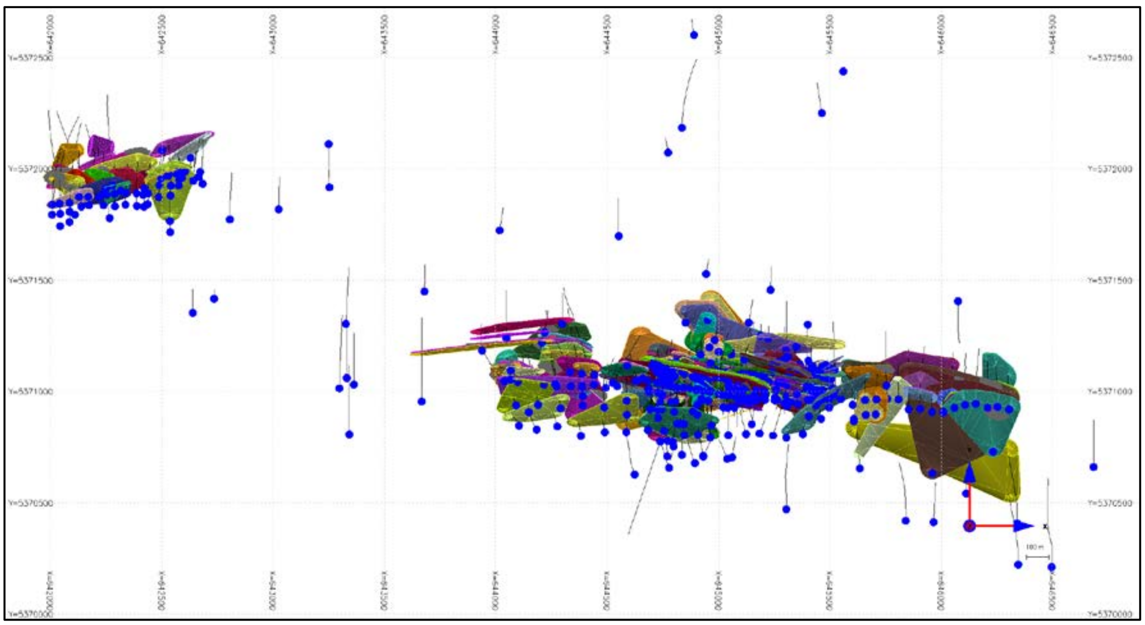
There are 1,404 holes that cover the Duquesne claim block over an area of approximately 5 km x 2.5 km, within the limits of the resource estimate area (Figure 14.14.22).

All header data (collar coordinates), down-hole survey data, lithological information and assay results were integrated into the Genesis database for 3D modelling purposes.

Only the mineralized shapes, overburden surface, topographical surfaces and composites were integrated into Surpac to estimate the resources.

The DDH intervals used for the interpretation contain 66,411 assays taken from 1,404 drill holes (71,034.71 m of core).

Figure 14.14.22: Duquesne Drill Holes and Mineralized Wireframes



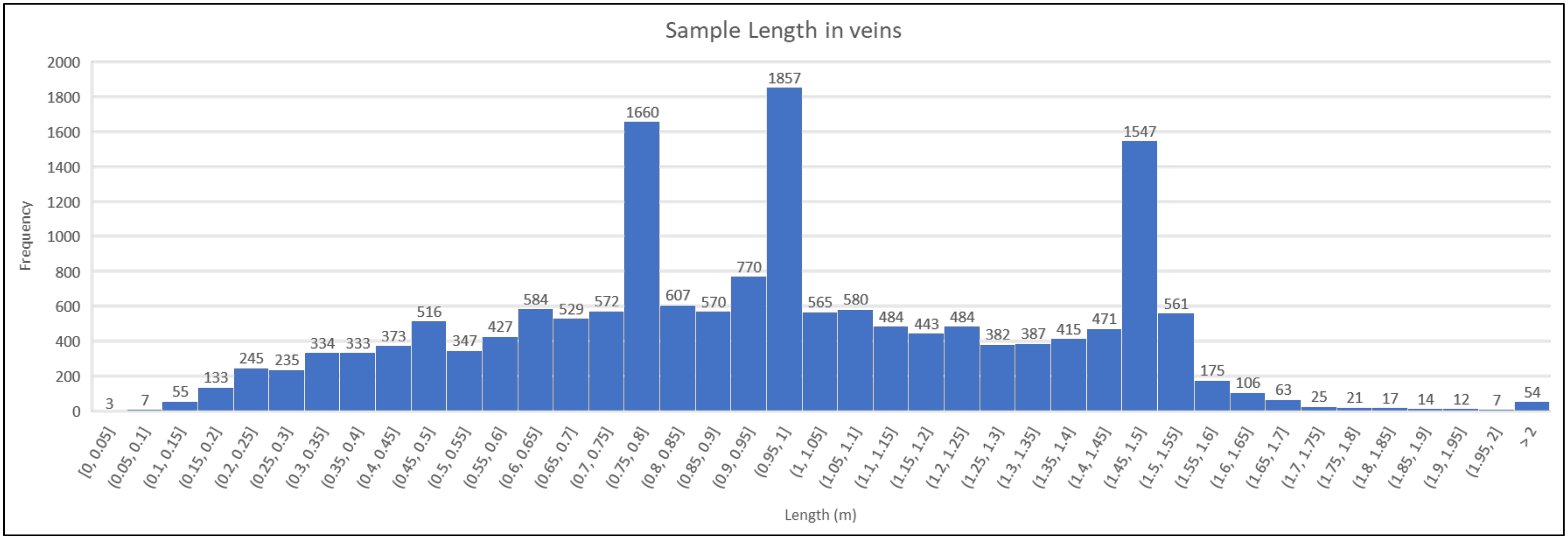
Source: InnovExplo, 2023

14.3.3 <u>Interpretation of Mineralized Zones</u>

InnovExplo was contracted to develop a 3D interpretation of the deposit's mineralized system and calculate resources with all data available. A total of 397 mineralized zone wireframes were created for the Duquesne deposit. The 3D modelling was done using Genesis software.

Mineralized zones in the deposit vary between 0.69 m and 4.28 m thick, with an interpreted average thickness of 1.89 m. The typical sample length varies between 0.1 m and 1.7 m, with greater frequencies at 0.75 m, 1 m and 1.5 m (Figure 14.23). The minimum modelling parameters used to construct the wireframes are 0.25 g/t Au over 0.5 m. A 50-m margin has been set around the most external drill hole intercept to constrain the wireframes. If a drill hole not selected for the interpreted wireframe is located in the margin area, the margin is automatically set at half the distance between drill holes.

Figure 14.23: Sample Length in Mineralized Veins



Source: InnovExplo, 2023

14.3.4 Compositing

Gold assays were composited over 1.5 m lengths (1.5 m composites) for all the DDH intervals defining each mineralized zone to minimize any bias introduced by variable sample lengths.

Most samples in the mineralized wireframes are 1 m in length (Figure 14.23), and the average thickness of all wireframes is 1.89 m.

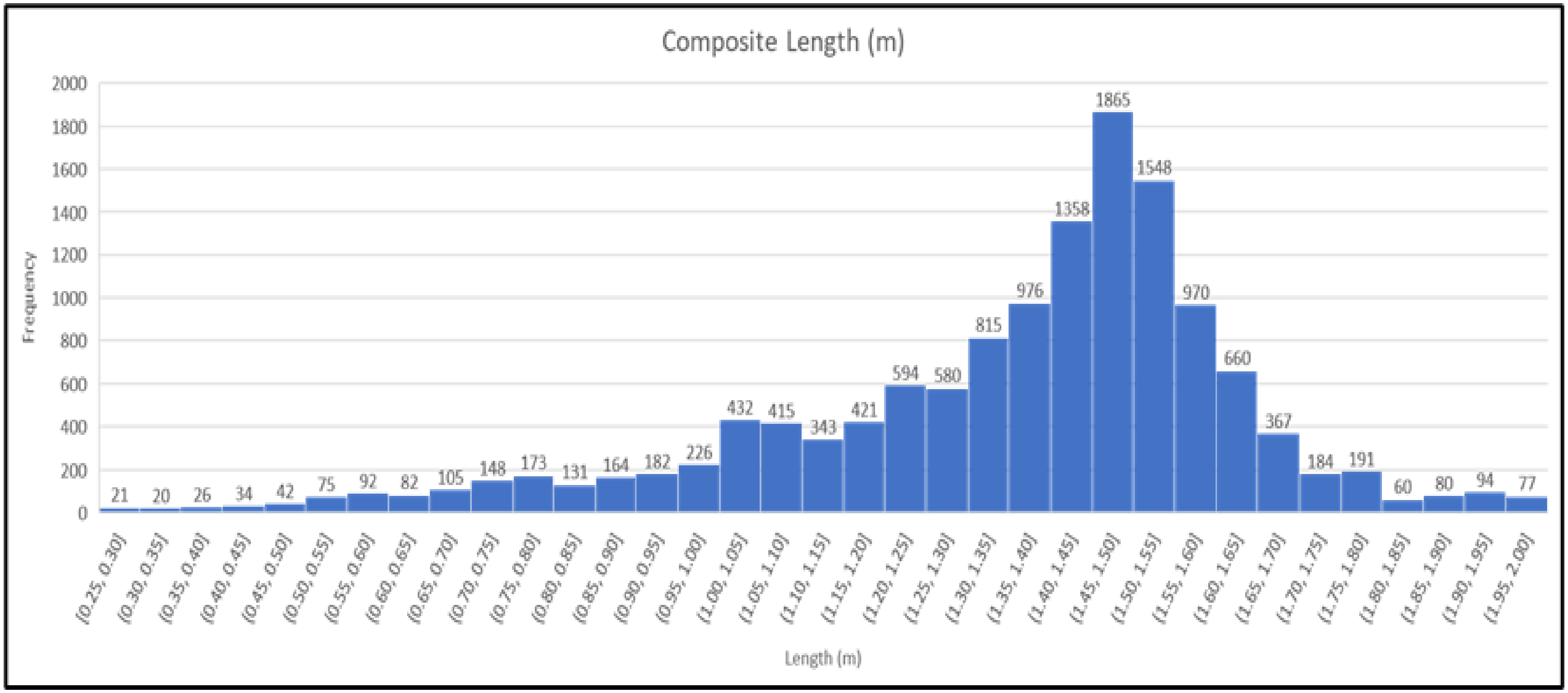
The total number of composites used in the DDH dataset is 13,848. Composites have an average length of 1.35 m, and the median length is 1.42 m. The smallest composites are 0.25 m, and the longest are 2 m. All DDH sample composites less than 0.25 cm in length were redistributed among the other composites of this interval (Figure 14.24). Compositing has been done in Genesis software from drill hole intervals crossing solids.

Each mineralized zone (wireframe) was estimated separately using its own set of composites and using hard boundaries. A grade of 0 g/t Au was assigned to missing sample intervals.

14.3.5 Capping

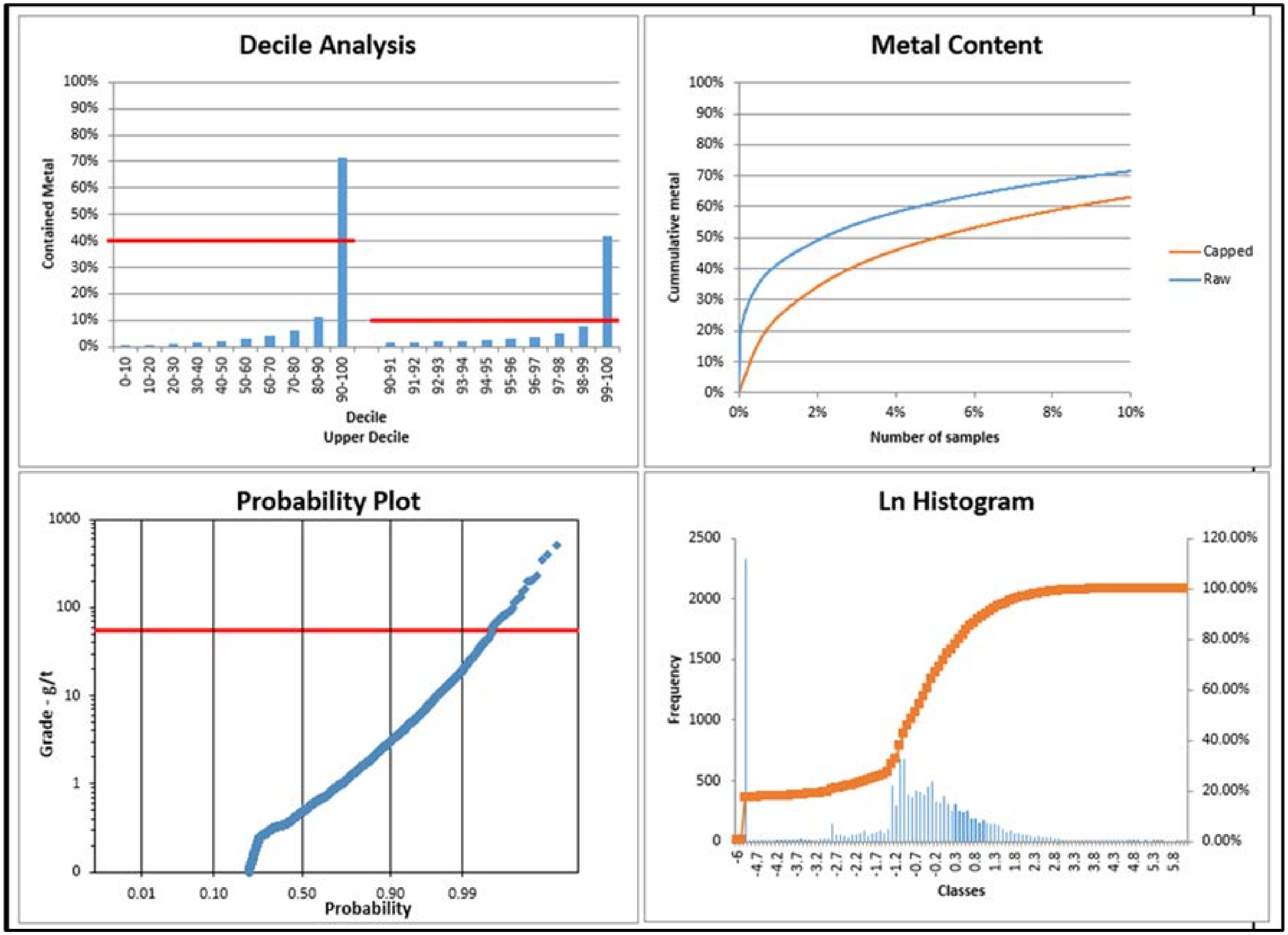
The gold grades of the composite samples are capped at 55 g/t Au (Figure 14.25 to Figure 14.27). Only 40 composites are capped at 55 g/t Au, representing 0.3% of the total composites.

Figure 14.24: Composite Lengths



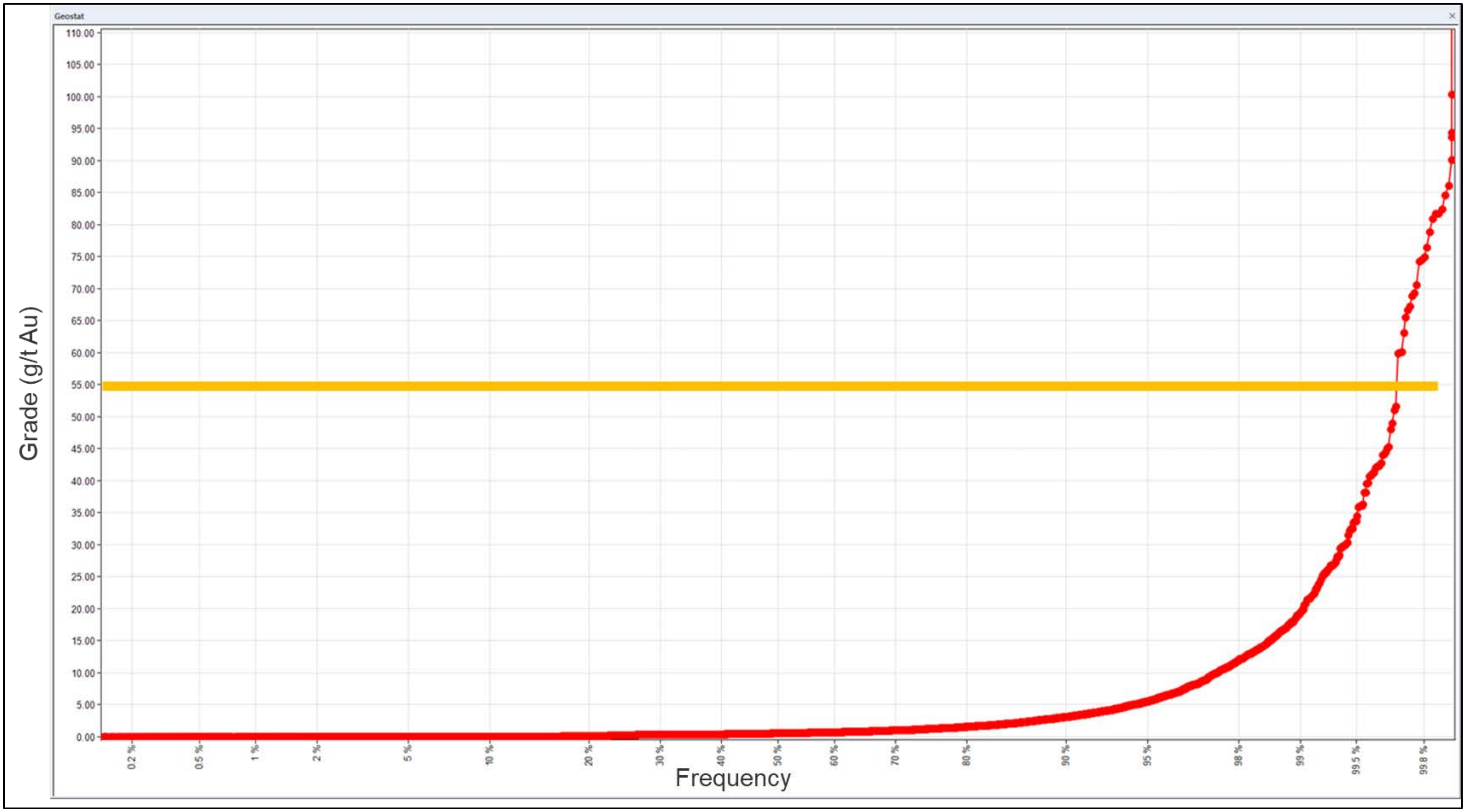
Source: InnovExplo, 2023

Figure 14.25: Capping in Excel



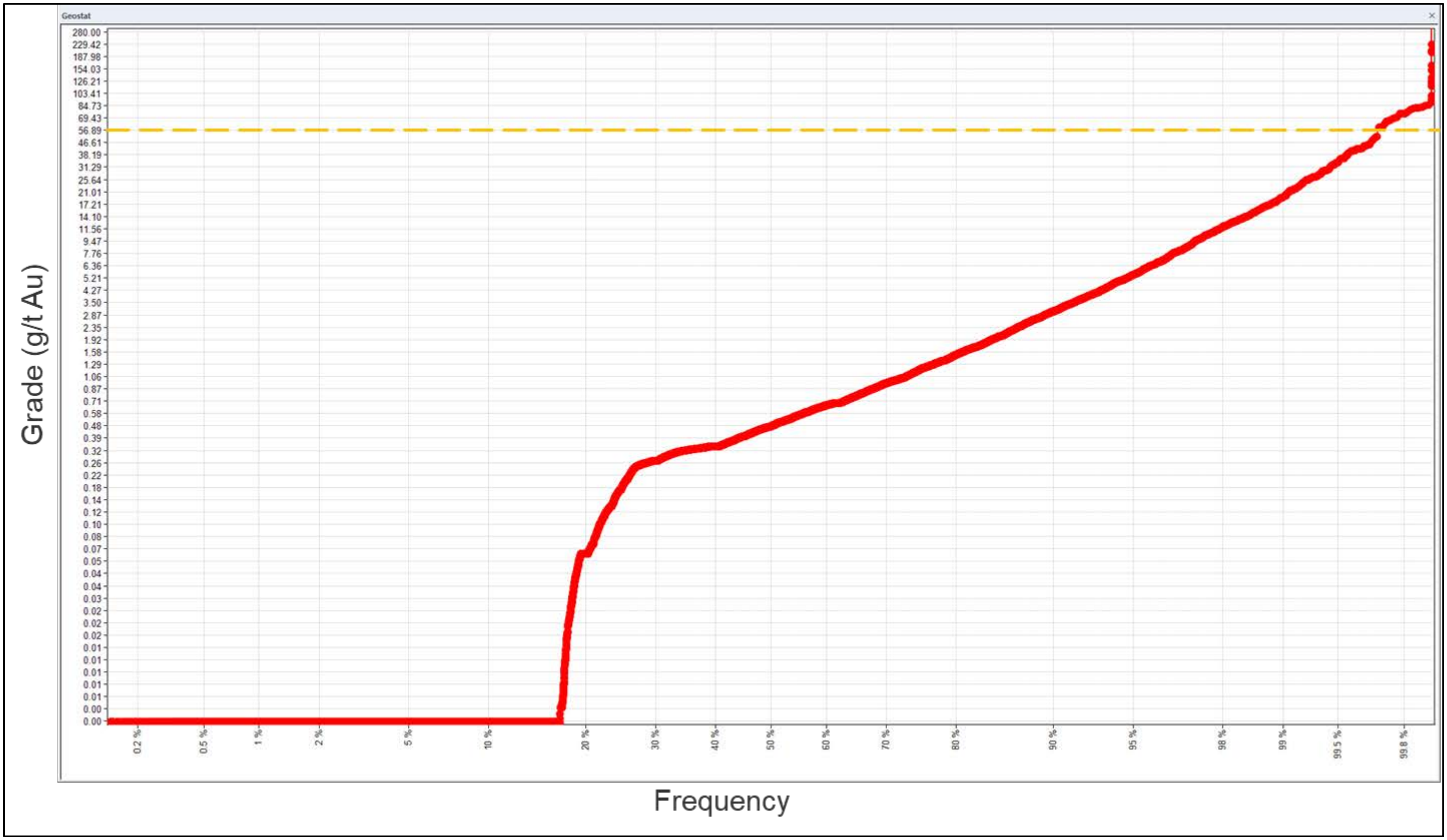
Source: InnovExplo, 2023

Figure 14.26: Frequency Plot for Capping



Source: InnovExplo, 2023

Figure 14.27: Frequency Plot on Log Scale (Y-axis)



Source: InnovExplo, 2023

Table 14.21: Capping General Statistics

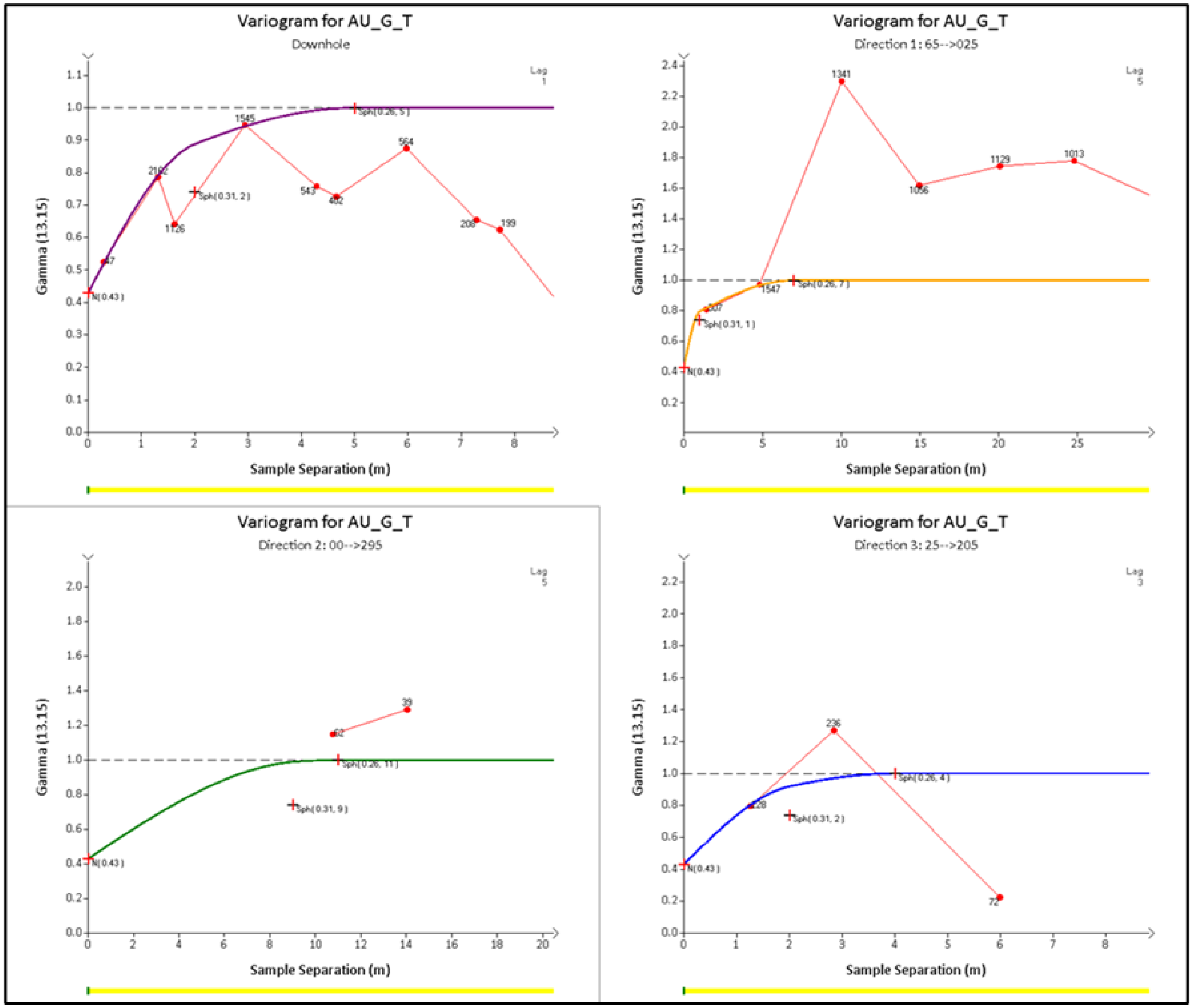
	Au_ppm	Cap20	Loss (%)
Average	1.97	1.52	-23
Variance	947.5	19.55	-97.94
Standard Deviation	30.78	4.42	-85.64
% Variation	15.62	2.92	-81.33
Median	0.47	0.47	0
Max	3,424.67	55	-98.39
Count	13,551	40	0.3
1% Pop Contribution	42.14	24.81	-17.33

14.3.6 Variography

Variography has been evaluated using Supervisor software, and the continuity was determined to be suboptimal for supporting an Ordinary Kriging (“OK”) interpolation. The variography ranges were determined to be relatively short (Figure 14.28). The ellipsoid sizes have been determined with the drill hole spacing and the 3D model margin.

Several attempts have been made to improve the variography results, however the variability remains relatively high, even when the composite capping level is artificially reduced for variography purposes.

Figure 14.28: Variography



Source: InnovExplo, 2023

14.3.7 Density

The specific gravity used in the Duquesne MRE is 2.7 g/cm^3 throughout the deposit, which is the same density used in the previous MRE (Rioux, 2016).

In the 2016 MRE, the report indicates a 2.7 g/cm^3 constant specific gravity based on the resource calculations. In May 2009, GENIVAR measured the specific gravity of the drill core from the 2007-2008 drilling campaigns. A total of 103 measurements were taken from the main lithological units and mineralized zones in 15 different drill holes. Measured data were used to assign a specific gravity to each drill hole sample; therefore, based on the measured results, a specific gravity value was entered into GEMCOM for each analysis based on the geological unit in which the sample was taken.

In the 2023 mineralized wireframes, a total of 16,132 assays were assigned a density, with an average density calculated at 2.7 g/cm^3.

The QP conducted independent sampling for subsequent testing of Duquesne drill core during his site visit. Bulk density was measured at the ALS facilities in Val-d'Or (OA-GRA08: Specific Gravity on solid objects) and an average result of 2.8 g/cm^3 was determined for the 8 samples analyzed. This value based on a limited number of samples correlates with the assigned density of 2.7 g/cm^3.

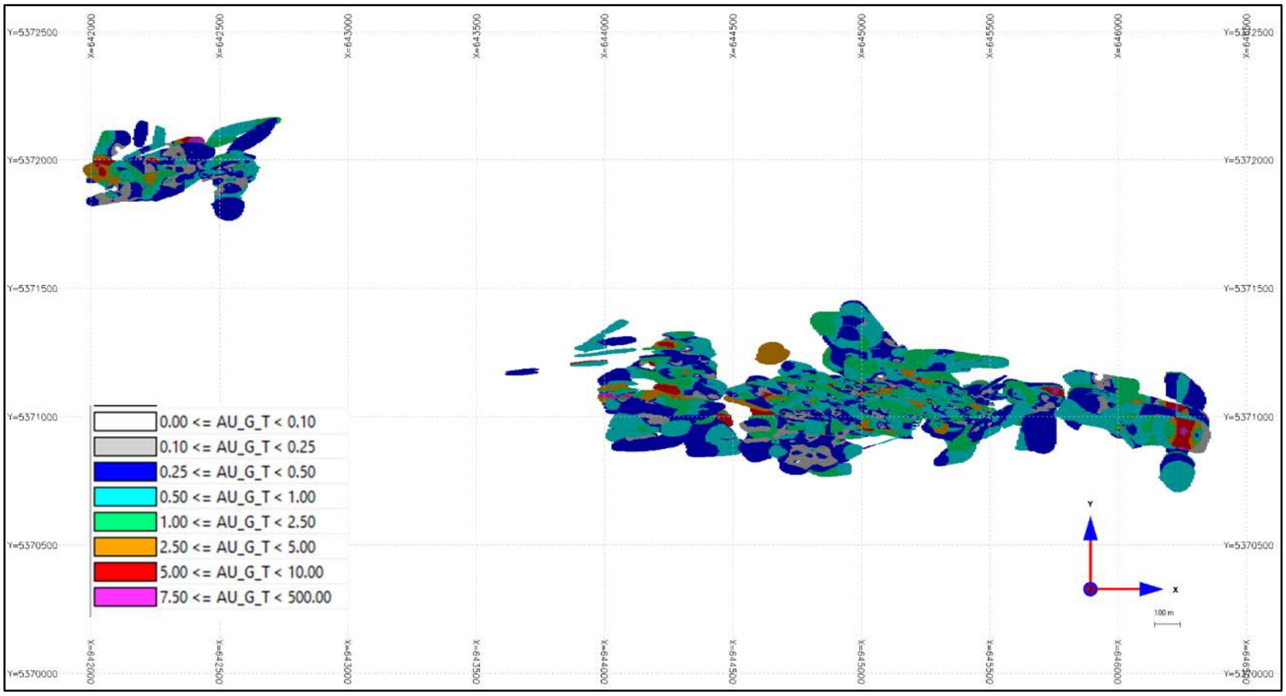
14.3.8 Block Model Geometry

The deposit wireframes were used to constrain composite values chosen for interpolation and the mineral blocks reported in the Mineral Resource Estimate. A block model (Figure 14.29) with dimensions of 6 m x 2 m x 2 m in the X (east), Y (north) and Z (level) directions was generated over the wireframe models created for Duquesne. Those blocks were further locally sub-blocked down to 1.5 m x 0.5 m x 0.5 m where needed. The block size was selected based on the geometry of the mineralized structures, the mining method (open pit and underground), the drill hole spacing, and the composite sample length.

At the scale of the Duquesne deposit, this provides a reasonable block size for discerning grade distribution while still being large enough not to mislead when looking at higher cut-off grade distribution within the model.

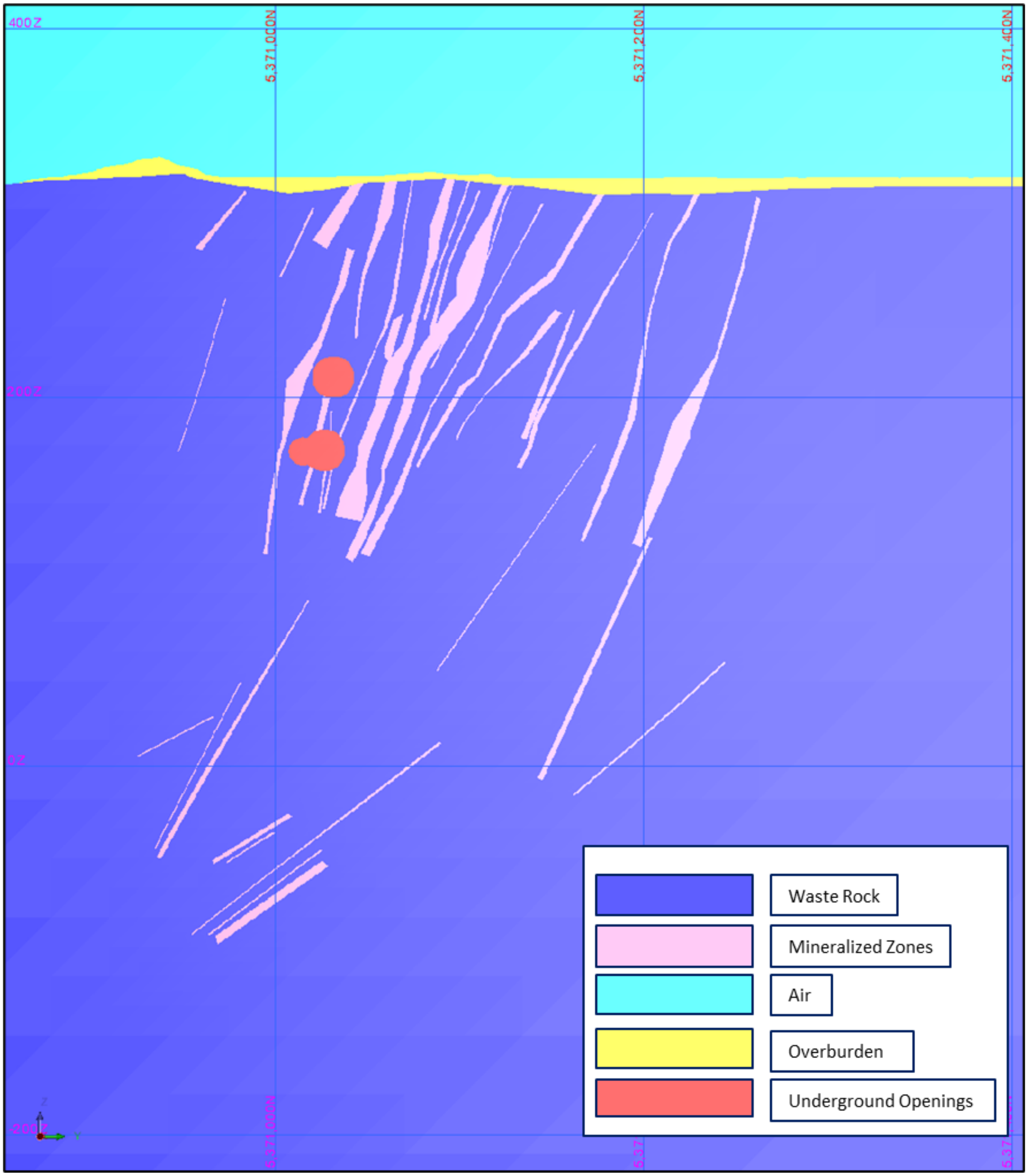
Blocks were divided into four different types: (i) mineralized zones, (ii) excavated areas, (iii) waste rock and (iv) overburden (Figure 14.30).

Figure 14.29: Block Model Geometry



Source: InnovExplo, 2023

Figure 14.30: Block Model Units



Source: InnovExplo, 2023

14.3.9 <u>Grade Block Model</u>

A grade block model was interpolated using the 1.5 m capped composites from conventional assay grade data. The interpolation method used for the final resource estimation was ID2; the ID2 method was preferred as variography did not yield optimal continuity. Also, the OK interpolation method could have caused a bias in the results because kriging tends to smooth results and the Duquesne deposit has a nuggety gold distribution. Ordinary Kriging could minimize the impact of isolated high grade values. Inverse Distance Cubed (ID3) and Nearest Neighbour interpolation methods were also reviewed, but the ID2 method was selected to represent a better grade distribution in the deposit. All three methods yield almost identical results in terms of grade and tonnage.

No 3D shapes were provided to delineate mined resources, only 2D longitudinal information. To ensure the model excludes any resources previously mined, new 3D shapes with a buffer of 10 m were created to deplete blocks in areas suspected to have been mined.

14.3.10 Estimation Parameters

ID2 was the interpolation method selected to estimate the blocks in the deposit. Three estimation passes were used to interpolate the grade of all blocks in the wireframes using the parameters shown in (Table 14.22).

Table 14.22: Block Model Estimation Parameters

	Long Axis	Medium Axis	Short Axis	Minimum # of Composites	Maximum # of Composites	Maximum Composites / DDH	Minimum # of DDH
1st pass	25	25	10	7	20	3	3
2nd pass	50	50	10	5	20	3	2
3rd pass	75	75	25	1	20	3	1

Each wireframe was estimated individually with its own set of composites, and each has an ellipsoid with its own best-fit orientation.

14.3.11 Economic Parameters and Cut-off Grades

Cut-off grades ("COG") were determined by QP Simon Boudreau P.Eng. using the parameters presented in Table 14.23 and Table 14.24. The deposit is reported at a rounded COG of 0.5 g/t Au using the surface open pit mining method ("OP") and 1.75 g/t Au using the underground Long-Hole mining method ("LH"). The Deswik Mineable Shape Optimizer ("DSO") run using the LH method, addresses the blocks not included in the surface optimization created by Whittle.

The QP considers the selected COGs of 0.50 g/t Au and 1.75 g/t Au to be adequate based on the current knowledge of the Project. The COGs are considered instrumental in outlining mineral resources with reasonable prospects for eventual economic extraction for an underground and open pit mining scenario.

Table 14.23: Duquesne Input Parameters for Open-pit Mining Method

Input Parameter	Value
Gold Price (USD/oz)	1,800
Exchange Rate (USD:CAD)	1.3
Gold Price ($/oz)	2,340
Royalty (%)	2.5
Recovery (%)	90
Minimum Stope Angle Overburden (°)	30
Minimum Stope Angle Bedrock (°)	50
Global Mining Costs Overburden ($/t)	2.28
Global Mining Costs Rock ($/t)	3.25
Processing & Transport Costs ($/t)	21.01
G&A Costs ($/t)	11.75
Total Cost ($/t)	32.76
Mineral Resource Cut-off Grade (g/t Au)	0.5

Source: InnovExplo, 2023

Table 14.24: Duquesne Input Parameters for Underground Mining Method

Input parameter	Value
Gold Price (USD/oz)	1,800
Exchange Rate (USD:CAD)	1.3
Gold Price ($/oz)	2,340
Royalty (%)	2.5
Recovery (%)	90
Global Mining Costs ($/t)	84.86
Processing & Transport Costs ($/t)	21.01
G&A Costs ($/t)	11.75
Total Cost ($/t)	117.67
Mineral Resource Cut-off Grade (g/t Au)	1.75

Source: InnovExplo, 2023

14.3.12 Mineral Resource Classification

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document "*CIM Definitions Standards for Mineral Resources and Mineral Reserves*" ("CIM Definition Standards") and can be referenced in Section 14.1.11.

Only Inferred Mineral Resources have been estimated for the Duquesne Gold deposit MRE. The status of collar elevation data, survey certificates, density evaluation procedures and QA/QC programs prevented a higher level of estimation confidence.

14.3.13 In-Pit and Underground Resource Estimates

Table 14.25: Duquesne 2023 MRE

Area (potential mining method)	Cut-off (g/t)	Duquesne Inferred Resource		
		Tonnage (t)	Au (g/t)	Ounces
Open Pit	0.5	6,300,000	1.56	316,000
UG Mining	1.75	5,030,000	3.1	501,400
Total		11,330,000	2.24	817,400

Notes to accompany the Duquesne Mineral Resource Estimate:

1. *The independent qualified persons for the Duquesne Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P. Eng. from InnovExplo. The effective date of the estimate is August 31, 2023.*
2. *These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *In-pit and Underground: High-grade capping of 55 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *The estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6 m x 6 m x 6 m and a minimum block size of 1.5 m x 0.5 m x 0.5 m. Grade interpolations were obtained by ID2 using hard boundaries.*
6. *In-pit and Underground: a density value of 2.7 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *In-pit and Underground: The Duquesne Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Duquesne was prepared using 3D block modelling and the inverse distance squared ("ID2") interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 75 m for Inferred in all zones.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *In-pit and Underground: The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Duquesne resources are reported at a rounded cut-off grade of 0.5 g/t Au (in-pit) and Duquesne resources (underground) are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD:CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *Royalty % in the MRE input parameters represents NSR % after First Mining purchases the remaining NSR*
13. *The number of metric tons was rounded to the nearest thousand and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
14. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

14.3.14 Block Model Validation

The QP visually and statistically validated the final mineral resource block model to ensure it was consistent with the primary data.

Block model and composite grades were visually compared on sections, plans and longitudinal views for densely and sparsely drilled areas, with no significant differences observed. In general, a good match was noted in the grade distribution without excessive smoothing in the block model (Figure 14.32).

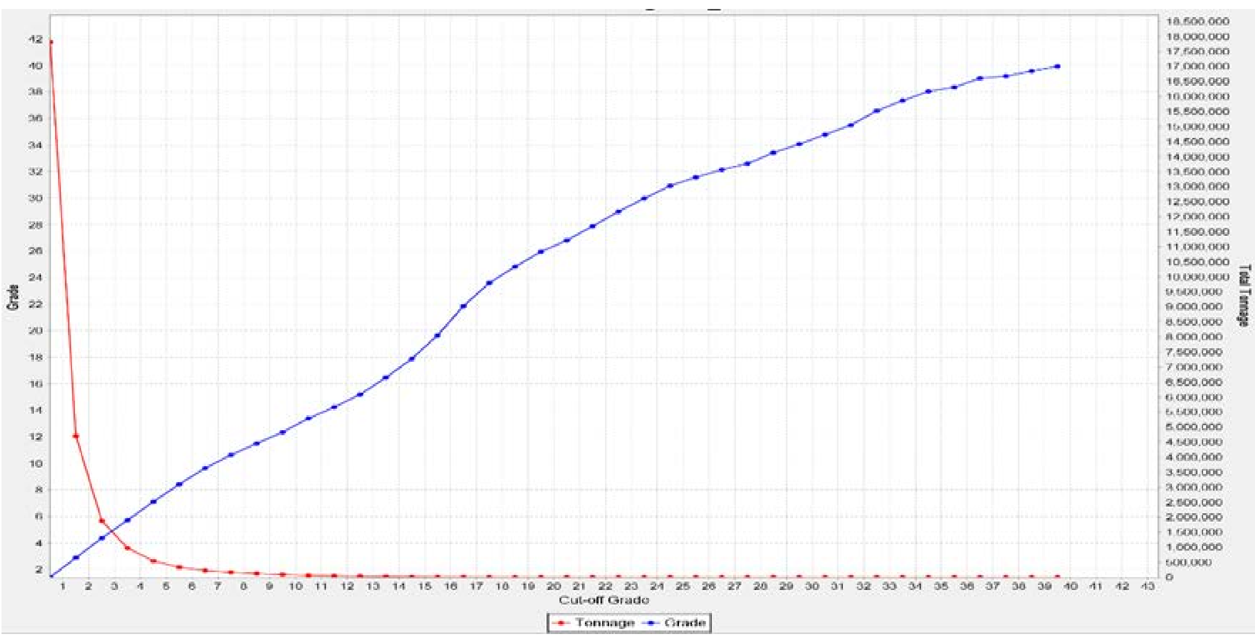
The grade-tonnage curve of the deposit (Figure 14.31) is also a good indicator of grade interpolation. The smooth grade curve reflects good interpolation and the absence of high-grade blocks.

The comparison between composite and block grade distribution and the overall validation did not identify any significant areas of concern.

Different interpolation methods, including ID2, ID3, and Nearest Neighbour were also compared (Figure 14.32). All three methods yield similar results for grade and tonnage. The ID2 method was preferred because it is the most representative of the grade distribution in the deposit.

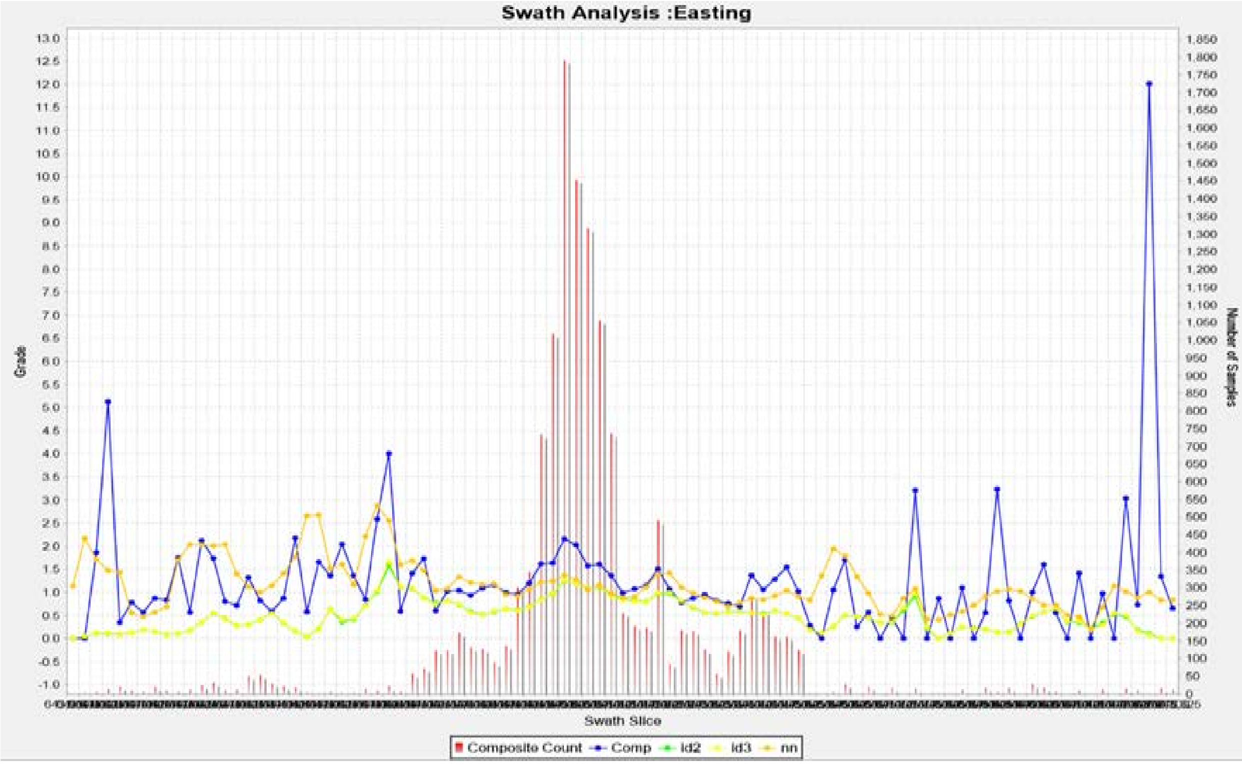
The volume of the mineralized wireframes and the block model have been compared and a 0.24% difference was determined.

Figure 14.31: Grade/Tonnage Curve



Source: InnovExplo, 2023

Figure 14.32: ID2 vs ID3 vs Nearest Neighbour (NN)



Source: InnovExplo, 2023

14.3.15 Sensitivity to Cut-off Grade

Table 14.26 presents the resources at different cut-off grades to demonstrate the sensitivity of the deposit. The base case at 1.75 g/t Au for Duquesne is the official cut-off grade used for the resources herein. All other cut-off grades are presented for comparative purposes only. A grade-tonnage curve is also presented in Figure 14.31.

Table 14.26: Duquesne Sensitivity to Cut-off Grade

Duquesne: Underground Long-Hole Mining						
Gold Price (USD)	**COG (g/t Au)**	**Zone**	**Class**	**Sum of Tonnes**	**Sum of Ounces**	**Grade (g/t Au)**
1980	1.59	NW	5	257,000	27,800	3.37
		Main	5	5,134,000	476,700	2.89
		All	5	5,392,000	504,500	2.91
1890	1.67	NW	5	243,000	27,400	3.51
		Main	5	4,813,000	463,200	2.99
		All	5	5,056,000	490,700	3.02

Duquesne: Underground Long-Hole Mining						
1800	1.75	NW	5	239,000	27,300	3.55
		Main	5	4,791,000	474,100	3.08
		All	5	5,030,000	501,400	3.10
1710	1.85	NW	5	225,000	26,600	3.68
		Main	5	4,524,000	471,800	3.24
		All	5	4,749,000	498,400	3.26
1620	1.95	NW	5	213,000	26,100	3.82
		Main	5	4,292,000	467,100	3.39
		All	5	4,504,000	493,300	3.41

Source: InnovExplo, 2023

14.4 Consolidated Duparquet Project Resources Estimate

Table 14.27 represents a combination of all resources from Duparquet, Duquesne and Pitt Gold.

Table 14.27: Duparquet Consolidated Resource Estimate

	Total Potential Measured Resource			Total Potential Indicated Resource			Total Potential Inferred Resource		
Area (mining method)	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces
Open Pit	163,700	1.37	7,200	59,410,600	1.52	2,909,600	34,633,000	1.16	1,286,400
UG Mining	-	-	-	5,506,900	2.26	399,300	16,189,000	2.6	1,354,100
Tailings	19,900	2.03	1,300	4,105,200	0.93	123,200	-	-	-
Total	183,600	1.43	8,500	69,022,700	1.55	3,432,100	50,822,000	1.62	2,640,500

Refer to individual MRE table footnotes for more information on Consolidated Mineral Resources Estimate

15 MINERAL RESERVE ESTIMATES

This report is a Preliminary Economic Assessment ("PEA"), and there is no Mineral Reserve Estimate stated on the Duparquet Project as per National Instrument NI 43-101 Canadian Standards of Disclosure for Mineral Projects regulations.

16 MINING METHODS

16.1 Summary

The Duparquet project is planned as a mix of conventional open pit mine and a long hole (transversal – longitudinal – uppers) underground mine. The milling rate is planned at 5.5 Mtpa with a ramp-up period of 0.5 years during the open pit operational period. The mill will run for 11 years. The total stockpile will reach a maximum of 2 Mt to allow steady mill feed. The maximum stockpile is reached at Year 1.

16.1.1 Open Pit

Open pit mining will be done with the use of diesel equipment including drills and haul trucks coupled with hydraulic shovels. The project consists of seven pits, with Pit 1 having three phases.

The peak mining rate is 27.0 Mtpa over a Life of Mine of 11 years. A total of 43.6 Mt of mineralized material will be mined at an average diluted gold grade of 1.36 g/t Au. A total of 4.1 Mt of tailings will be mined at an average total gold grade of 0.93 g/t Au. A total of 235.1 Mt of combined waste and overburden will be extracted, including an estimate of 2.2 Mt of mineralized material that will be lost in the old underground stopes and mined as waste, resulting in a strip ratio of 5.4 t of waste per tonne of mined mineralized material. The primary production equipment includes 12 m^3 diesel-hydraulic shovels coupled with 65 t high-capacity road trucks for the mineralized material, and 22 m^3 diesel-hydraulic production shovels and 200 t off-highway mining trucks for the waste. An owner mining operation is planned, with overburden stripping and topographic drilling activities outsourced to contractors.

Pre-production mining will take place for about six months to provide material for construction and to remove overburden to allow access to the pits. A total of 8.8 Mt of waste and overburden as well as 1.7 Mt of mineralized material will be mined in the pre-production and ramping up period.

16.1.2 Underground

The proposed underground operation consists of one mine separated in four zones accessible through access ramps from a common portal.

The average underground mine production rate is 3,800 tpd of ore, and the anticipated mine life will be approximately 11 years, which includes an initial ramp-up period of 18 months. The selected mining method is sublevel transverse stoping with longitudinal and transversal variants.

16.2 Open Pit Mining

16.2.1 Pit Optimization

16.2.1.1 Resource Block Model

The resource block model (BM_2021) was completed by InnovExplo. It was imported to the Deswik CAD™ software as a singular block model. The model provided was regularized and reblocked into a 10 m x 10 m x 10 m block model.

16.2.1.2 Optimization

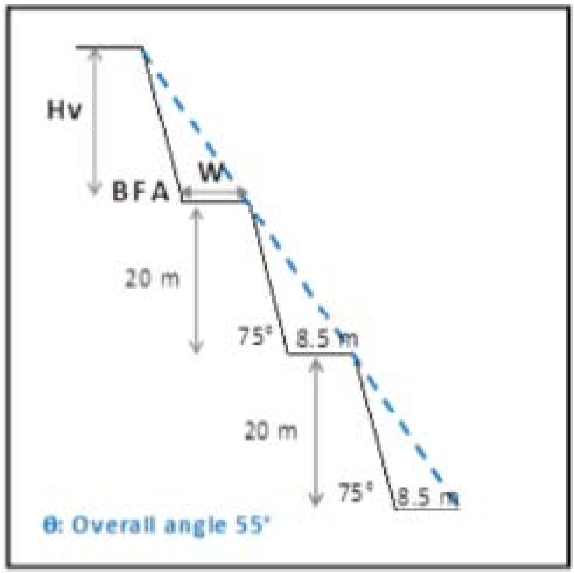
Open pit optimization was conducted in GEOVIA Whittle™ version 2022 to determine the optimal economic shape of the open pit to guide the pit design process. This task was undertaken with the Whittle software which utilizes the pseudoflow algorithm. The method works on a block model of the mineralized material body, and progressively constructs lists of related blocks that should, or should not, be mined. The method uses the values of the blocks to define a pit outline that has the highest possible total economic value, subject to the required pit slopes defined as structure arcs as well as physicals constraints under the form of heavy blocks in the software.

The pit optimizations performed to generate optimal pit limits to guide the ultimate pit design were based only on Measured, Indicated, and Inferred category blocks. The Inferred mineral resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. The evaluation of the mineralized material mined in the Duparquet PEA includes all categories of resources: Measured, Indicated, and Inferred.

16.2.1.3 Slope Recommendations

The geotechnical information used is from the previous PFS published by InnovExplo in 2014 (Poirier et al., 2014). The recommendations were to mine using two 10 m benches with a 75 degrees bench face angle and an 8.5 m catch bench, for an inter-ramp angle of 55 degrees as shown in Figure 16.1. The overall slope angle is 45° on the West side and 48° on the East side of pit 1.

Figure 16.1 : Geotechnical Recommendations



16.2.1.4 Pit Optimization Parameters

A summary of the open pit optimization parameters is presented in Table 16.1. The parameters used for optimization were updated from the 2014 pre-feasibility study done for the Duparquet Project, as well as benchmarking on similar projects. The mining reference cost (i.e., for a block near surface) is CAD 3.25/t with an incremental cost of CAD 0.04/t per 10 m bench added to account for the additional haulage cycle time. The total mineralized material-based cost is CAD 18.44 at a nominal throughput of 5.5 Mt/y.

Table 16.1: Economics Optimization Parameters

Parameter	Units	Value
Exchange Rate	USD : CAD	0.75
Nominal Milling Rate	tpd	15,000
Gold Price	USD/oz	1,650
Process Recovery	%	86.5
Processing Cost (incl. Power)	$/t. milled	14.14
G&A	$/t. milled	4.30
Total Mineralized Material-Based Cost	$/t. milled	18.44
Mining Dilution	%	10
Mining Loss	%	5
Total Mining Reference Cost	$/t. mined	3.25
Incr. Bench Cost (per 10 m bench)	$/t. mined	0.04
Overall Slope Angle	(°)	45 / 48

The Whittle nested shell results are presented in Table 16.2 using the Measured, Indicated, and Inferred mineralization. The nested pit shells are generated using revenue factors to scale up and down from the base case selling price.

The shell selection is presented in Table 16.3 and in Figure 16.2. Pit shell 18 was selected as the optimum final pit shell which corresponds to a revenue factor of 0.88. This shell has a total tonnage of 295 Mt including 60 Mt of mineralized material. The pit shell was selected as having a good combination of best-case and specified-case scenario in Whittle™ while minimizing the risk when comparing the worst-case scenarios.

Table 16.2: Whittle Shell Results

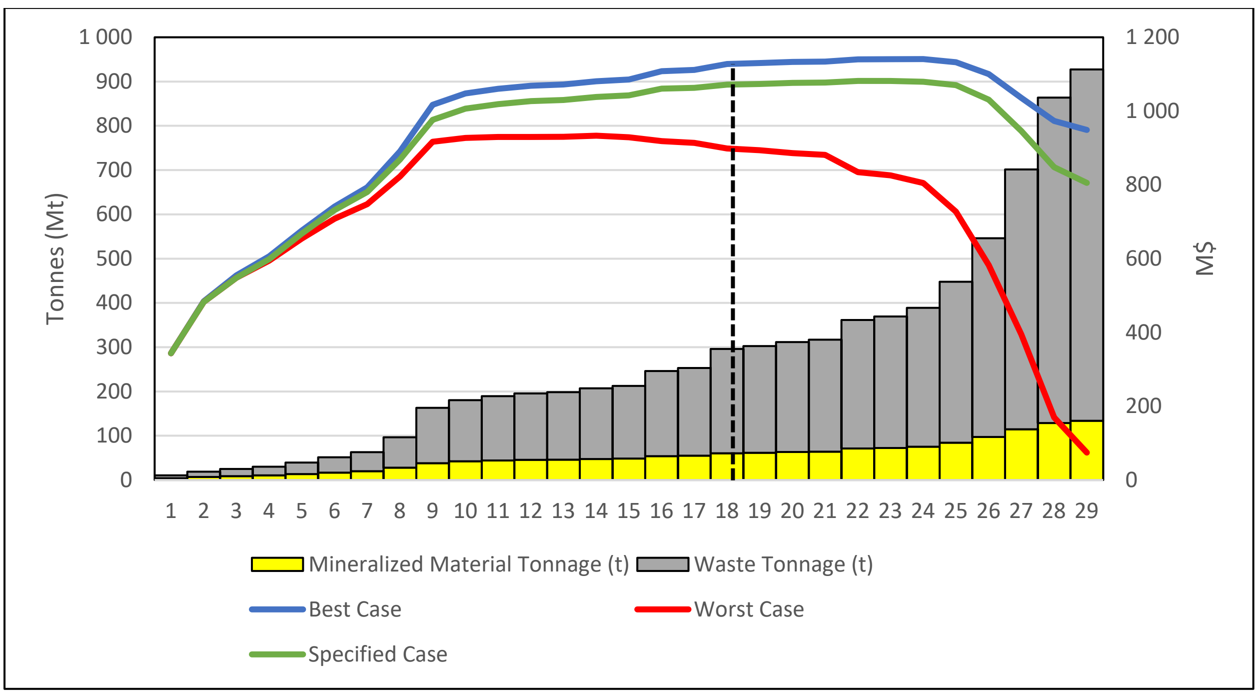
Pit Shell	Revenue Factor	Best Case Disc. @ 5%	Specified Case Disc. @ 5%	Worst Case Disc. @ 5%	Total	Mineralized Material	Waste	Strip Ratio	Au	Au	LOM
		(M CAD)	(M CAD)	(M CAD)	(kt)	(kt)	(kt)	(W:O)	(g/t)	(k oz.)	(Y)
1	0.3	344	344	344	10,622	3,918	6,705	1.71	2.52	318	0.83
2	0.35	484	483	483	18,894	6,843	12,051	1.76	2.19	481	1.45
3	0.4	555	548	548	24,851	8,727	16,124	1.85	2.00	561	1.85
4	0.45	606	599	595	30,114	10,584	19,529	1.85	1.86	632	2.24
5	0.5	676	668	654	39,454	13,414	26,041	1.94	1.71	737	2.84
6	0.55	741	732	708	51,298	16,592	34,706	2.09	1.59	846	3.51
7	0.6	793	781	748	63,009	19,969	43,040	2.16	1.47	945	4.23
8	0.65	891	869	823	96,721	27,954	68,767	2.46	1.34	1,201	5.85
9	0.7	1,017	976	917	162,974	38,038	124,936	3.28	1.28	1,560	7.70
10	0.72	1,048	1,007	927	180,351	42,437	137,913	3.25	1.23	1,680	8.50
11	0.74	1,060	1,019	930	189,403	44,058	145,346	3.30	1.21	1,718	8.80
12	0.76	1,069	1,027	930	195,658	45,489	150,169	3.30	1.19	1,743	9.06
13	0.78	1,072	1,030	930	198,379	46,032	152,347	3.31	1.18	1,742	9.16
14	0.8	1,081	1,038	933	207,127	47,422	159,705	3.37	1.16	1,769	9.41
15	0.82	1,086	1,043	929	212,639	48,579	164,060	3.38	1.14	1,781	9.63
16	0.84	1,108	1,061	919	246,331	53,885	192,446	3.57	1.11	1,928	10.60
17	0.86	1,112	1,063	914	252,846	55,109	197,737	3.59	1.10	1,941	10.82
18	0.88	1,128	1,072	899	295,853	60,304	235,549	3.91	1.08	2,094	11.77

Pit Shell	Revenue Factor	Best Case Disc. @ 5%	Specified Case Disc. @ 5%	Worst Case Disc. @ 5%	Total	Mineralized Material	Waste	Strip Ratio	Au	Au	LOM
		(M CAD)	(M CAD)	(M CAD)	(kt)	(kt)	(kt)	(W:O)	(g/t)	(k oz.)	(Y)
19	0.9	1,130	1,074	894	302,535	61,550	240,986	3.92	1.06	2,106	12.00
20	0.92	1,133	1,076	886	311,414	63,158	248,256	3.93	1.05	2,127	12.29
21	0.94	1,134	1,077	881	317,054	63,897	253,157	3.96	1.04	2,129	12.42
22	0.96	1,140	1,082	835	361,541	71,070	290,471	4.09	1.00	2,285	13.73
23	0.98	1,141	1,081	826	369,321	72,327	296,995	4.11	0.99	2,294	13.96
24	1	1,141	1,080	805	388,794	75,107	313,686	4.18	0.97	2,342	14.47
25	1.1	1,132	1,070	727	447,963	84,151	363,813	4.32	0.90	2,436	16.12
26	1.2	1,100	1,031	582	546,169	97,116	449,053	4.62	0.83	2,601	18.74
27	1.3	1,036	946	394	701,574	114,712	586,862	5.12	0.77	2,849	22.37
28	1.4	973	848	170	863,730	128,612	735,118	5.72	0.74	3,039	25.90
29	1.5	949	805	74	927,521	133,610	793,911	5.94	0.71	3,038	26.81

Table 16.3: Pit Shell Selection

Shell Selection	Best Case	Specified Case	Worst Case	Selection
Shell Number	24	22	14	18
Shell RF	1	0.96	0.8	0.88
Shell Price (CAD)	1,650	1,584	1,320	1,452
Total Tonnage (kt)	388,794	361,541	207,127	295,853
Waste Tonnage (kt)	313,686	290,471	159,705	235,549
Strip Ratio (W:O)	4.18	4.09	3.37	3.91
Mineralized Material Tonnage (kt)	75,107	71,070	47,422	60,304
Au Grade (g/t)	0.97	1.00	1.16	1.08
Gold (k oz)	2,342	2,285	1,769	2,094
DCF @ 5 % (M$)	1,141	1,082	933	1,128
LOM (Y)	14.5	13.7	9.4	11.8

Figure 16.2: Pit by Pit Graph @ USD 1,650/oz Gold Price



16.2.2 Mine Design Parameters

The open pit mine designs were guided using optimal Whittle™ shells. The mining of the Duparquet open pit project is planned with three phases in Pit 1 and a singular phase in each of Pits 2 through 7. The mining physicals of each of the mining phases are summarized in Table 16.4 and final configuration of the pit is presented in Figure 16.3.

Table 16.5 presents the mineralized material distribution for the project. Both tables use the diluted block model and include mineralized material loss.

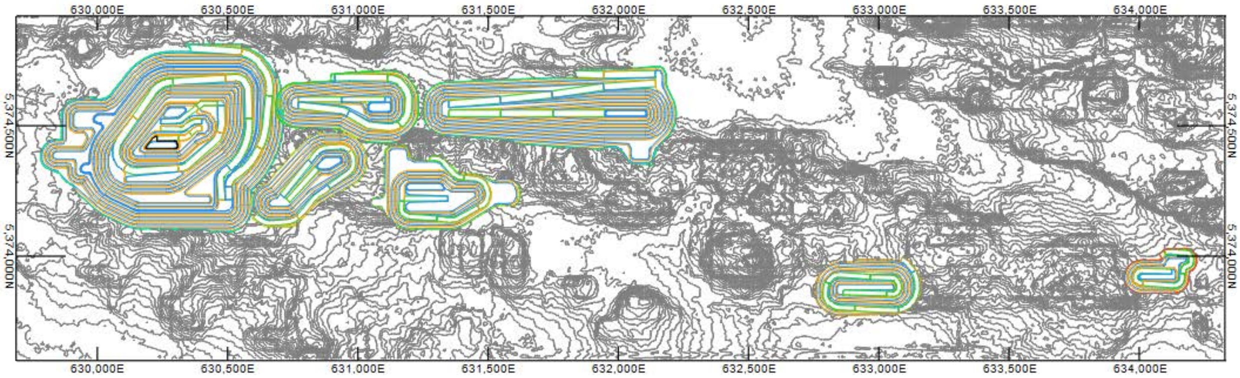
Table 16.4: Mining Resources by Phase and Pit

			Pit 1									
		Grand Total	Phase 1	Phase 2	Phase 3	Total Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Pit 7
Total Tonnage	*kt*	277,878	19,148	101,735	49,910	170,793	45,855	15,744	15,227	16,105	11,242	2,912
Overburden	*kt*	15,998	4,588	2,831	985	8,404	4,873	1,449	378	383	323	187
Rock	*kt*	218,298	9,913	83,248	41,946	135,107	34,968	12,270	12,422	11,826	9,337	2,368
Stripping Ratio	*W:MM*	*5.38*	*3.12*	*5.50*	*6.15*	*5.26*	*6.63*	*6.78*	*5.27*	*3.13*	*6.10*	*7.16*
Mineralized Material	*kt*	43,581	4,646	15,656	6,979	27,282	6,013	2,024	2,427	3,896	1,583	357
Grade (Diluted)	*g/t*	1.36	1.86	1.34	1.22	1.40	1.30	1.54	1.10	1.04	1.81	1.57

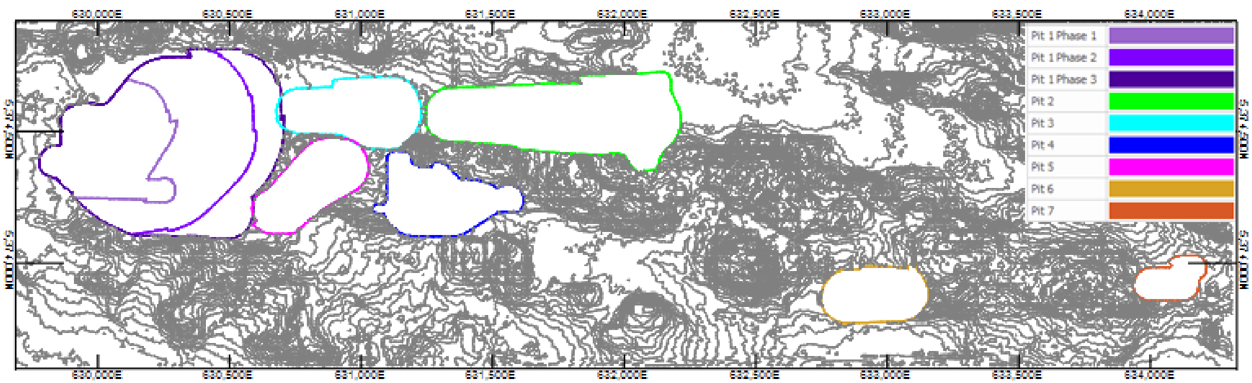
Table 16.5: Mineralized Material Distribution

		Measured			Indicated			Inferred		
Area	Cut-off (g/t)	Tonnes (kt)	Grade (g/t)	Au (k Oz)	Tonnes (kt)	Grade (g/t)	Au (k Oz)	Tonnes (kt)	Grade (g/t)	Au (k Oz)
Mineralized Material (In Pit)	0.45	142	1.24	6	31,540	1.56	1,586	11,899	0.82	315
Mineralized Material (Historical Tailings)	0.45	20	0.93	1	4,105	0.93	123	0	0.00	0
Total		162	1.20	6	35,645	1.49	1,709	11,899	0.82	315

Figure 16.3: End of LOM Pit Layout and Phase Limits



Source GMS 2023, Not to scale



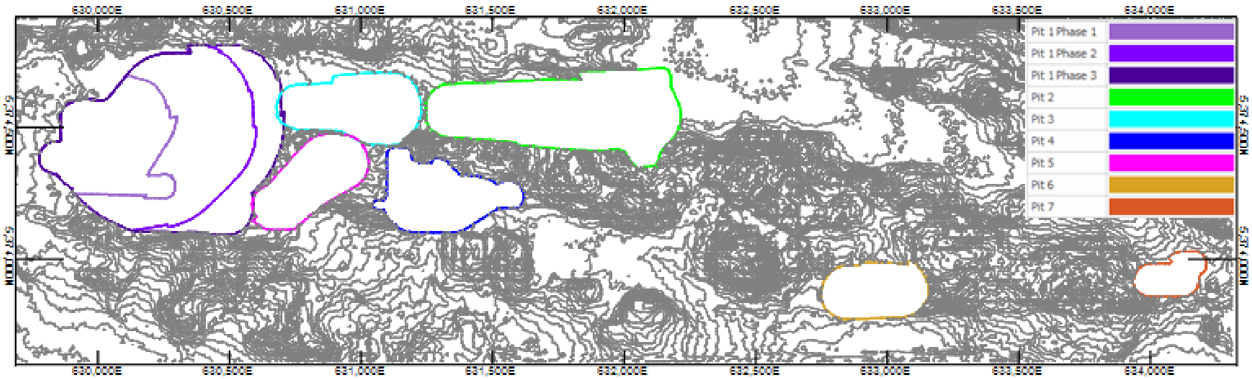
Source GMS 2023, Not to scale

16.2.3 Pits and Phases

16.2.3.1 Project Location

The Duparquet project is in the Abitibi-Temiscamingue region in Québec. The project is located within 1 km of the town of Duparquet at approximately 48°30''26"N latitude and 79°13''28"W longitude. The project is composed of seven pits, with Pit 1 having three phases.

Figure 16.4: Pit Locations



Sources GMS 2023, Not to scale

16.2.3.2 <u>Pit 1</u>

Pit 1 is located on the western side of the property and south of the planned crusher and mill location. It is bordered by the golf course and the town limit of Duparquet on the south end. It is the biggest of all seven pits and has three distinct phases that all use the western wall as a base and expand via 200 m to 300 m pushbacks. In all phases, the haulage ramp transitions to a single lane from double lane along the last three benches to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump.

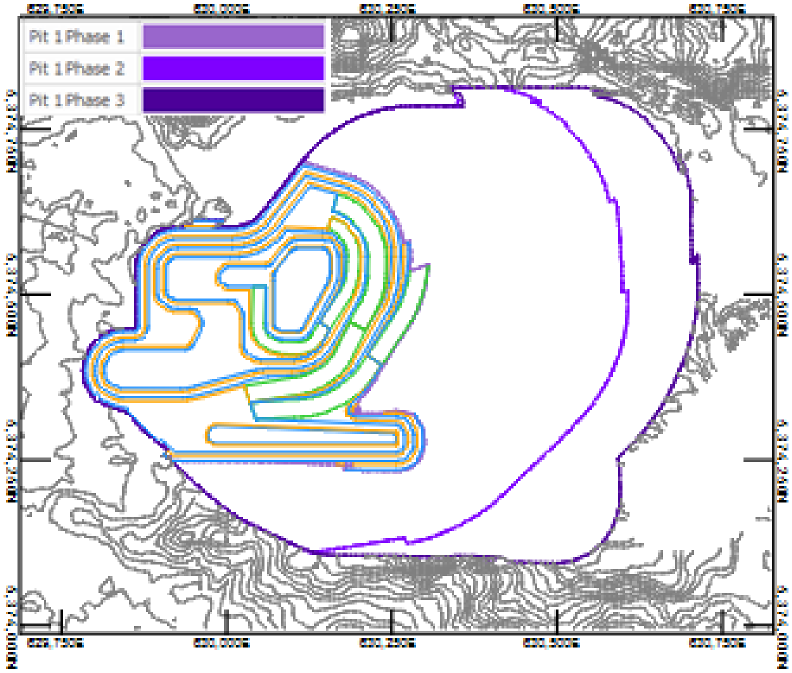
Phase 1 is the smallest nested pit. This phase starts at the final wall on the west side and ramps in the middle on the east wall. Phase 1 is 500 m long, 450 m wide, and has a maximum depth of 140 m.

Phase 2 starts at the final wall on the west side and ramps in the middle on the east wall. Phase 2 is 750 m long, 650 m wide, and has a maximum depth of 320 m.

Phase 3 is the final nested pit. This phase starts at the final wall on the west side and ramps in the middle on the east wall. Phase 3 is 950 m long, 700 m wide, and has a maximum depth of 370 m.

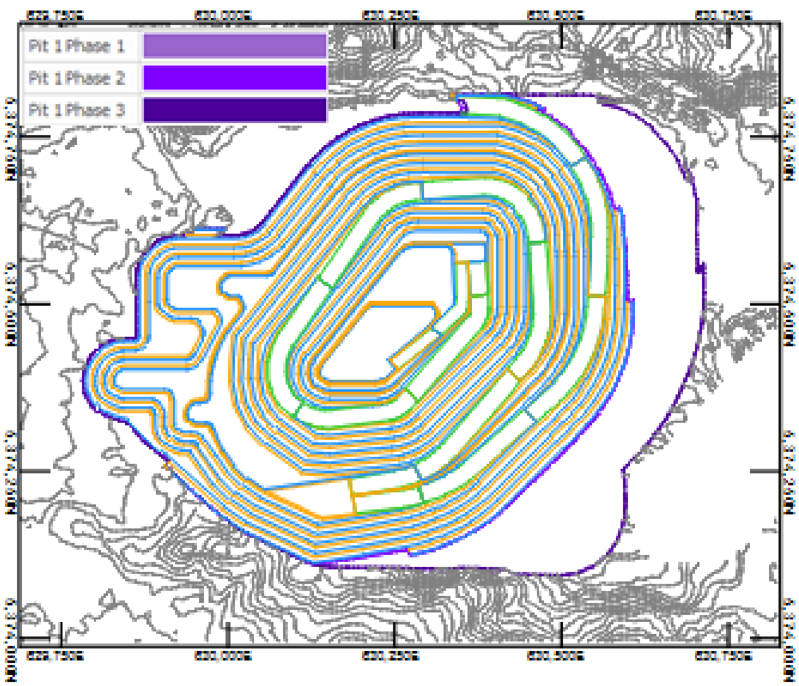
The different Pit 1 phases are presented in Figure 16.5, Figure 16.6, and Figure 16.7.

Figure 16.5: Pit 1 Phase 1



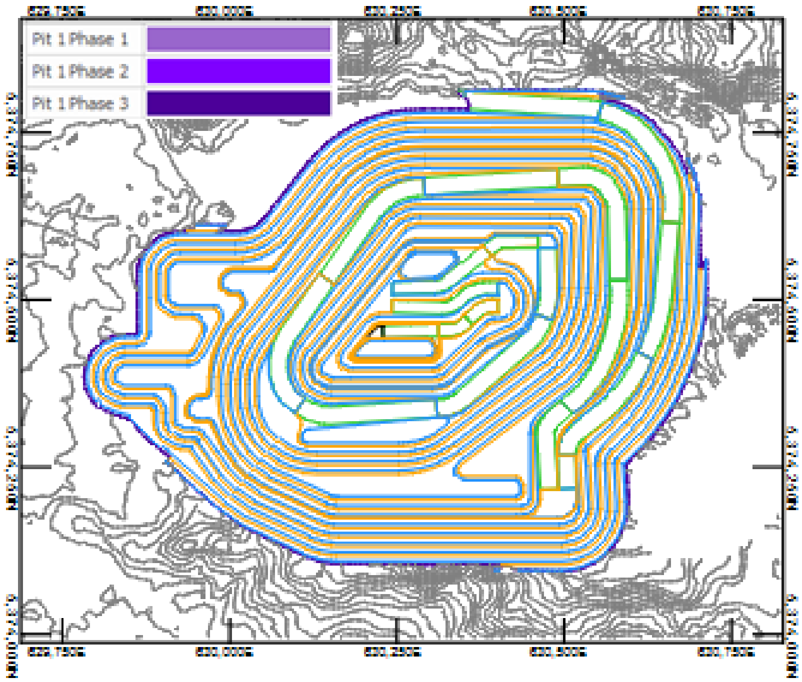
Source GMS 2023, Not to scale

Figure 16.6: Pit 1 Phase 2



Source GMS 2023, Not to scale

Figure 16.7: Pit 1 Phase 3

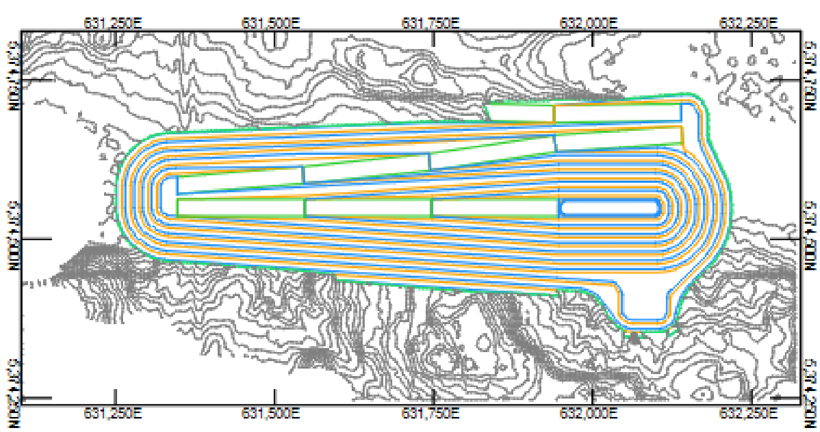


Source GMS 2023, Not to scale

16.2.3.3 <u>Pit 2</u>

Pit 2 is located to the east of Pits 1 and 3, and south of the planned crusher and mill location. It is bordered by Pit 4 on the south end, and the waste dump 3 on the east end. Pit 2 will be backfilled, and the waste dump will be expanded onto Pit 2. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump. Pit 2 is 960 m long, 300 m wide, and has a maximum depth of 200 m.

Figure 16.8: Pit 2

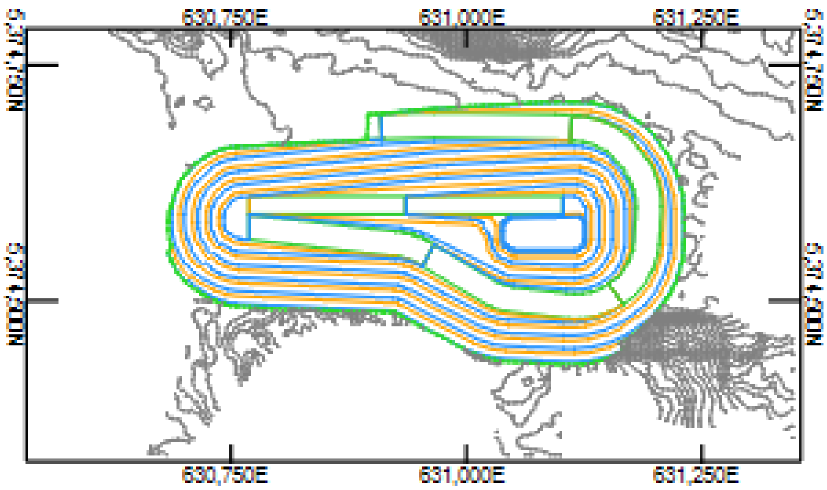


Source GMS 2023, Not to scale

16.2.3.4 Pit 3

Pit 3 is located to the east of Pit 1, west of Pit 2, and south of the planned crusher and mill location. It is bordered by Pit 4 and Pit 5 on the south end. The haulage ramp transitions to a single lane from double lane along the last two benches to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump. Pit 3 is 540 m long, 275 m wide, and has a maximum depth of 160 m.

Figure 16.9: Pit 3

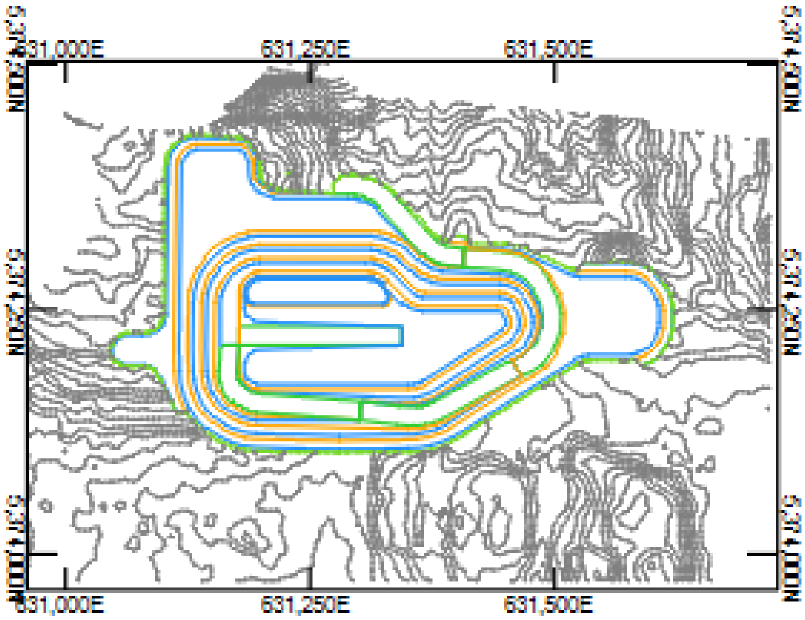


Source GMS 2023, Not to scale

16.2.3.5 Pit 4

Pit 4 is located to the east of Pit 5, west of the waste dump 3, and south of Pit 2 and Pit 3. It is bordered by the town of Duparquet on the south end. The haulage ramp consists of a single lane to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump. Pit 4 is 520 m long, 280 m wide, and has a maximum depth of 120 m.

Figure 16.10: Pit 4

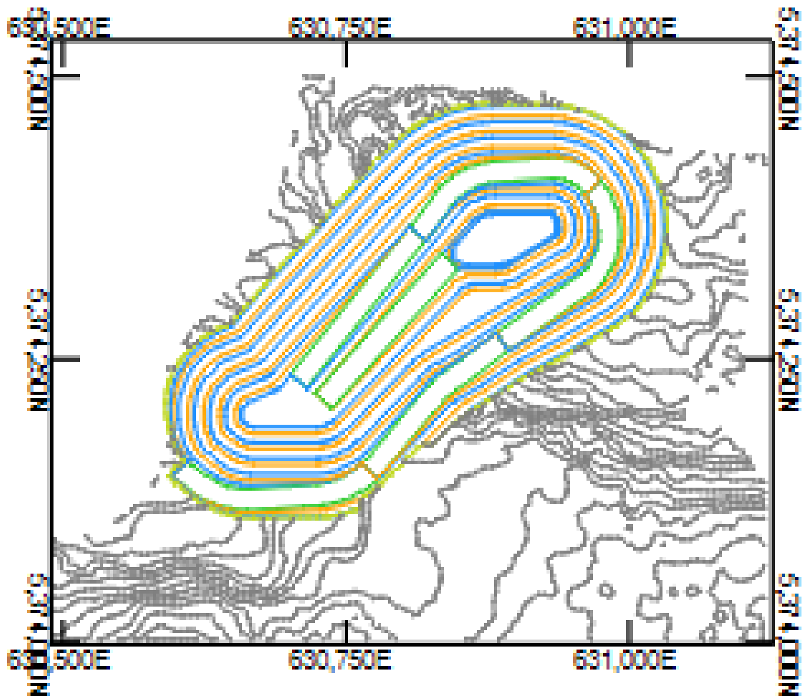


Source GMS 2023, Not to scale

16.2.3.6 <u>Pit 5</u>

Pit 5 is located to the east of Pit 1, west of Pit 4, and south of Pit 3. It is bordered by the town of Duparquet on the south end. The haulage ramp consists of a single lane to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the west to allow the shortest haul to the crusher and the waste dump. Pit 5 is 490 m long, 240 m wide, and has a maximum depth of 140 m.

Figure 16.11: Pit 5

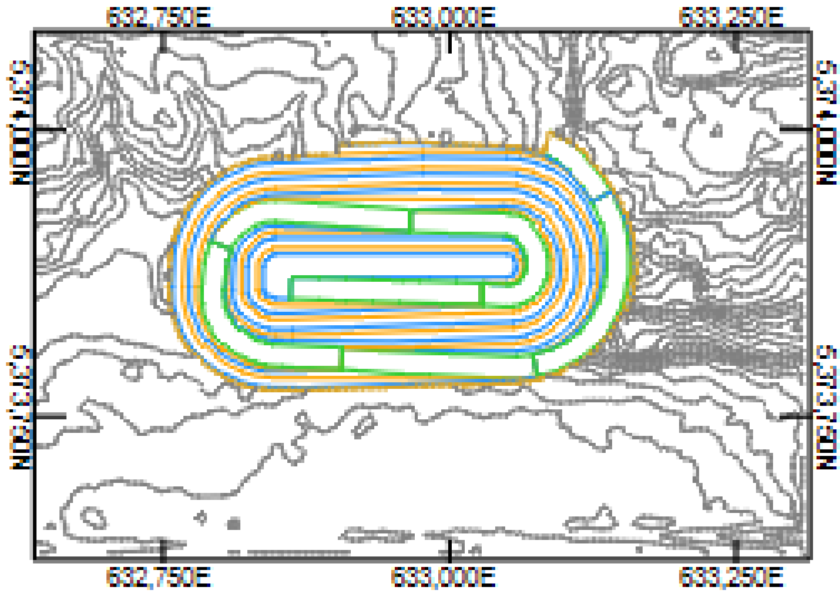


Source GMS 2023, Not to scale

16.2.3.7 Pit 6

Pit 6 is located on the east part of the property, west of Pit 7, and south of the waste dump 3. It is bordered by provincial road 393 on the south end. The haulage ramp consists of a single lane to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump. Pit 6 is 415 m long, 315 m wide, and has a maximum depth of 130 m.

Figure 16.12: Pit 6

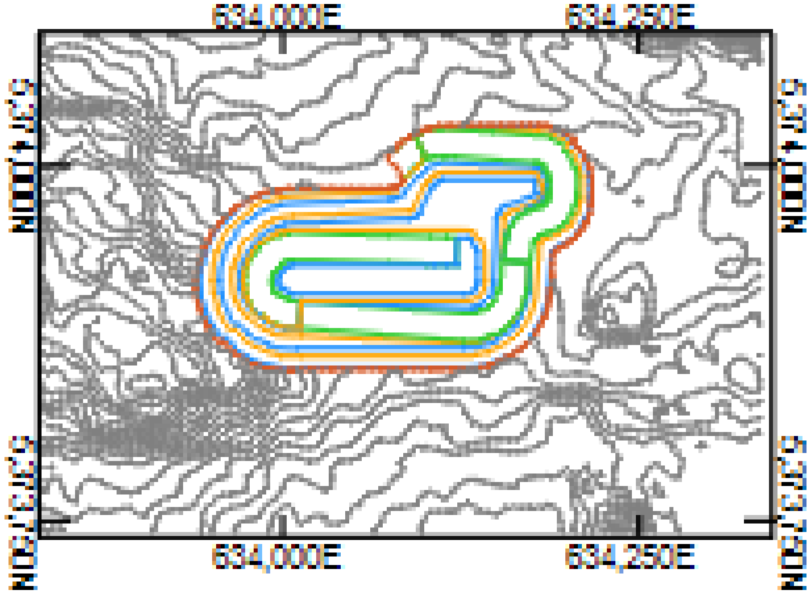


Source GMS 2023, Not to scale

16.2.3.8 Pit 7

Pit 7 is located on the east part of the property, east of Pit 6, and south of the tailing storage facility. It is bordered by provincial road 393 on the south end. The haulage ramp consists of a single lane to better capture mineralized material pockets at the bottom of the pit. Pit exits are planned to exit to the north to allow the shortest haul to the crusher and the waste dump. Pit 7 is 250 m long, 170 m wide, and has a maximum depth of 70 m.

Figure 16.13: Pit 7



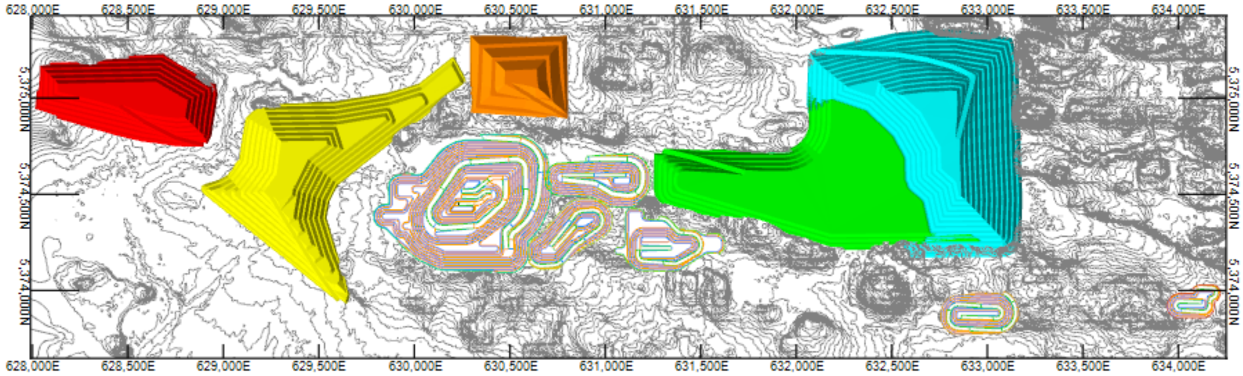
Source GMS 2023, Not to scale

16.2.4 <u>Waste Rock Storage Facilities</u>

A total of 218 Mt of waste rock and 16 Mt of overburden will be produced over the mine's life. Rock material will be hauled to the rock storage facilities and Pit 2 and stacked using a track dozer. The material pile will be built in layers in the north-south and west-east axis. Overburden will be hauled to the overburden storage facility by a contractor. Figure 16.14 depicts the facilities locations. Table 16.6 presents the capacities and general design considerations of the facilities. Overburden will be used for restoration of the pits as they are being mined out according to the schedule. This allows for a reduced total capacity of the overburden stockpile.

A total of 2 Mm³ of waste rock is planned for construction, including the building of the initial tailings dam, site laydowns, processing plant, and haulage roads.

Figure 16.14: Waste Storage Facilities



Source GMS 2023, Not to scale

Table 16.6: Dump Capacities and Design Parameters

Dump	Capacity (Mm^3)	Capacity Used (Mm^3)	% Filled	OSA (Degrees)
Waste Storage Facility #1 (Red)	9.9	9.9	100	25
Waste Storage Facility #2 (Yellow)	19.8	19.8	100	25
Waste Storage Facility #3 (Teal)	47.4	38	80	25
Pit 2 Backfill + Storage Facility (Green)	45.5	45.5	100	25
Overburden Storage Facility (Orange)	5.3	5.3	100	22

16.2.5 Mineralized Material Stockpile

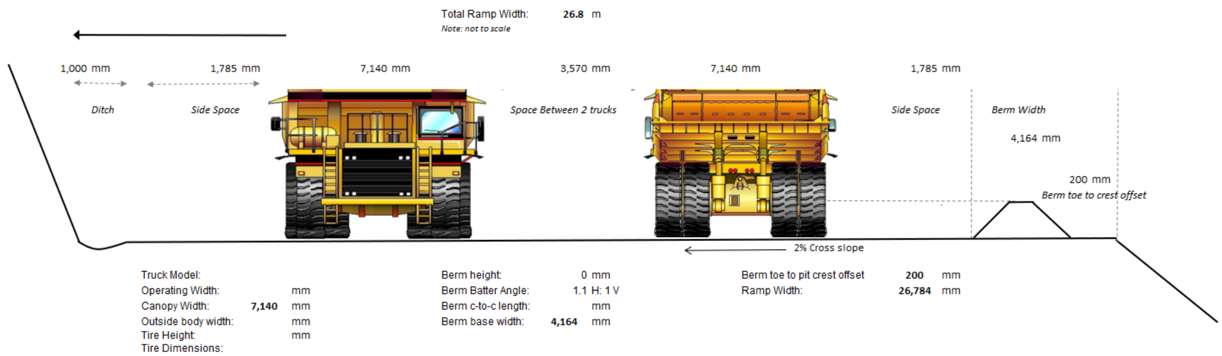
Mineralized material will be stockpiled north of pit 1 next to the crusher to ensure a steady flow of material to the mill.

16.2.6 Mine Haul Roads

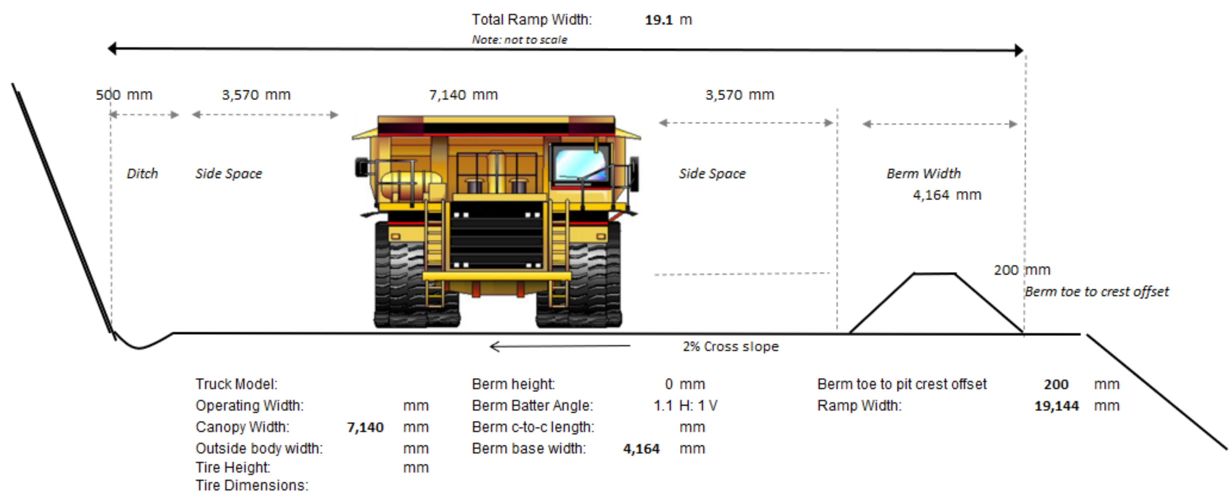
The ramp was designed for double lane traffic in general for 200 t class off-highway trucks, except for the last few benches of the pits where it becomes a one-way access. Single lane roads and ramps are 19.1 m wide and the double lane roads and ramps are 26.8 m wide. Figure 16.15 presents an example of the layout of the planned roads and ramps.

The ramp gradient is 10% and the pits exit is located towards the north end to minimize distance to the mill, stockpile, and waste dump.

Figure 16.15: Ex-pit Haul Road Design Criteria



Source GMS 2023, Not to scale



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16.2.7 Open Pit Production Schedule

The LOM production schedule for the open pit mines was optimized using Minemax^{tm} Scheduler, which is an industry leading schedule optimizer using best in class CPLEX technology. Minemax^{tm} Scheduler is an automated mine scheduling tool which leverages multi-period optimization to determine maximum net present value ("NPV") while imposing various physical constraints and targets. The optimization includes mine sequencing and mining rate, stockpile usage and rehandling, and fleet usage. The strategic optimal plan from Minemax^{tm} on an annual basis was then further detailed by year using Deswik^{tm} to track material movements, stockpile inventory, mill blending, waste movements, and equipment usage / movements.

16.2.7.1 Open Pit Mining Schedule

Open pit mining activities are planned over a duration of 12 years which include one year of pre-production. The mining rate will ramp up to reach a maximum of 27 Mtpa on Year 1 until Year 10, where it will ramp down on Year 11. Figure 16.16 presents the open pit mining schedule by material type.

Figure 16.17 presents the tonnage mined by phase and pit for the Duparquet project. In any given year, there are up to four pit phases mined at once where, generally one phase or pit is the primary source of mineralized material and the other is undergoing overburden removal. The mine plan kept a maximum sinking rate of 80 m.

Mine production details showing mined grades and material movement are presented in Table 16.7.

Historical tailings will be milled at a rate of 750 kt per year for the first 5 years, finishing with 375 kt on Year 6.

Figure 16.18 through Figure 16.20 depict the mine progression for the selected years as well as the end of the open pit at Year 11.

Figure 16.16: Open Pit Mine Production by Material Type

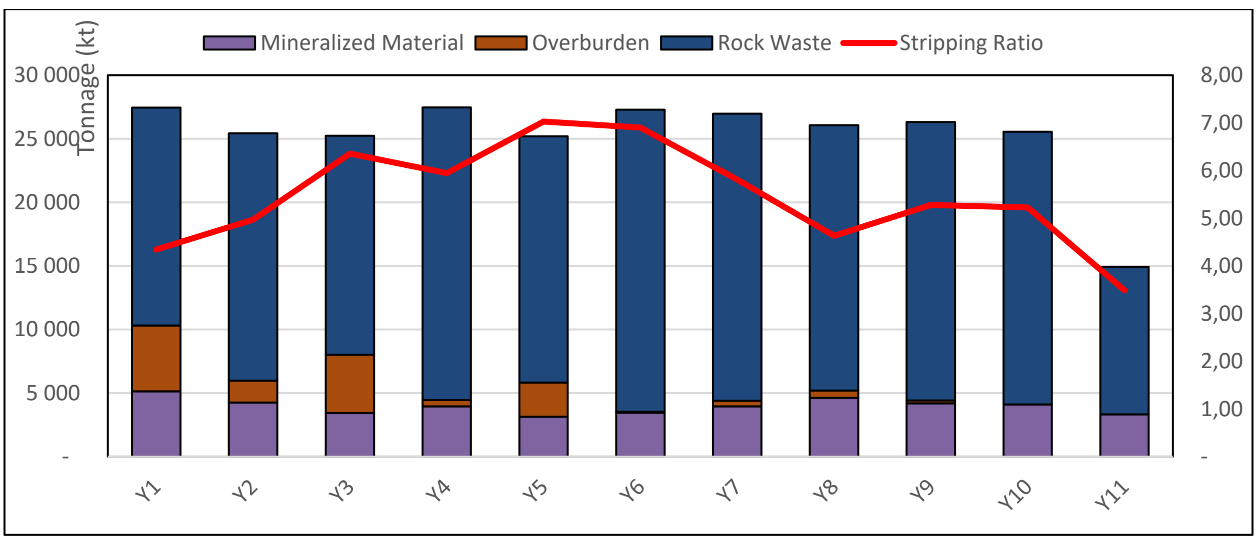


Figure 16.17: Open Pit Mine Production by Phase

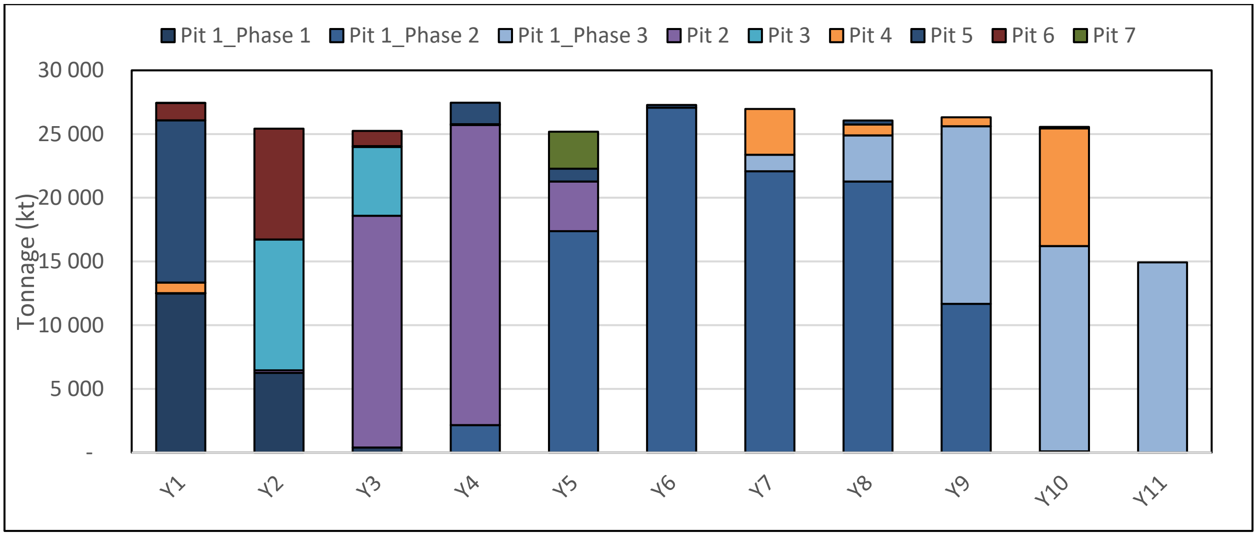
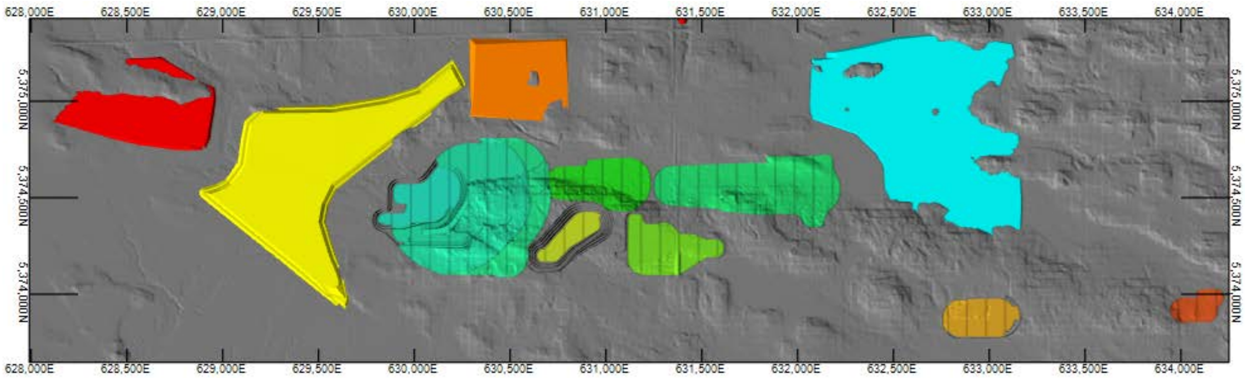


Table 16.7: Open Pit Mining and Historical Tailings Production Schedule Summary

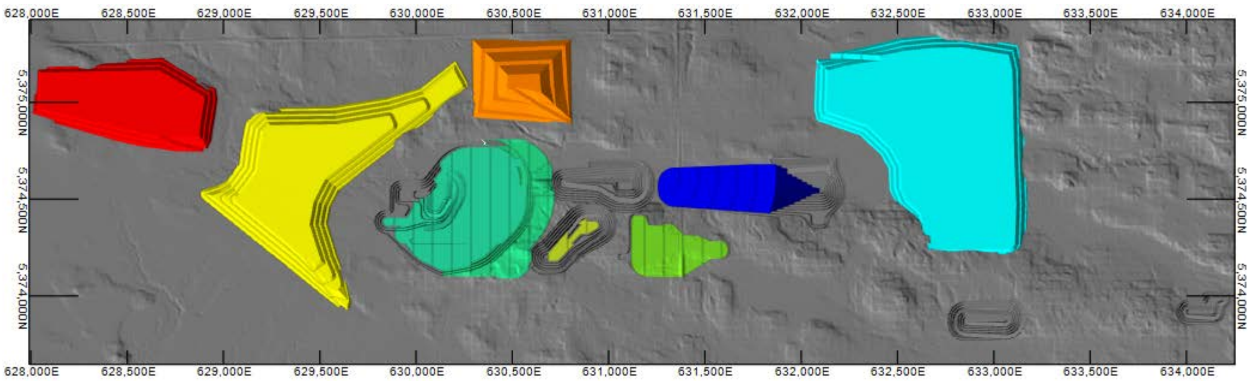
	Units	Total	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Total Tonnage	*kt*	282,002	9,148	18,295	25,423	25,241	27,456	25,189	27,281	26,968	26,070	26,320	25,557	14,929
Overburden	*kt*	15,998	1,726	3,453	1,718	4,581	498	2,689	83	437	577	236	-	-
Rock	*kt*	218,298	5,709	11,418	19,447	17,229	23,005	19,362	23,745	22,572	20,865	21,892	21,452	11,603
Stripping Ratio	*W:MM*	5.38	4.34	4.34	4.97	6.36	5.94	7.03	6.90	5.81	4.63	5.28	5.23	3.49
Mineralized Material	*kt*	43,581	1,712	3,425	4,258	3,431	3,953	3,138	3,453	3,959	4,628	4,191	4,105	3,326
Grade (Diluted)	*g/t*	1. 36	1.30	1.30	1.80	1.51	1.20	1.34	1.18	1.09	1.31	1.66	1.03	1.53
Historical Tailings	*kt*	4,125	250	500	750	750	750	750	375					
Historical Tailings Grade	*g/t*	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94					

Figure 16.18: Mine Development: Y1



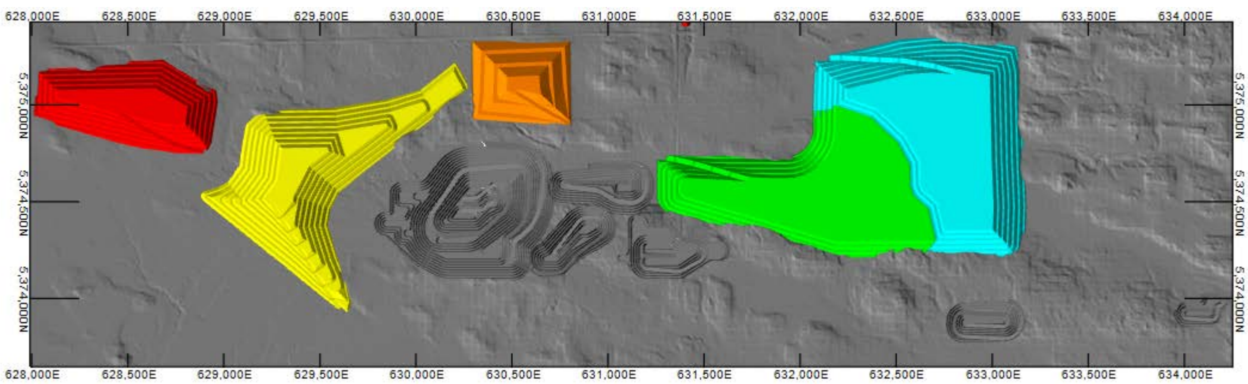
Source GMS 2023, Not to scale

Figure 16.19: Mine Development: Y5



Source GMS 2023, Not to scale

Figure 16.20: Mine Development – Y11 (End of LOM)



Source GMS 2023, Not to scale

16.2.8 Mine Operations and Equipment Selection

16.2.8.1 Drilling and Blasting

Production drilling is planned on 10 m benches using 8” (203 mm) diameter holes. Diesel production drills capable of single pass drilling specifically designed for 10 m benches with a hole range of 152 mm to 254 mm are selected which are capable of down the hole (DTH) drilling.

Drill and blast specifications are established according to material type and whether the rock is mineralized material or waste. The mineralized material drill pattern is proposed with a 6 m burden and 6 m spacing with 1 m of sub-drill. The waste drill pattern is proposed with a 6 m burden and 6 m spacing with 1 m of sub-drill. These drill parameters combined with a high energy bulk emulsion with a density of 1.25 kg/m^3 result in a powder factor of 0.3 kg/t for mineralized material and 0.29 kg/t for waste. Blast holes are planned to be initiated with Nonel detonators and primed with boosters.

As suitable to minimize noise and/or vibration, and disruption within the community, blast design may be adjusted.

Table 16.8 depicts the drill patterns and the production drill parameters.

Table 16.8: Drill and Blast Parameters

Drill & Blast Parameters		Mineralized Material	Waste
Drill Pattern			
Diameter (D)	*m*	0.203	0.203
Burden (B)	*m*	6	6
Spacing (S)	*m*	6	6
Subdrill (J)	*m*	1	1
Stemming (T)	*m*	3.75	4.00
Pattern Yield			
Rock Density	*t/bcm*	2.73	2.70
BCM/Hole	*bcm/hole*	360	360
Yield Per Hole	*t/hole*	983	972
Yield Per Metre Drilled	*t/m drilled*	89	88
Powder Factor	*kg/t*	0.3	0.29
Drill Productivity			
Re-drills	*%*	5.0%	5.0%
Pure Penetration Rate	*m/h*	38.0	38.0
Overall Drilling Factor (%)	*%*	0.63	0.63
Overall Penetration Rate	*m/h*	23.9	23.9
Drilling Efficiency	*t/h*	2,139	2,115
Drilling Efficiency	*holes/h*	2.18	2.18

Controlled blasting techniques will be used including buffer blasts and pre-splits. The pre-split consists of closely spaced holes along the design excavation limit. The holes are loaded with a light charge and detonated simultaneously or in groups separated by short delays. Firing the pre-split row creates a crack that forms the excavation limit and helps to prevent wall rock damage by venting explosive gases and reflecting shock waves. A pre-split drill rig (4.5": 8") was selected for this application.

Topographic drilling will be executed by a contractor.

Explosives will be outsourced to a third-party provider who will be responsible for supplying and delivering explosives to the hole. An owner operated blasting team will oversee the loading and blasting activities. The mine engineering department will be responsible for designing blast patterns, relaying hole information to the drilling team, and supervising all blasting activities.

16.2.8.2 Loading

The loading fleet is separated into a mineralized material fleet and a waste fleet. The primary loading fleet consists of two (22 m^3) diesel hydraulic shovels, one (12 m^3) diesel hydraulic shovel, and one (10.7 m^3) diesel front end loader. The 22 m^3 shovel will be used in waste, the 12 m^3 shovel will be used in mineralized material while the loader will be used for the tailings, the mineralized material stockpile rehandling, and to supplement the mineralized material loading when needed. Table 16.9 presents the loading fleet productivity assumption. The number of units is in whole numbers for productivity assumption numbers.

The overburden removal will be contracted and is not accounted for in the loading fleet. Overburden removal will last for approximately 10 years.

Table 16.9: Loading Fleet Productivity Assumptions

		Mineralized Material	Mineralized Tailings	Waste
Loading Unit		**12 m³ Shovel**	**11.4 m³ Loader**	**22 m³ Shovel**
Haulage Unit		**65T**	**65T**	**200T**
Rated Truck Payload	*t*	65	65	181
Heaped Tray Volume	*m^3*	32	32	111
Bucket Capacity	*m^3*	9.1	11.4	22
Bucket Fill Factor	*%*	90	90	90
Passes (whole)	*#*	4	3	4.5
Production / Productivity				
Productivity Dry Tonnes	*t/h*	1,061	1,324	2,568
Dry Annual Production Capacity	*kt/y/unit*	5,877	7,335	13,388
Number of Units	*#*	1	1	2
Productivity	*t/y*	5,877	7,335	26,777

16.2.8.3 Hauling

Haulage will be performed by 200 t class off-highway mining trucks for waste and 65 t high-capacity road trucks for the mineralized material. The mineralized material will be hauled to the crusher located outside of the pits, while the waste will be hauled to one of the waste storage facilities.

The truck requirements have been calculated in Deswik.LHS (Landform and Haulage) software. This software links the mining schedule to the waste movements and determines optimal haulage routes and simulates them using Rimpull data from the fleet. The following assumptions were used when running the simulations.

- Max site speed limit of 50 km/h
- Max speed loaded and downhill of 30 km/h
- Average rolling resistance of 3%

- A fixed time of loading and spotting time is variable depending on the loader, truck, and material. This value ranges from 4 – 7 minutes.

There is one overburden storage facility and three waste storage facilities planned. The material sent to the overburden pile will be hauled by contractors and was not accounted for in the time-cycle study, while the waste will be hauled using 200 t class mining trucks. Mineralized material is hauled to the crusher using 65 t high-capacity road trucks. Figure 16.21 depicts the average cycle time for mineralized material and waste divided by phase. Note that cycle time increases as pits get deeper due to increased uphill haulage required. Plateaus or dips in the cycle time represent transitions to new pushbacks starting from the surface or the start of a new pit, temporarily reducing cycle time. Cycle times shown include fixed times.

Figure 16.22 depicts the mass balance of the project. Mineralized material is any material going to the plant or the stockpiles. A total of 2 Mm^3 of waste rock is planned for construction use in pre-production and Year 1. This includes the tailing dam, site laydowns, pads, and road construction.

Figure 16.23 depicts the total fleet requirements by truck. A total of seven 200 t trucks and ten 65 t trucks are required to maintain production at peak mining rate. The hauling fleet will be able to last for the life of the mine.

Figure 16.21: Rock Cycle Times by Phase

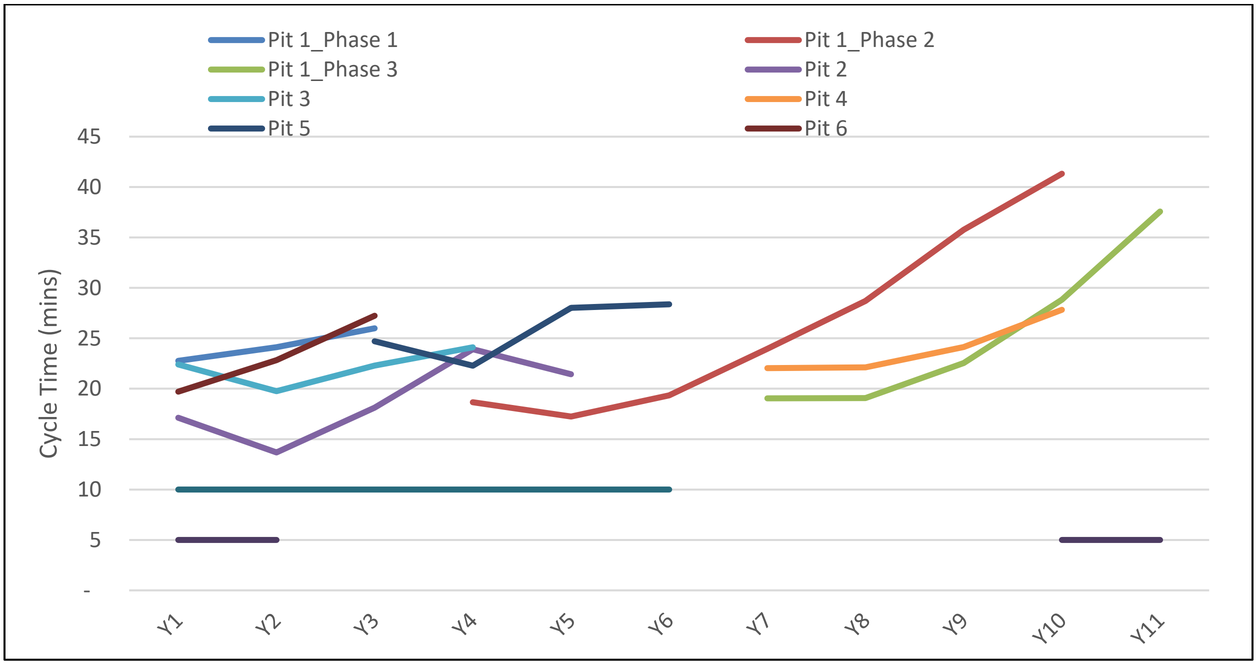


Figure 16.22: Material Movement

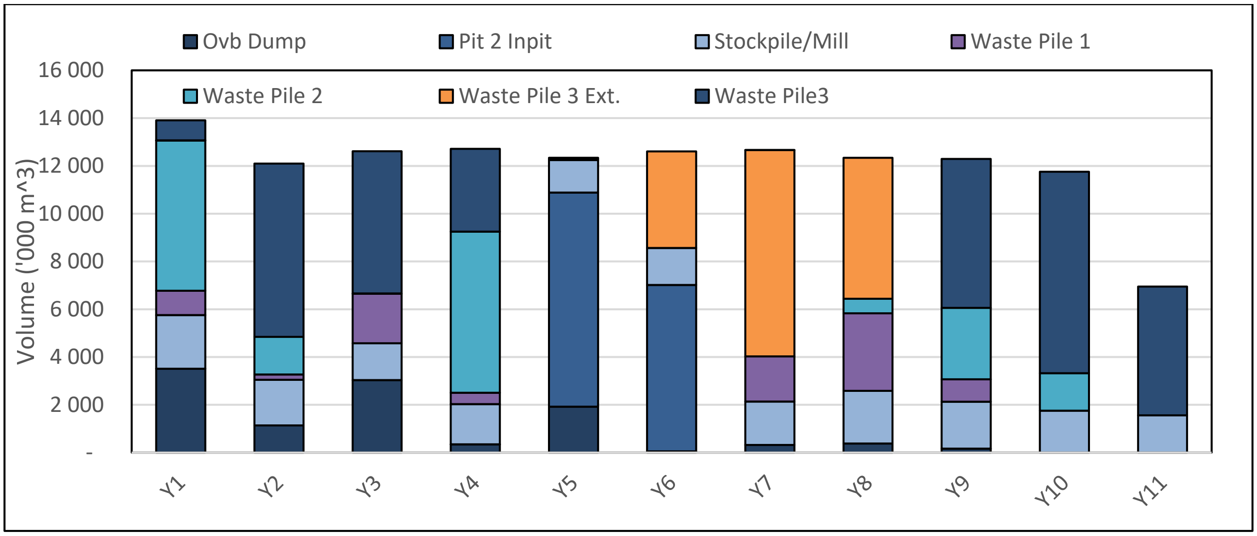
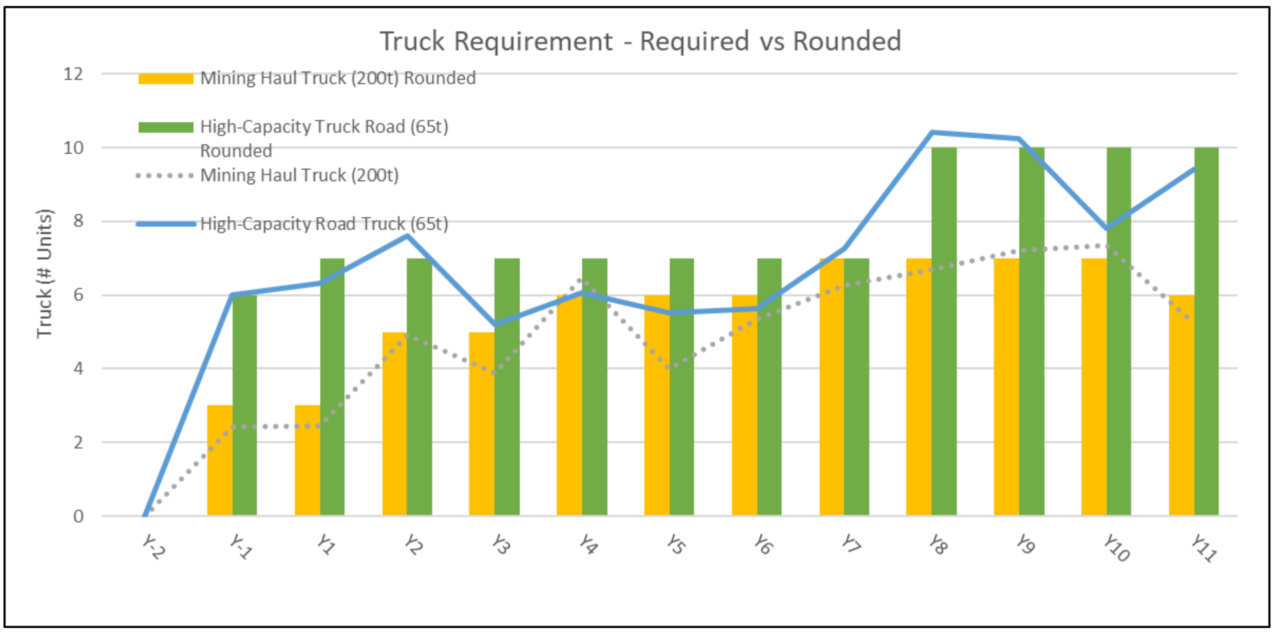


Figure 16.23: Truck Requirements



16.2.8.4 Support Operations

Support equipment requirements are based on typical open pit mine operation and maintenance requirements to safely support the loading, hauling, and drilling fleets.

Support equipment is planned for maintaining dump areas, stockpiles, pit floors, and mine roads. The fleet of support equipment consist of the following:

- 2 x 600 Hp dozers for dump maintenance
- 2 x 16 ft blade motor graders for road upkeep
- 1 x water/sand trucks for dust suppression and winter road sanding
- 1 x 496 Hp Wheel Dozers.

16.2.8.5 Mine Dewatering

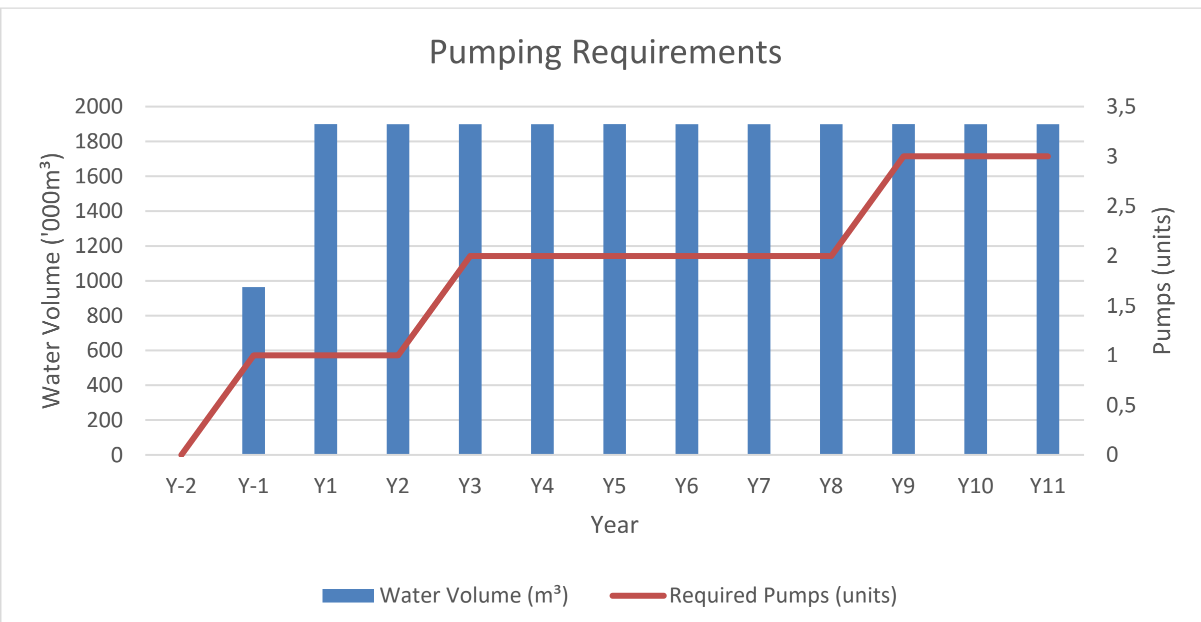
16.2.8.5.1 Initial Dewatering

Minimal initial dewatering for the open pit mining is expected and will be performed with 6” diesel pumps.

16.2.8.5.2 Dewatering During Operations

Dewatering during the operations will reach a maximum of 1.9 Mm³ of water and a total of three pumps in series. Figure 16.24 depicts the volumes to pump and the number of pumps required throughout the years.

Figure 16.24: Dewatering Volumes and Quantity of Pumps



16.2.8.5.3 Pumping System

Dewatering of the main pit will be performed using 10” High lift Diesel pumps. These pumps allow for the capacity and the lift requirements while keeping the number of pumps to a minimum.

16.2.8.6 Mining Fleet Requirements

Table 16.10 summarizes the gross operating hours used for subsequent equipment fleet requirement calculations. The mine is expected to operate 22 hours per day, 355 days per year. This accounts for shift changes and weather delays. Additional delays and applied factors are described in productivity calculations for each fleet. Ancillary and support equipment assumptions are specific based on the equipment and are not summarized in Table 16.10.

Table 16.11 and Table 16.12 present the equipment purchase schedule for the life of the mine.

Table 16.10: Equipment Usage Assumption

		Shovels	Loaders	Trucks	Drills	Pumps
Days in Period	days	365	365	365	365	365
Weather, Schedule Outages	days	10.0	10.0	10.0	10.0	10.0
Shifts per Day	shift/day	2.0	2.0	2.0	2.0	2.0
Hours per Shift	h/shift	12.0	12.0	12.0	12.0	12.0
Availability	%	85.0	85.0	85.0	85.0	90.0
Use of Availability	%	90.0	90.0	90.0	85.0	95.0
Utilization	%	76.5	76.5	76.5	72.25	85.5
Effectiveness	%	80.0	85.0	87.0	85.0	90.0
OEE	%	61.2	65.0	66.6	61.4	77.0
Total Hours	hours	8,760	8,760	8,760	8,760	8,760
Scheduled Hours	hours	8,520	8,520	8,520	8,520	8,520
Down Hours	hours	1,278	1,278	1,278	1,278	852
Delay Hours	hours	1,304	978	847	923	728
Standby Hours	hours	724	724	724	1,086	383
Operating Hours	hours	6,518	6,518	6,518	6,156	7,285
Ready Hours	hours	5,214	5,540	5,670	5,232	6,556

Table 16.11: Major Equipment Purchase Schedule

Major Equipment	Total	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Production Drill (6-10")	3	-	2	1	-	-	-	-	-	-	-	-	-	-
Auxiliary Pre-split Drill (4.5-8")	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Diesel Hydraulic Shovel (22 m^3)	2	-	1	1	-	-	-	-	-	-	-	-	-	-
Diesel Hydraulic Excavator (12 m^3)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Wheel Loader (10.7 m^3)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Mining Haul Truck (200 t)	10	-	3	2	-	1	-	-	1	-	-	-	-	-
High-capacity Road Truck (65 t)	13	-	7	-	-	-	-	-	6	4	-	-	-	-
Track Dozer (600 HP)	2	-	2	-	-	-	-	-	-	-	-	-	-	-
Motor Grader (16 ft)	4	2	-	-	-	-	-	2	-	-	-	-	-	-
Water/Sand Truck (76 kL tank)	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Wheel Dozer (496 HP)	1	1	-	-	-	-	-	-	-	-	-	-	-	-

Table 16.12: Support Equipment Purchase Schedule

Support Equipment	Total	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Stemming Loader	2	-	1	-	-	-	1	-	-	-	1	-	-	-
Excavator (49 t)	2	-	2	-	-	-	-	-	2	-	-	-	-	-
Excavator (90 t)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Hydraulic Hammers for Excavator 49 t	2	-	1	-	-	-	-	1	-	-	-	-	-	-
Boom Truck 28 t	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Mechanic Service Truck	2	-	2	-	-	-	-	-	-	2	-	-	-	-
Mechanic Service Truck Attachment	2	-	2	-	-	-	-	-	-	2	-	-	-	-
Tire Handler Loader	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Fuel & Lube Truck 10 Wheel	2	-	1	-	-	-	-	1	-	-	-	-	-	-
Tow Haul Truck 150 t	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Trailer Lowboy 150 t	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Pick Up	34	6	11	-	-	-	-	17	-	-	-	-	-	-
Pit Bus	1	-	1	-	-	-	-	-	-	1	-	-	-	-
Mobile Air Compressor 185 CFM	2	-	1	-	-	-	-	1	-	-	-	-	-	-
Welding Machine Electric	2	-	2	-	-	-	-	-	-	2	-	-	-	-
Welding Machine Diesel 400 A	2	-	2	-	-	-	-	-	-	2	-	-	-	-
Light Plant	20	-	10	-	-	-	-	10	-	-	-	-	-	-
Genset 6kW	3	-	3	-	-	-	-	-	-	3	-	-	-	-
Genset 60kW	4	-	2	-	-	-	-	2	-	-	-	-	-	-
Water Pump 3": Gasoline	12	-	4	-	4	-	-	4	-	-	4	-	-	-
Diesel Powered Air Heaters	8	-	4	-	-	-	-	4	-	-	-	-	-	-
Snow Blower	2	-	2	-	-	-	-	-	-	-	-	-	-	-
Water Pump 10 in: Diesel	16	1	-	-	1	-	1	-	1	-	2	-	-	-
10" Pipe: 230psi	2,500	-	1,000	-	-	500	-	500	-	-	500	-	-	-
Total (exclude pipes)	**132**	**7**	**56**	**-**	**5**	**-**	**2**	**40**	**3**	**12**	**7**	**-**	**-**	**-**

16.2.8.7 Open Pit Mine Manpower Requirements

Mine personnel was divided into hourly and staff positions and was divided between mine operations, mine maintenance, mine engineering, and geology. Hourly positions were mostly associated with a shift roster of 7-days-on and 7-days-off, and as such, each unit of equipment requires four operators hired in hourly positions.

Staff positions in management, supervision or technical services roles that require a 7 days per week presence will also be on roster schedule. Most of the staff positions are considered local on a 5/2 schedule.

Table 16.13 shows the estimated mine workforce requirements over the LOM. The mine workforce peaks at 271 individuals in Year 8. Note that some positions are shared with the underground mine workforce.

Table 16.13: Workforce Forecast

Position /Schedule		Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Mine Operations														
Mine Manager	Staff	1	1	1	1	1	1	1	1	1	1	1	1	1
Mine Superintendent	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Mine Ops. General Foreman	Staff	0	2	2	2	2	2	2	2	2	2	2	2	2
Supervisor	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Mine D&B Supervisor	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Dispatcher	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Training Supervisor	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Clerk	Hourly	0	1	1	1	1	1	1	1	1	1	1	1	1
Driller	Hourly	0	8	8	12	12	12	12	12	12	12	12	12	8
Auxiliary Drill Operator: Auxiliary Pre-split Drill (4.5-8")	Hourly	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaster	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Blaster Helper	Hourly	0	8	8	8	8	8	8	8	8	8	8	8	8
Utility Equip. Operator: Small Stemming Loader (95 HP)	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Shovel/Excavator Operator LU 1	Hourly	0	4	4	8	8	8	8	8	8	8	8	8	4
Shovel/Excavator Operator LU 2	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Loader Operator LU 4	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Haul Truck Operator 1	Hourly	0	12	12	20	20	24	24	24	28	28	28	28	24

Position /Schedule		Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Haul Truck Operator 2	Hourly	0	24	28	28	28	28	28	28	28	40	40	40	40
Dozer Operator: Track Dozer 1	Hourly	0	8	8	8	8	8	8	8	8	8	8	8	8
Grader Operator	Hourly	0	8	8	8	8	8	8	8	8	8	8	8	8
Water Truck Operator: Water/Sand Truck	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Dozer Operator: Wheel Dozer	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Shovel/Excavator Operator	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Shovel/Excavator Operator	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Ancillary Equipment Operator	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Ancillary Equipment Operator	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Laborer	Hourly	0	4	4	4	4	4	4	4	4	4	4	0	0
Subtotal Mine Operation	**169**	**1**	**129**	**133**	**149**	**149**	**153**	**153**	**153**	**157**	**169**	**169**	**165**	**153**
Mine Maintenance		**Y-2**	**Y-1**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**
Superintendent	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
General Foreman	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Supervisor	Staff	0	4	4	4	4	4	4	4	4	4	4	4	4
Senior Planner	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Planner	Staff	0	2	2	2	2	2	2	2	2	2	2	2	2
Mechanical Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Trainer	Staff	0	2	2	2	2	2	2	2	2	2	2	2	2

Position /Schedule		Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Mobile Mechanic	Hourly	0	16	20	24	20	24	24	24	24	28	28	28	24
Electrician	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Welder/Machinist	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Fuel & Lube Technician	Hourly	0	2	4	4	4	4	4	4	4	4	4	4	4
Tireman	Hourly	0	3	6	6	6	6	6	6	6	6	6	6	6
Toolcrib Attendant	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Helper	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Subtotal Mine Maintenance	**64**	**0**	**47**	**56**	**60**	**56**	**60**	**60**	**60**	**60**	**64**	**64**	**64**	**60**
Mine Geology														
Chief Geologist	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Senior Geologist	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Resource Geologist	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Exploration Geologist	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Production Geologist	Staff	0	2	2	2	2	2	2	2	2	2	2	2	2
Junior Geologist	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Geology Technician	Hourly	0	1	1	1	1	1	1	1	1	1	1	1	1
Grade Control Laborers / Samplers	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Clerk	Hourly	0	1	1	1	1	1	1	1	1	1	1	1	1

Position /Schedule		Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Subtotal Mine Geology	**13**	**0**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
Mine Engineering		**Y-2**	**Y-1**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**
Chief Mine Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Long-term Planning Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Short-term Planning Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Drill & Blast Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Senior Geotechnical Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Geotechnical Engineer	Staff	0	2	2	2	2	2	2	2	2	2	2	2	2
Junior Mine Engineer	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Dispatch System Coordinator	Staff	0	1	1	1	1	1	1	1	1	1	1	1	1
Mining Technician	Hourly	0	2	2	2	2	2	2	2	2	2	2	2	2
Senior Surveyor	Hourly	0	1	1	1	1	1	1	1	1	1	1	1	1
Surveyor	Hourly	0	4	4	4	4	4	4	4	4	4	4	4	4
Clerk	Hourly	0	1	1	1	1	1	1	1	1	1	1	1	1
Subtotal Mine Engineering	**17**	**0**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**
Total Staff	**32**	**1**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**
Total Hourly	**239**	**0**	**182**	**195**	**215**	**211**	**219**	**219**	**219**	**223**	**239**	**239**	**235**	**219**
Total Manpower	**271**	**1**	**214**	**227**	**247**	**243**	**251**	**251**	**251**	**255**	**271**	**271**	**267**	**251**

16.2.8.8 Mine Management & Technical Services

The operations team is responsible for achieving production targets in a safe manner. The engineering and geology team will provide support to the operations team by supplying short-term and long-term planning, grade control, surveying, mining resources estimation, and all other technical functions.

16.2.9 Crushing Plant

The production of crushed material will be necessary for blasthole stemming purposes, for road maintenance or spreading of road abrasive on the ramps during winter. It is assumed that the required aggregate material production will occur during summertime, with the mobilization of a contracted mobile crusher to site. Waste rock to feed the small crushing plant will come from the waste storage facility, and the material produced will be stockpiled for use throughout the year. Costs of such contract services have been accounted for in the cost/tonne of aggregate used in the model.

16.2.10 Pit Slope Monitoring

Pit slope monitoring systems are used to gather any information on micro and macro movements of the pit walls. It usually consists of strategically placed prisms that are surveyed under a controlled environment (windless, rainless, and stationary). No monitoring system has been developed during this phase of the PEA study and should be an element of focus in the basic engineering stage.

16.2.11 Mine Maintenance

The Project has not included a maintenance and repair contract (MARC) for its mobile equipment fleet. The maintenance department and personnel requirement has been structured to fully manage this function, performing maintenance planning and training of employees. However, reliance on dealer and manufacturer support will be key for the initial years of the project, and major component rebuilds will be supported by the original equipment manufacturer’s (OEM) dealer throughout LOM. An evaluation of a MARC will be considered with the feasibility study process. Tire monitoring, rotation and / or replacement will be carried out by a specialized contractor.

Some other equipment will also be purchased to facilitate the maintenance activities and support the operation, such as fuel and lube trucks, forklift, telehandler, low-boy trailer, and tractor for moving the tracked equipment. Other small equipment such as mechanic service truck, generators, compressors, light towers, welding machines, water pumps, and air heaters are also included.

16.3 Underground Mining

16.3.1 Underground Mining Method

Mechanized long hole mining methods, namely sublevel transverse stoping and sublevel longitudinal stoping, will be utilized to extract the mineralized material. Top hammer production drills will be used to drill the stopes, and a combination of ANFO and emulsion explosives will be used for blasting. Some 17 t Diesel-powered load haul dump (LHD) vehicles will remove the blasted material from the stopes. All material will be transported to the surface using 51 t diesel mining trucks.

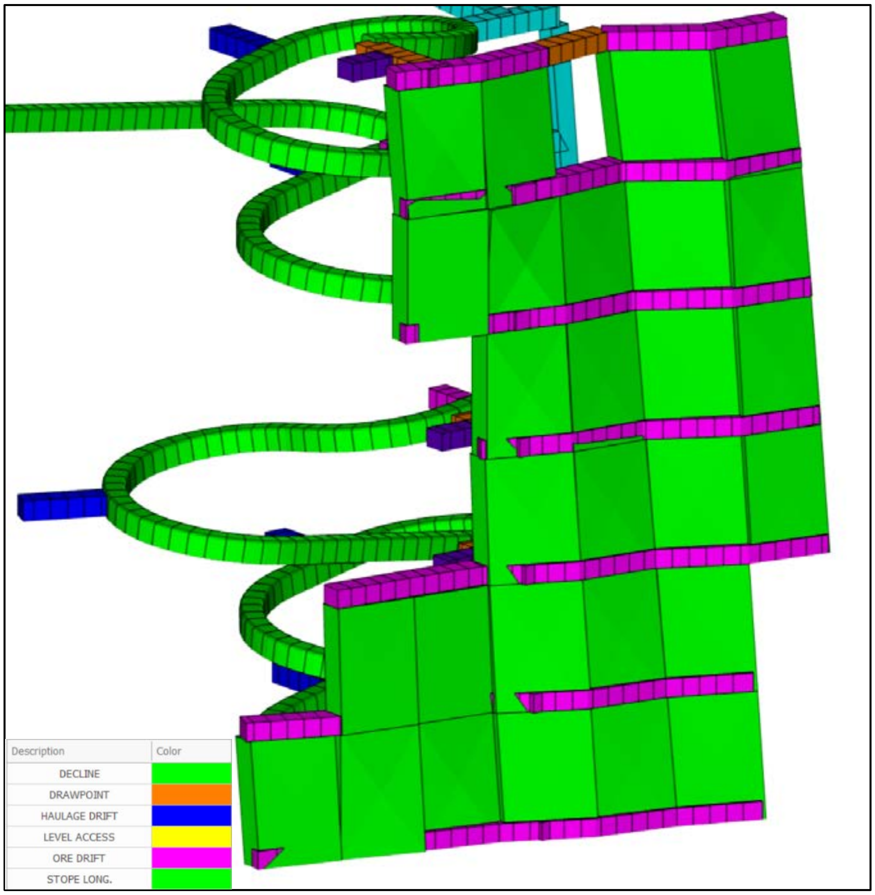
The longitudinal sublevel stopes will be backfilled with both cemented rock fill (CRF) and uncemented rock fill (RF). In the case of the transverse sublevel stopes, cemented rock fill will be used for the primary stopes, while the secondary stopes will generally be filled with uncemented rock fill. The rock fill will primarily be sourced from development waste, while any additional waste required will be obtained from surface. Mechanized pneumatic mining equipment will be used for the lateral development necessary to access the ore deposit.

To achieve the production target, the mine plan will involve ore development and production from multiple mining blocks, with multiple stopes available per block across the four zones.

Long-hole mining is a commonly used underground mining technique for extracting ore from underground deposits. This method requires an overcut drift and an undercut drift. The overcut drift facilitates the stope drilling, while the undercut allows for ore extraction. Once the drill and extraction drifts are developed, a slot raise is created to provide a preferential void for production blasting. This method involves drilling long vertical or inclined holes, called production drill holes, at regular intervals along the length of the mining zone. After the production drill holes are completed, they are loaded with explosives. During the blasting phase, the explosives fracture the rock surrounding the slot raise and the drill holes. Once the rock is blasted, the fragmented material is removed from the stope through the undercut drift with a load haul dump (LHD). The long-hole mining method is a non-entry mining method so once the blasting phase begins, the stopes are no longer accessible to personnel. For this reason, a remote-controlled load haul dump (LHD) is required to remove the blasted material from the stope. This non-entry mining method offers several advantages including, but not limited to; high productivity, reduced operating costs, efficient ore extraction and improved workers safety.

The longitudinal sublevel stoping variant of the long-hole mining method is being considered when the stope is narrower than 8 m or 10 m depending on the zone. The longitudinal mining area will be accessed by driving an ore drift inside the stoping area along the strike of the ore body. Once the sills are developed to the extremity of the mining area, the production cycle can begin. Subsequent stopes will be mined in the exact same cycle while retreating towards the main access. Stopes will be sequenced in an overhand approach. Figure 16.25 illustrates the typical configuration of longitudinal sublevel stopes.

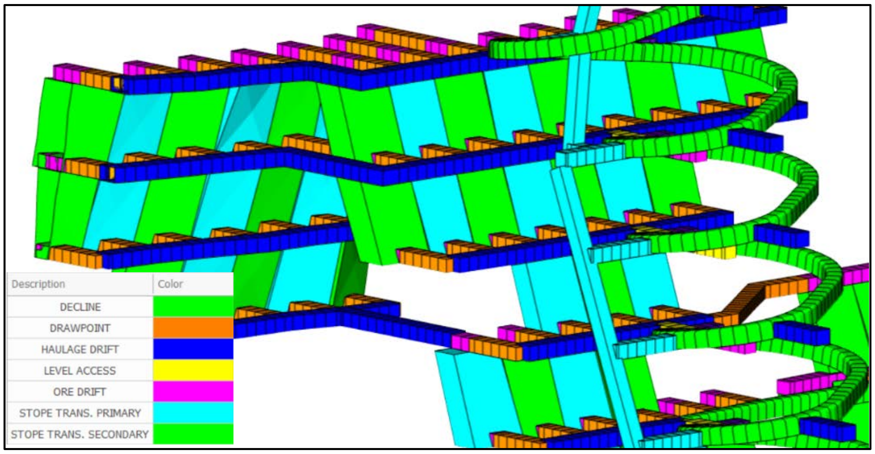
Figure 16.25: Longitudinal Sublevel Stope Arrangement



Source: GMS 08-08-2023 (not to scale)

The transverse sublevel stoping variant of the long-hole mining method is being considered when the stope is wider than 8 m or 10 m depending on the zone. The transverse mining area will be accessed by driving a haulage drift parallel to the strike of the orebody. This haulage drift shall maintain a safety pillar of approximately 20 m from the stoping area to preserve its integrity during the production phase. Perpendicular to the haulage drift, a series of parallel draw points, evenly spaced at 20 m from each other will be used to access the sill drifts below and above the stoping area along the width of the orebody. Once the haulage drift, the draw point and the sill drifts are developed above and under the mining area, the production cycle can begin. Subsequent primary stopes will be mined in the exact same cycle while retreating towards the extremities of the orebody. Stopes will be sequenced in an overhand approach so that when two lifts of primary stopes are mined, the secondary stope between these two can be mined. This method is advantageous in terms of production rates as multiple mining faces can be in operation simultaneously on the same level. One disadvantage of the method is that a haulage drift must be excavated along the entire length of the mineralized zone. However, production can begin even if the haulage drift is not fully excavated to the extremities of the orebody. Figure 16.26 illustrates the typical configuration of transversal sublevel stopes.

Figure 16.26: Transversal Sublevel Stope Arrangement



Source: GMS 08-08-2023 (not to scale).

16.3.2 Geotechnical Considerations

16.3.2.1 Geotechnical Study

In the present study, it is important to note that very few geotechnical studies have been carried out to date. GMS recommends that First Mining contracts a rock mechanics consulting firm to study ground and water conditions at the site and develop a plan for future engineering studies.

16.3.2.2 Hydrogeology

No hydrogeological studies have been completed at this study stage to assess groundwater conditions. GMS recommends that a hydrogeological consulting firm be contracted by First Mining to study water conditions at site and generate a plan for future engineering studies.

16.3.2.3 Ground Support

The proposed standard ground support for the development consists of 2.1 m long rebars on a 1.2 m x 1.2 m dice pattern with 4” x 4” 6-gauge mesh screen for the back of the excavations. For the excavation walls, the proposed standard ground support for the development consists of 1.5 m long friction bolts on a 1.2 m x 1.2 m dice pattern with 4” x 4” 6-gauge mesh screen. Friction bolts of 1.2 m or less are also installed as needed to prevent bagging in the mesh screen. In the intersections, some

2.4 m long swellex bolts would be installed in a 2.4 m x 2.4 m pattern to increase the ground support capacity.

16.3.3 Cut-off Grade Calculation

The cut-off grade (COG) is the minimum concentration of minerals or metals in the ore for its extraction and processing to be profitable. It represents the grade at which the costs of extraction, processing, and marketing would equal the selling price of the extracted metal. To evaluate the Potentially Extractable Portion of the Mineral Resource Estimate, a cut-off grade was calculated for the selected mining method. Table 16.14 illustrates the parameters used to estimate the mine's cut-off grade and the OPEX cost estimations for underground mining.

Table 16.14: Cut-off Grade Calculation Parameters

Parameters	Units	Value
Gold Price	USD	1,650
Exchange Rate	CAD/USD	1.30
Diamond Drilling	CAD	3.65
Stope Preparation	CAD	13.73
Drilling and Blasting	CAD	7.43
Mucking and Hauling	CAD	7.87
Backfilling	CAD	4.74
Supervision + Mine Services	CAD	9.17
Technical Services	CAD	3.04
Service – Mechanical + Electrical	CAD	6.19
Services-Surface	CAD	3.73
Royalties	CAD	0.00
Pre-Production Transfer to CAPEX	CAD	0.00
Total Mine	CAD	59.55
Processing	CAD	21.01
G&A	CAD	4.30
Total OPEX	CAD	84.86
Mining Recovery	%	95.0
Mill Recovery	%	86.0
Au Payable	%	99.0
Refinery Cost	$/oz	5.0
Estimate COG	g/t	1.5

16.3.4 Mineralized Material Included in Life of Mine

16.3.4.1 Resource Block Model

The resource block model was provided by InnovExplo and was imported to the Deswik CAD™ software as a singular block model. The model provided was a 5 m x 5 m x 5 m parent block model and sub-blocked to a minimum of 1.25 m x 1.25 m x 1.25 m block size. The evaluation of the mineralized material mined in the Duparquet PEA includes all categories of resources: Measured, Indicated, and Inferred.

A PEA is preliminary in nature and is intended to provide only an initial, high-level review of the Project potential and design options. The PEA mine plan and economic model include numerous assumptions and the use of Inferred resources. Inferred resources are too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and to be used in an economic analysis except as allowed for in PEA studies. There is no guarantee that Inferred resources can be converted to Indicated or Measured resources, and as such, there is no guarantee the Project economics described herein will be achieved.

16.3.4.2 Dilution & Mining Recovery

Dilution parameters were assigned to each stope to estimate the additional dilution experienced during mining operations. A 0.5 m equivalent linear overbreak slough (ELOS) was applied to the stope hanging wall and footwall. A minimum width of 5.0 m was applied to the resource, along with a mining recovery factor of 95%.

16.3.4.3 Stope Optimization

A series of stope optimization on the Stope Optimizer tool of Deswik software has been performed. The general operational and geometrical assumptions are summarized as follow:

- Level height is 30 m
- Strike length of stopes is 20 m
- Stope pillar at a minimum of 5 m
- Stope width between 5 m up to 100 m
- Side ratio of 2.25 top to bottom and 2.25 front to back
- Minimum dip of 45°

- Cut-off grade 1.5 g/t for stopes
- Equivalent Linear Overbreak Slough (ELOS) dilution of 0.5 m on hanging wall and footwall
- Mining recovery of 95%.

16.3.5 Underground Mine Design

16.3.5.1 Development Design

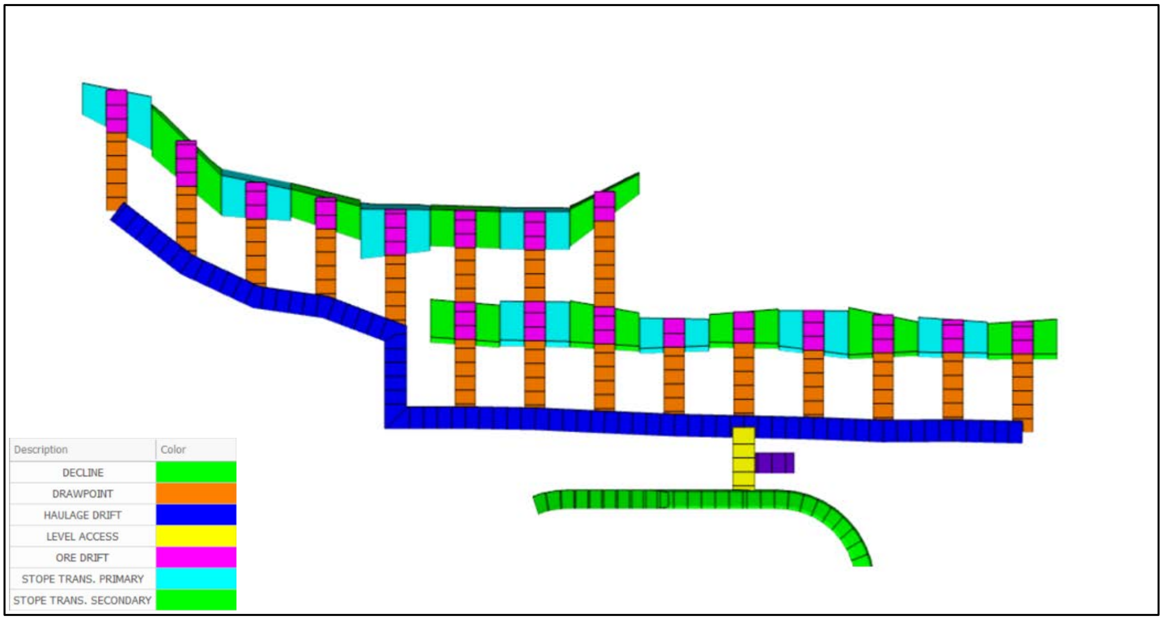
The same design parameters are applied for all the four zones of the mine. The main decline (drifted at 15%), level access and haulage drift are 5.0 m wide by 5.0 m high. This width and height allow for 51 t trucks and support equipment. Table 16.15 is a list of the development type and their respective cross section that are present in the mine, while Table 16.16 summarizes the total development metres of the mine.

Table 16.15: Development Type and Dimensions

Development Type	Width (m)	Height (m)	Length (m)
Main Decline	5.0	5.0	Variable
Level Access	5.0	5.0	Variable
Haulage Drift	5.0	5.0	Variable
Remuck	6.0	5.0	20
Safety Bay	1.5	2.0	1.5
Sump	5.0	5.0	12
Explosive Magazine	10.0	5.0	22
Cap Magazine	6.0	5.0	9
Ventilation Access	5.0	5.0	Variable
Safety Egress Access	5.0	5.0	Variable
Electrical Bay	5.0	5.0	12
Lunchroom 24 Person	5.0	5.0	15
Draw Point	4.5	4.5	20
Ore Drift	4.5	4.5	Variable

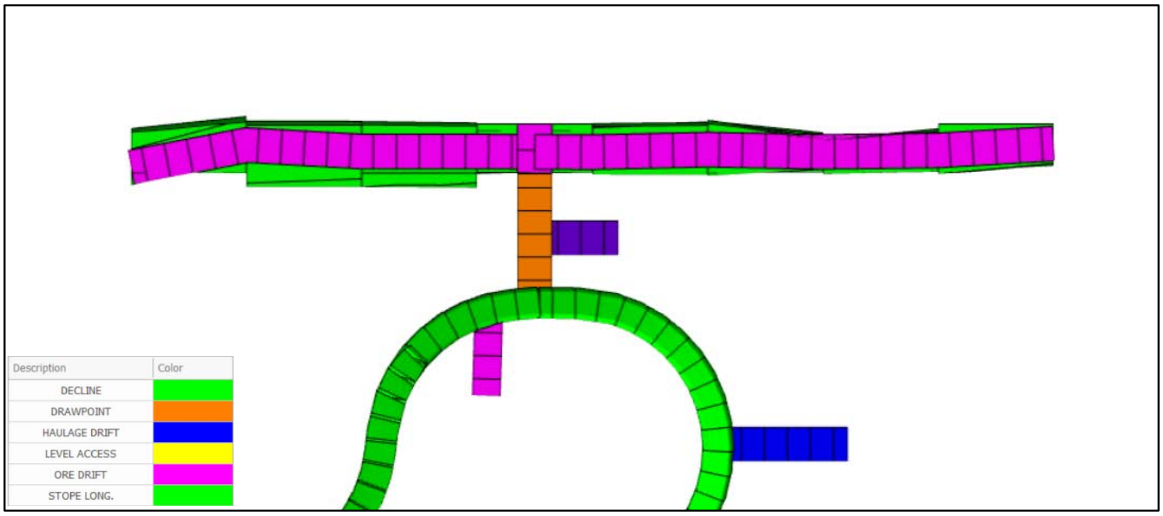
Each level is accessed through a level access and a haulage drift that leads to the crosscuts that are either driven perpendicular to the strike length of the stoping area for transverse mining or driven parallel to the strike length of the stoping area for longitudinal mining. Typically, each level also has the following infrastructures: a sump, an electrical bay, a fresh air access, a return air access, and a safety egress.

Figure 16.27: Typical Transversal Mining Method Level Plan



Source: GMS 08-08-2023 (not to scale)

Figure 16.28: Typical Longitudinal Mining Method Level Plan



Source: GMS 08-08-2023 (not to scale).

Except for the first level of each mine, all stopes have an overcut and an undercut. The overcut is used for cable bolting, stope preparation, production drilling, and backfilling. The undercut is used for mucking the ore from the stopes.

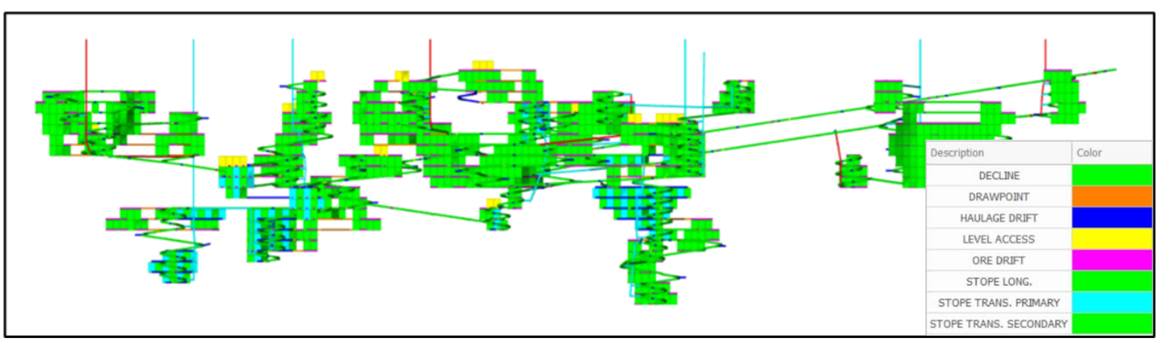
Table 16.16: Duparquet Underground Mine Development Metres

Development Type	Metres (m)
Main Decline	35,596
Level Access	869
Haulage Drift	4,795
Infrastructure	10,981
OPEX Development	37,431
Vertical Excavation	4,028

16.3.5.2 Stope Design

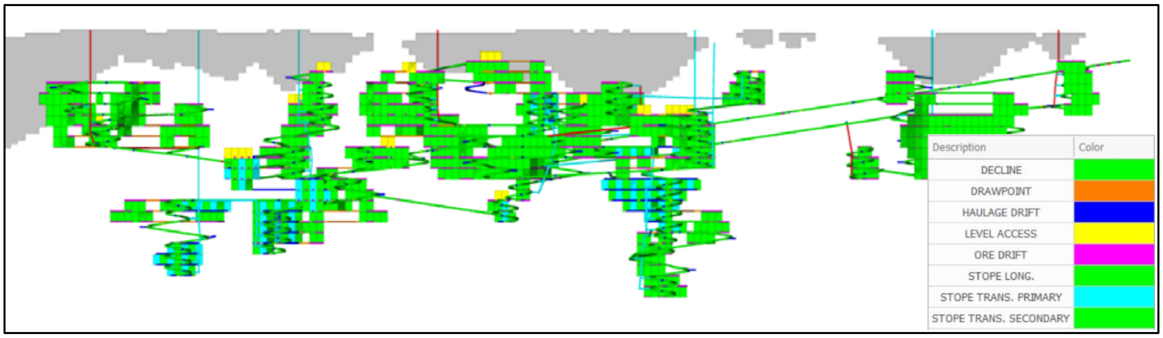
Duparquet has multiple distinctive mining horizons, and the proposed mining method is a mix of transverse and longitudinal stoping. The ore body is divided into multiple lenses, and grouped by zones and has a total of 23 production levels. The orebody is sub-vertical, with stope thicknesses varying from 6 m to 23 m. Figure 16.29 shows the longitudinal view of the mine, Figure 16.30 shows the longitudinal view of the mine with the open pits and Figure 16.31 shows a transversal view of the mine design. Figure 16.32 shows a plan view of the mine, Figure 16.33 shows a plan view of the mine with the open pits and Figure 16.34 the grouping by zone.

Figure 16.29: Duparquet Mine Longitudinal View (looking north)



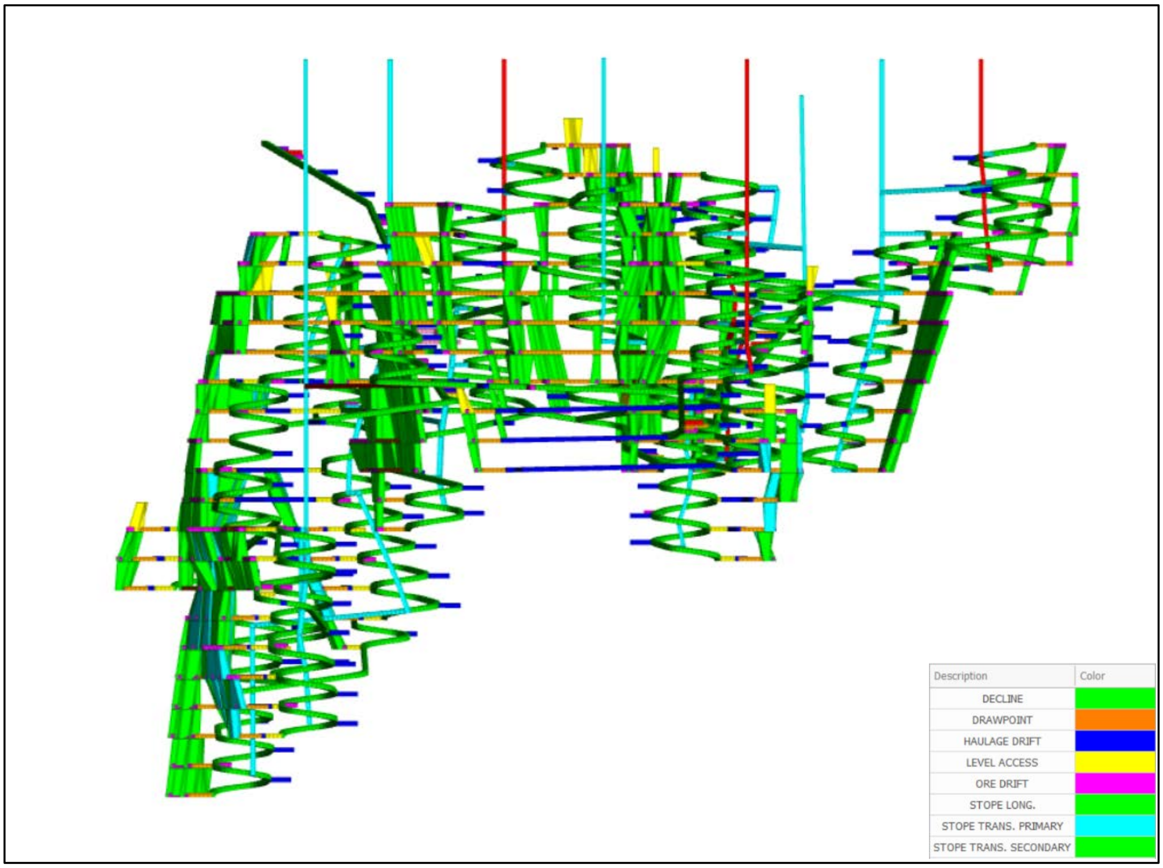
Source: GMS 08-08-2023 (not to scale)

Figure 16.30: Duparquet Mine Longitudinal View: With Open Pits (looking north)



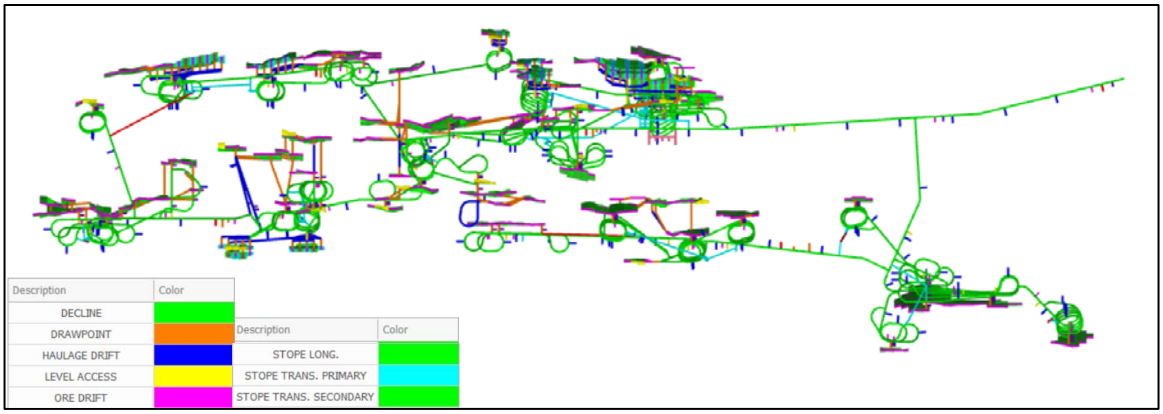
Source: GMS 08-08-2023 (not to scale).

Figure 16.31: Duparquet Mine Transversal View (looking west)



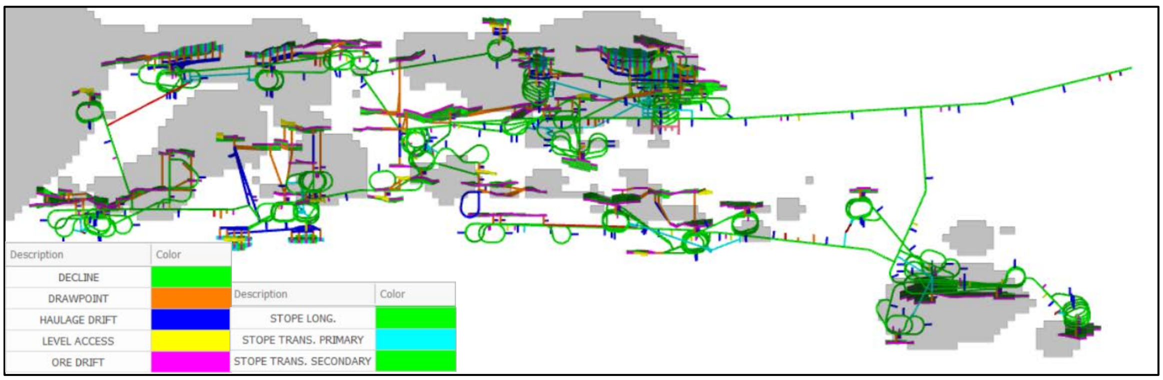
Source: GMS 08-08-2023 (not to scale).

Figure 16.32: Duparquet Mine Plan View



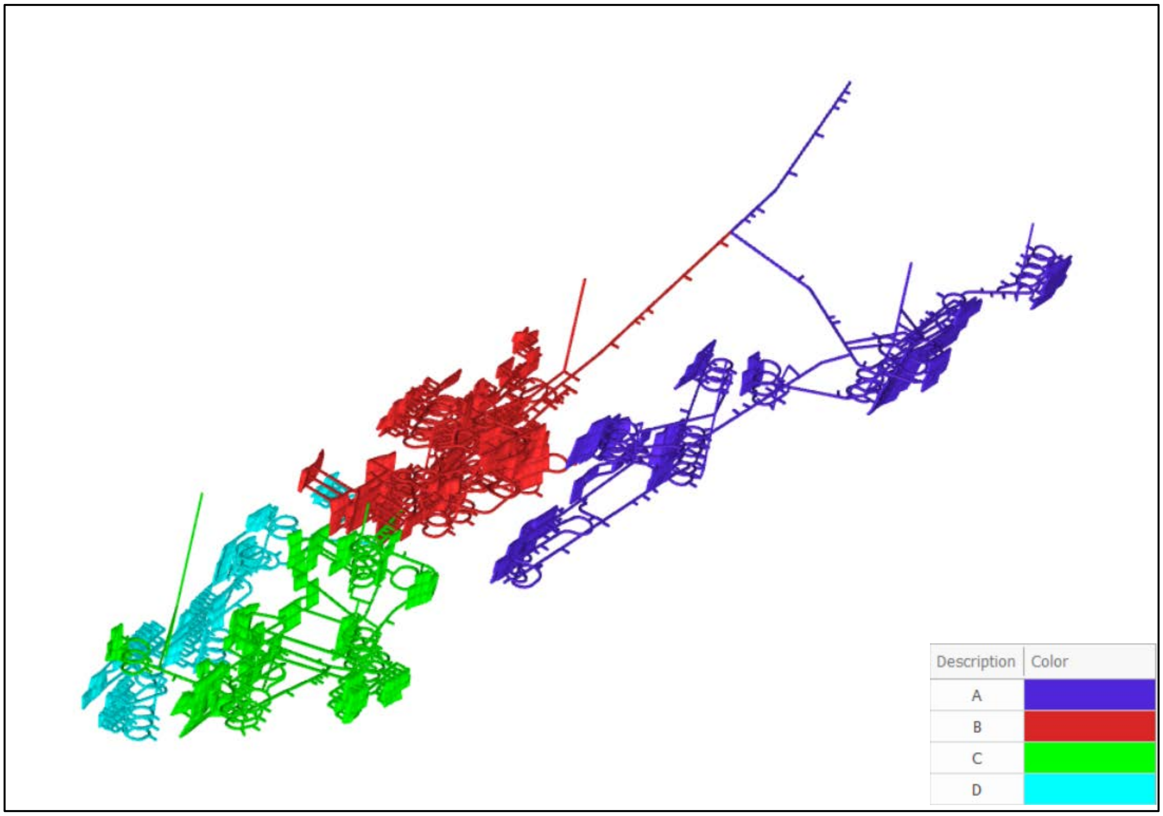
Source: GMS 08-08-2023 (not to scale).

Figure 16.33: Duparquet Mine Plan View: With Open Pits



Source: GMS 08-08-2023 (not to scale).

Figure 16.34: Duparquet Mine Isometric View – By Zone



Source: GMS 08-08-2023 (not to scale)

16.3.5.3 Physicals Summary

The stoping and development physicals are presented in Table 16.17, with both mineralized material and waste development quantities.

Table 16.17: Underground Mine Design Physicals: Summary

Description	Unit	Duparquet
Development Mineralized Material	Tonnes (t)	1,456,819
Development Mineralized Material	Au Grade (g/t)	2.44
Stope Mineralized Material	Tonnes (t)	10,561,322
Stope Mineralized Material	Au Grade (g/t)	2.23
Total Underground Mineralized Material	Tonnes (t)	12,018,141
Total Underground Mineralized Material	Au Grade (g/t)	2.25
Lateral Development Waste	Tonnes (t)	5,618,512

16.3.6 Underground Mine Operations

16.3.6.1 Development

The first step of the mine operations is the development phase. The development cycle starts with the drilling of the heading. The drilling is performed with an electric/hydraulic jumbo with two booms. The drilling pattern includes a reamed cut to allow a drilled length of 4.88 m with an effective break of 95%. The planned drilling diameter is set to 48 mm; however, this dimension can be adjusted according to blasting results. The jumbo penetration rate is evaluated at 1.20 m/min and the average drilling time per round is calculated at 3.9 h/round including the delays. The advance rate per jumbo is set to 10.5 m/d when multiple faces are available. From the 10.5 m/d, 5.5 m/d of development is allocated to the priority heading and then 2.5 m/d for the two following development headings.

Once drilling is completed, the blasting crew will load the holes with explosives. A mix of ANFO and emulsion will be used for development blasting. Emulsion is typically used when there is an excessive presence of water. The perimeter control of the drilling should allow to reduce the dilution to a minimum. The blasting of the loaded rounds will be performed at the end of every shift. A period of one hour is planned after the blasts to allow the gas clearance. Both the main access and the ventilation exhaust raises will be monitored with gas detectors.

The third step of the development cycle is to muck the blasted material from the development face and to haul it with a LHD. The material is removed from the face as quickly as possible to allow the next step of the development cycle to begin. The performance of the LHD is a function of the dip of the slope and depends on the distance between the face heading and Remuck. The LHD performance expects to average 8.2 km/h. To reduce the haulage distance, the unloading point will be planned at less than 200 m from the working face.

The last step of the development cycle is to support the development face. The ground support is installed with a Mclean type bolter and the ground support pattern is described in the corresponding section.

The major vertical development from the surface such as ventilation intake raises, ventilation exhaust raises, and safety egresses will be performed by a contractor specialized in raise boring. It was assumed that a raise boring crew can drive the raise at an advance rate of 2.0 m/d. In terms of in-mine raise excavation, a combination of drop-raise and raise boring is planned.

16.3.6.2 Stoping

The second step of the mine operations is the production or stoping phase. Starting with the stope preparation process, the first step of the stoping phase is the slot raise drilling. It was assumed that a specialised contractor will perform the slot raise drilling (V-30). The next step is the production drilling. After a stope is entirely drilled, the long holes are loaded with explosives, usually with ANFO or emulsion. Depending on the size and geometry of the stopes, it can take up to 3 or 4 blasts in rotation with mucking to extract all the material from the stope.

The broken material from the stopes will be mucked by a production LHD to a Remuck or dumped directly into haul trucks and transported to the surface ore pad. Once all material is extracted from a stope the backfill process, the last step of the stoping cycle, can begin. For transverse mining, primary stopes are backfilled with cemented rockfill and secondary stopes with rockfill to save some costs. For longitudinal mining, all stopes are backfilled with a mix of cemented rockfill and uncemented rockfill. This process can take between one to two weeks, depending on the size of the stope. A cure of seven days is planned for every primary stope to obtain the desired fill strength.

16.3.7 Underground Mine Development and Production Rates

To achieve and maintain the targeted underground mine production of 1.38 Mtpy of ore, multiple ore zones should be mined simultaneously.

The production rate for the Duparquet deposit is calculated using the Deswik mining sequence, considering the different production task rates shown in Table 16.18. The combined production rate of the various zones is set at 3,775 t/d.

Table 16.18: Underground Mine Scheduler Task Rate

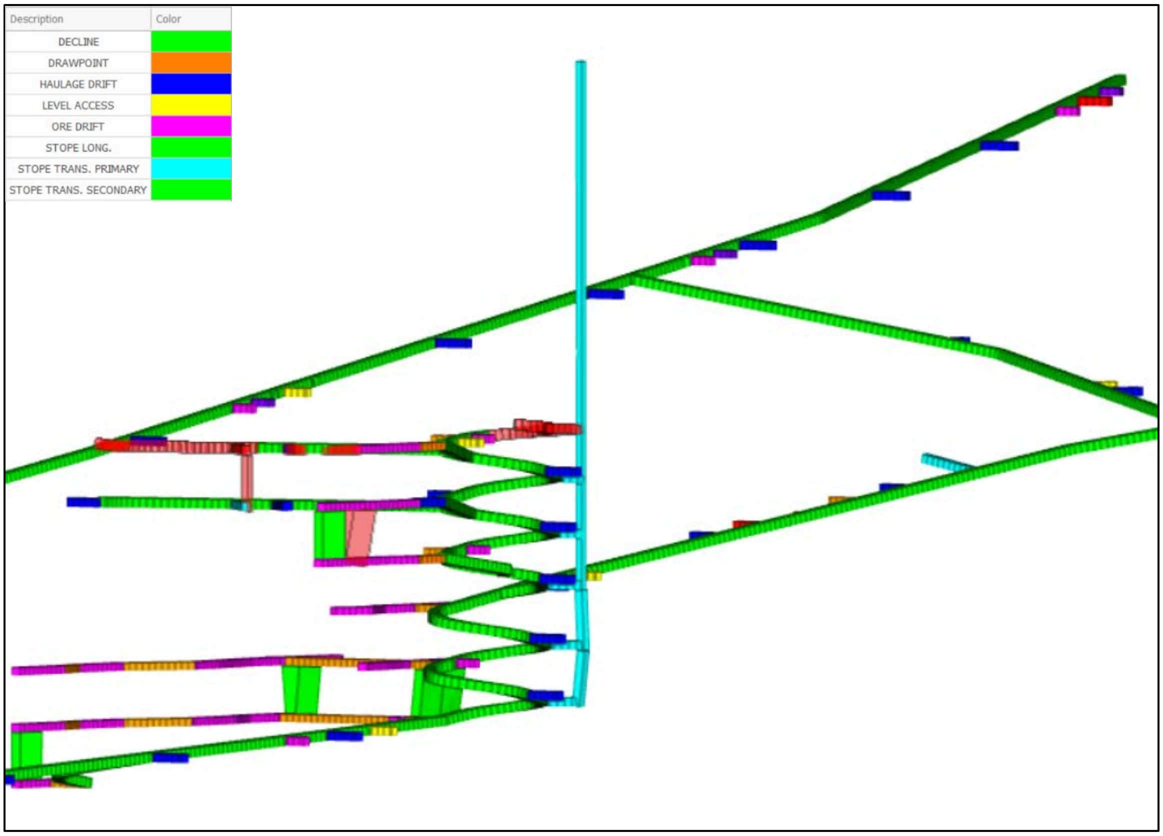
Description	Rate	Units
Single Face Development Rate	5.5	m/d/unit
Multi Face Development Rate	10.5	m/d/unit
Stope Preparation	2	d
Stope Cables	5	d
Slot Raise Drilling Rate	3.0	m/d
Production Drilling Rate	260.0	m/d
Production Drilling factor	10.52	t/m drilled
Blasting Delay	3	d
Mucking Rate	2000	t/d
Rockfill Rate	2000	t/d
Short Cure Time	2	d
Long Cure Time	28	d
Maximum Process	3,700	t/d

16.3.8 Underground Mine Development and Production Sequencing

The development will begin with the development of the main decline towards zones A & B. This approach reduces the initial project CAPEX and ensures that at least two zones are in production throughout the Life of Mine (LOM). While the goal is to access the first stoping areas as quickly as possible, the development of the primary ventilation network is also a priority to allow stoping. The stope production can only begin once the first fresh air raise (FAR) and the emergency egress are completed.

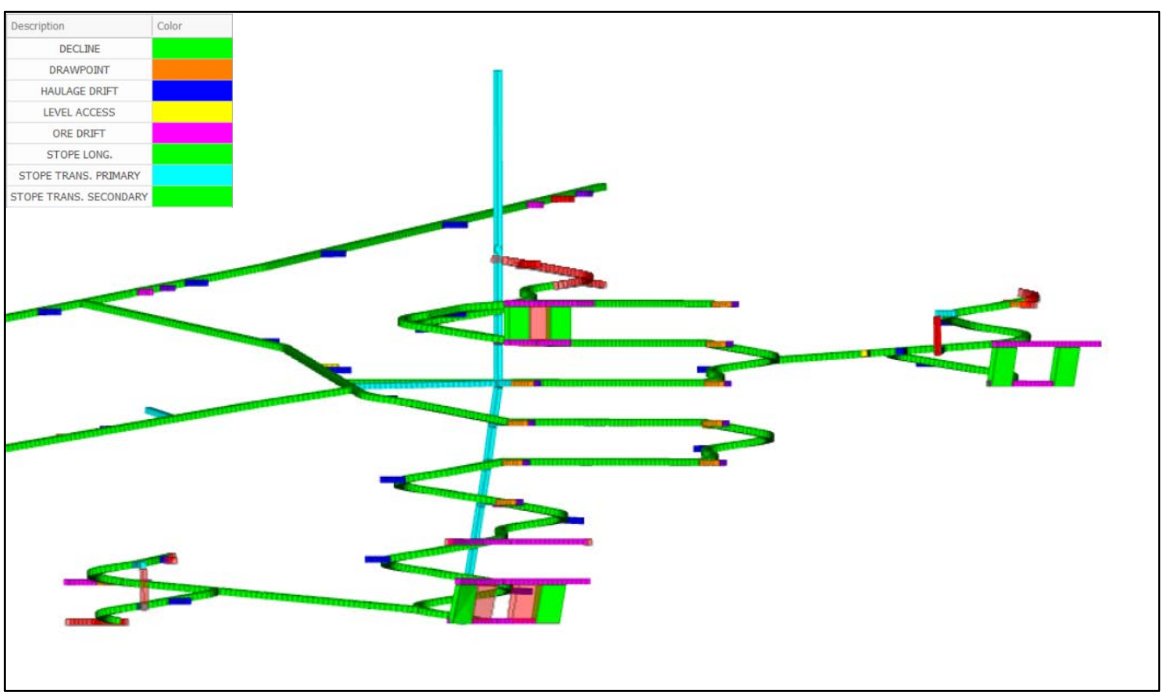
The first zone to produce mineralized material is Zone A, where stoping begins approximately 18 months after the start of the development. Only six months after Zone A starts to produce mineralized material from the stopes, Zone B enters in production. The production duration of zones A and B are respectively nine and eleven years. Being the largest zone of the mine, Zone B will be in production during throughout the entire production period. On the other hand, stoping in Zone C starts approximatively 40 months after the start of the development and Zone D around 15 months after Zone C. The production duration of zones C and D are respectively eight and six years. Figure 16.35 and Figure 16.36 show the pre-production (18 months) period for Zone A of the Duparquet mine.

Figure 16.35: Pre-production Period 18 months Zone A (West) – Isometric View



Source: GMS 08-08-2023 (not to scale).

Figure 16.36: Pre-production Period 18 months Zone A (East) – Isometric View



Source: GMS 08-08-2023 (not to scale).

The production profile of the underground mine is summarized by zone in Figure 16.37 and the production plan for the underground mine in Table 16.19.

Figure 16.37: Underground Mine Mineralized Material Production by Mining Zone

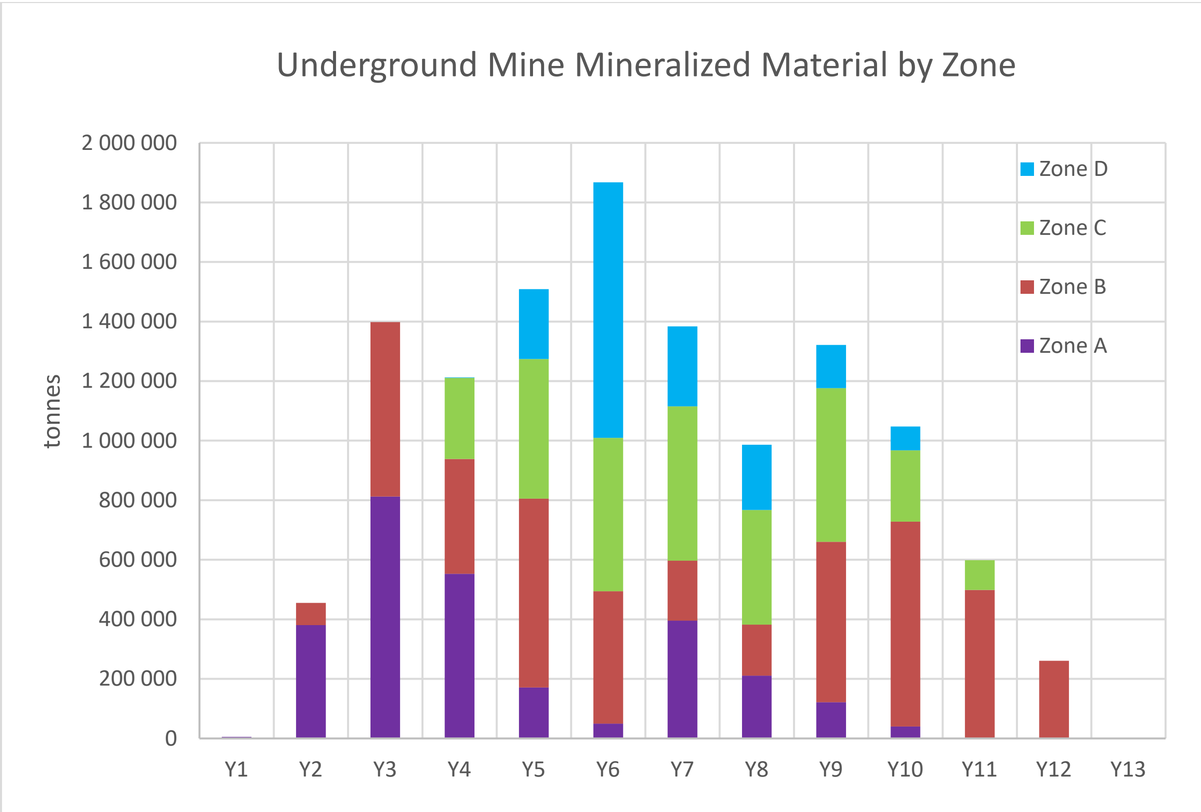


Table 16.19: Underground Mine Production Plan

Duparquet Mine	Units	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
All Zones													
Development	Tonnes (t)	1 456 819	5 029	166 898	225 616	214 783	200 110	154 049	106 838	119 759	175 030	79 825	8 882
	Au_grade (g/t)	2,44	4,79	2,59	2,55	2,54	2,23	2,42	2,25	2,21	2,45	2,45	2,46
Stoping	Tonnes (t)	10 561 322	-	287 649	1 169 434	995 004	1 305 458	1 709 313	1 273 556	864 163	1 143 340	965 362	848 043
	Au_grade (g/t)	2,23	-	2,24	2,19	2,39	2,12	2,22	2,31	2,23	2,14	2,28	2,22
Total	Tonnes (t)	12 018 141	5 029	454 547	1 395 050	1 209 787	1 505 568	1 863 363	1 380 394	983 922	1 318 370	1 045 187	856 925
	Au_grade (g/t)	2,25	4,79	2,37	2,25	2,42	2,13	2,24	2,31	2,23	2,18	2,29	2,22

16.3.9 Underground Mine Equipment

The requirements in terms of underground equipment were determined based on the number of operating hours needed to achieve the projected production and development rates achieved in the mine plan.

During the production years, haulage cycles consider the distances from the loading point in the footwall drifts to the level access, then up the ramp, and to the surface stockpile. Mucking and hauling cycles are determined based on a fixed distance between stopes and trucks, or between loading bays and trucks.

The quantities of non-critical auxiliary equipment were estimated based on the size of the operation or derived from other equipment requirements. Table 16.20 shows the results of the equipment requirements for two different stages of the LOM. These stages are the mine pre-production and the full-production mining.

Table 16.20: Mobile Equipment Fleet Underground Mine

Equipment	Eq Qty Pre-Production	Eq Qty Total
Jumbo 2 Boom	3	3
LHD	4	7
Truck 50 t	6	11
Explosive Truck	1	1
Explosive Truck Operation	0	1
Flat Bed Trucks	1	2
Lube Trucks	0	1
Scissor Lift	2	5
Grader	0	1
Bolter	2	5
Shotcrete Machine	0	2
Shotcrete Mixer	0	2
Tractor: Mechanics	1	2
Tractor: Electricians	1	2
Tractor	1	2
Miller Pick-Up	2	15
Ambulance	1	1
Long Hole Drill	0	2

16.3.10 Underground Mine Labour

The Duparquet site is located approximately 50 km north-west from Rouyn-Noranda. It is anticipated that a portion of the workforce will travel daily from town but that a portion of the workforce will be on a fly-in fly-out rotational schedule. A total UG workforce of 235 is estimated to be employed for the Duparquet underground project. Note that some positions are shared with the open pit mine workforce and thus are not accounted for in this section. Underground mine labour is shown in Table 16.21.

Table 16.21: Workforce Underground Mine

Description	Schedule	Total
Mine Operations		
Mine Superintendent	7/7	1
Mine Captain	7/7	2
Mine Supervisor	7/7	12
Trainer	5/2	2
Long-Hole Driller	7/7	8
Blasters	7/7	2
Bolter Operators	7/7	20
Scoop Operators	7/7	28
Truck Operators	7/7	44
Jumbo Operator	7/7	12
Mine Services		
Level Services	7/7	2
Grader Operator	7/7	1
U/G Constructions Maintenance	7/7	4
Lamps-Dry	7/7	4
Drill Bits Sharpener, Tool Crib, etc.	7/7	4
Labour – Lunchroom, UG Tool Crib, etc.	7/7	8
Mechanical Services		
General Foreman	5/2	1
Supervisors	7/7	4
Maintenance Planner	7/7	1
Mechanics: Mobile Equipment	7/7	32
Mechanics: Fixed Equipment	7/7	2
Electrical Services		
Assistant Superintendent	7/7	1
Supervisors	7/7	2

Description	Schedule	Total
Engineers	5/2	1
Electricians: Mobile Equipment	7/7	18
Electricians: Fixed Equipment	7/7	2
Technical Services		
Engineers	5/2	4
Technicians	5/2	2
Surveyors	5/2	4
Drafting	7/7	2
Chief Geologist	5/2	1
Geologists	7/7	2
Geology Technicians	5/2	2
Total Workforce		235

16.3.11 Underground Mine Ventilation and Heating

16.3.11.1 Ventilation Fresh Air Requirements

Ventilation requirements for the underground mine are primarily based on diesel emissions from the equipment fleet. The CANMET list of approved engines was used to determine most of the airflows required per equipment and attenuation factors were applied depending on the estimated equipment utilization. Table 16.22 illustrates the typical ventilation fresh air requirements per equipment used underground. Preliminary Ventsim designs for maximum productivity have been created for all four zones.

Table 16.22: Underground Mine Fresh Air Requirements per Equipment

Equipment	Engine	Engine HP	CFM / EQUIP	Utilization (%)	CFM Required
Jumbo 2 Boom	MB OM904LA, 110 kW, Tier 3, Stage IIIA	148	9,200	50%	4,600
LHD	Volvo TAD1342VE	415	24,500	100%	24,500
Truck 50 t	Volvo TAD1642VE-B (Tier 4)	691	26,900	100%	26,900
Explosive Truck	Mercedes 904 series	147	9,200	75%	6,900
Explosive Truck Operation	Mercedes 904 series	147	9,200	75%	6,900
Cable Bolter	Cummins QSB4.5 (119 kW Tier 3)	160	13,600	50%	6,800
Flat Bed Trucks	Mercedes 906 series	201	14,200	75%	10,650
Lube Trucks	Mercedes 904 series	147	9,200	75%	6,900
Scissor Lift	Mercedes 904 series	147	9,200	75%	6,900
Grader	Cat C7 ACERT™ TIER 2 CHINA	145	11,500	75%	8,625
Bolter	Mercedes 904 series	147	9,200	50%	4,600
Shotcrete Machine	Mercedes 904 series	147	9,200	75%	6,900
Shotcrete Mixer	Mercedes 904 series	147	9,200	75%	6,900
Tractor: Mechanics	V3307-CR-TE4	62	3,800	75%	2,850
Tractor: Electricians	V3307-CR-TE4	62	3,800	75%	2,850
Tractor	V3307-CR-TE4	62	3,800	75%	2,850
Miller Pick-up	1HZ PCNA	127	7,300	75%	5,475
Ambulance	1HZ PCNA	127	7,300	75%	5,475
Long Hole Drill	Deutz TCD2012 (74 kW, Tier 3)	100	5,500	50%	2,750

Table 16.23 illustrates the ventilation fresh air requirements assumptions used for the Duparquet underground mine.

Table 16.23: Fresh Air Requirements for Duparquet Underground Mine.

Equipment	Qty	CFM Required
Jumbo 2 Boom	3	13,800
LHD	7	171,500
Truck 50 t	11	295,900
Explosive Truck	1	6,900
Explosive Truck Operation	1	6,900
Flat Bed Trucks	2	21,300
Lube Trucks	1	6,900
Scissor Lift	5	34,500
Grader	1	8,625
Bolter	5	23,000
Shotcrete Machine	2	6,900
Shotcrete Mixer	2	13,800
Tractor: Mechanics	2	5,700
Tractor: Electricians	2	5,700
Tractor	2	5,700
Miller Pick Up	15	82,125
Ambulance	1	5,475
Long Hole Drill	2	5,500
Fresh Air Requirements (Sub-Total)		**720,225**
Contingency (10%)		**72,023**
Fresh Air Requirements (Total)		**792,248**

16.3.11.2 Ventilation Design

The Duparquet main ventilation system is designed to accommodate the fresh air requirements of the initial production rate and the ramp-up to full production. The proposed ventilation system is a mechanized push-pull ventilation system that consists of four intakes and five exhausts. A total of five main fan sets are planned and will be installed on surface, where four fans will be pushing, and one fan will be pulling. A total of 800 kcfm is required to provide sufficient air for manpower and equipment.

Heaters will also be installed at the intakes to ensure heated fresh air is supplied to the mine. All the main ventilation raises will be excavated with a raise-boring machine from surface and are varying in length. Most fresh air raises and exhaust raises are converted into a series of drop raises to deliver fresh air at depth.

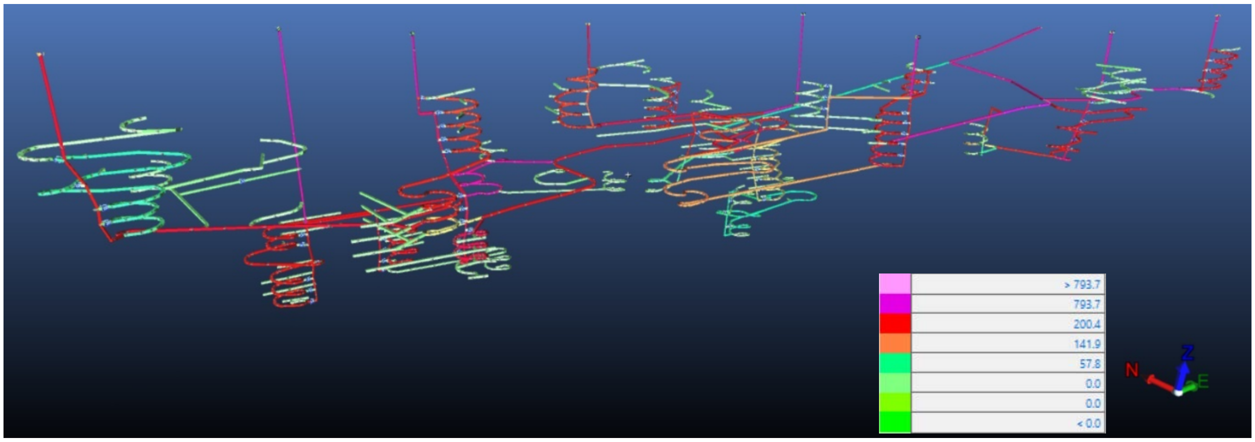
This permanent ventilation system will be operating at a variety of pressures and flows. The installation of ventilation louvers on every level will ensure that adequate fresh air quantity is distributed at the right workplace. Table 16.24 summarizes the different fans design parameters.

Table 16.24: Underground Mine Ventilation Fan Details

Zone A: 1	Qty	Unit
Fans	2x 500	hp
Pressure	10.3	In. wg.
Airflow	450,000	cfm
Zone A: 2	**Qty**	**Unit**
Fans	2x 350	hp
Pressure	7.4	In. wg.
Airflow	450,000	cfm
Zone B	**Qty**	**Unit**
Fans	2x 300	hp
Pressure	5.8	In. wg.
Airflow	450,000	cfm
Zone C	**Qty**	**Unit**
Fans	2x 300	hp
Pressure	5.8	In. wg.
Airflow	450,000	cfm
Zone D	**Qty**	**Unit**
Fans	2x 350	hp
Pressure	7.1	In. wg.
Airflow	450,000	cfm

Figure 16.38 illustrates the Duparquet ventilation network. The main flow direction is shown in yellow. The yellow stars are the location of the surface fans. Each zone is shown and represents a specific ventilation area, usually defined by an exhaust or an intake raise.

Figure 16.38: Duparquet Ventilation Network



Source: GMS 08-08-2023 (not to scale).

16.3.12 Underground Mine Services

16.3.12.1 Dewatering

A mine water balance was completed for the entire mine, then the overall flows were attributed to each of the four zones of the mine depending on the production rate and natural ground water inflows assumptions. Mine operations water consumption was calculated based on the equipment lists and their respective water consumptions. Water from the underground mine will be pumped to a surface pond and will then be reused for the mine operations. For each of the zones a pumping system will be installed near the deepest production level and an intermediate pumping station will be required due to the overall depth and expected flows. Table 16.25 shows the dewatering assumption for the underground mine and Table 16.26 shows the dewatering pump capacity required per zone.

Table 16.25: Underground Mine Dewatering Assumption

Water Operation	Unit of Measure	Quantity
Duparquet – All zones		
Mine Operations	(l/min)	1,391
Natural Ground Water	(l/min)	950
Total Dewatering Caber	(l/min)	2,341
	USGPM	618

Table 16.26: Dewatering Pump Capacity Details – Per Zone

PUMP CAPACITY		
Zone A: #1		
Pipe Length	(m)	1,225
Dewatering Flow Capacity	(USGPM)	430
Vertical Head	(m)	158
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**85**
Zone A: #2		
Pipe Length	(m)	1,007
Dewatering Flow Capacity	(USGPM)	430
Vertical Head	(m)	192
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**91**
Zone A: #3		
Pipe Length	(m)	1,260
Dewatering Flow Capacity	(USGPM)	860
Vertical Head	(m)	157
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**168**
Zone B: #1		
Pipe Length	(m)	995
Dewatering Flow Capacity	(USGPM)	430
Vertical Head	(m)	175
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**91**
Zone B: #2		
Pipe Length	(m)	2,547
Dewatering Flow Capacity	(USGPM)	430

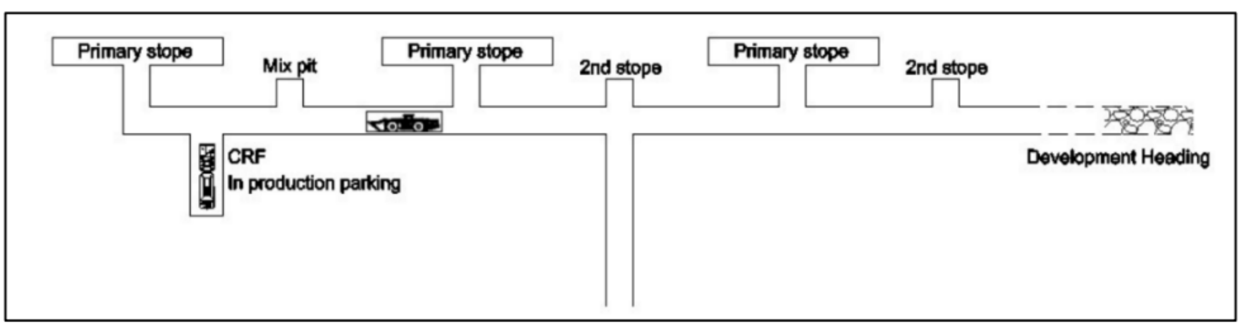
PUMP CAPACITY		
Vertical Head	(m)	447
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**233**
Zone B: #3		
Pipe Length	(m)	1,409
Dewatering Flow Capacity	(USGPM)	1,783
Vertical Head	(m)	185
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**539**
Zone C: #1		
Pipe Length	(m)	940
Dewatering Flow Capacity	(USGPM)	493
Vertical Head	(m)	130
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	82
Zone D: #1		
Pipe Length	(m)	1,660
Dewatering Flow Capacity	(USGPM)	430
Vertical Head	(m)	180
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**99**
Zone D: #2		
Pipe Length	(m)	815
Dewatering Flow Capacity	(USGPM)	430
Vertical Head	(m)	120
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**64**

PUMP CAPACITY		
Zone D: #3		
Pipe Length	(m)	950
Dewatering Flow Capacity	860	860
Vertical Head	(m)	130
Pump Efficiency	(%)	75%
Pump Power	**(hp)**	**138**

16.3.12.2 Cemented Rockfill Plant

The use of transversal mining method with primary and secondary stopes requires the use of cement backfill. For Duparquet, cemented rockfill (CRF) will be the selected cemented fill used. When required, a portable CRF plant will be used to mix the cement. The cement dry bags will be transported from the surface storage to a mobile plant that will be located underground on the desired level. This mobile plant will produce a cement slurry that will be added to waste rock directly into a LHD bucket. The LHD will transport and discharge cemented waste rock into the stopes. Operation of the mobile CRF plant will be performed by a specialized contractor while the LHD and cement bags transport will be under the owner's responsibility. Figure 16.39 shows a typical cemented rockfill installation for an underground mobile CRF plant. Given the distances between the zones, two mobile plants are planned in the LOM. It is planned to use a binder percentage of 5% in the stope where the CRF is required.

Figure 16.39: Typical Mobile CRF Plant Arrangement on a Production Level



Source: SWATCRETE, UNKNOWN DATE (not to scale).

16.3.12.3 Compressed Air

The compressed air supply will be provided by a series of three electrical compressors. The compressed air piping network will be installed along the ramp, in the main drifts and in the escapeways throughout the mine. Compressed air will provide power to the dewatering pumps of the development headings, to handheld drills, some air powered actuators, and provide an emergency air supply to the refuge station.

16.3.12.4 Communications

An underground network with leaky feeder radio communication system will be installed on site and will be expanded over the LOM. Mobile equipment operators, light vehicles, and supervisors will be equipped with handheld radios to communicate with personnel on surface.

16.3.12.5 Fuel Storage and Distribution

Fuel will mostly be stored on surface. There will be a small size underground fuel distribution system to provide fuel for equipment that rarely go to surface. A fuel truck is also planned as part of the fleet to distribute the fuel to underground equipment that cannot travel quickly to the surface for refuelling.

16.3.12.6 Explosives Storage and Handling

For each of the zones, an underground explosive and detonator magazines will be installed in designated locations. Explosive will be delivered at the portal by the selected explosive supplier, then will be transported to the underground magazines by flatbed service truck for later use.

16.3.12.7 Personnel and Underground Material Transportation

Supplies and personnel will access the underground mine via the main access drift. A series of personnel carriers such as land cruisers will be used to transport workers in the underground mine from surface. Supervisors and technical services will also use some land cruiser vehicles for transportation underground. Mechanical and electrical personnel will use maintenance tractors. The construction team will use the same type of tractor. A flat bed truck equipped with a service boom will be used to move supplies from the surface to the underground active heading, stope, and material storage.

16.3.12.8 Equipment Maintenance

Most of the major mechanical maintenance will be performed on surface at the workshop. Some major repairs will be completed underground in a garage excavated and equipped for this purpose. All minor maintenance and small emergency work will be performed underground by mobile maintenance crews.

16.3.13 Underground Mine Safety Measures

16.3.13.1 Emergency Exits

The main ramp is planned to provide primary egress from the underground workings. For secondary egress, most of the ventilation raises will be equipped with manways, and many of the drift connections between different mine area zones will serve as secondary egress. The safety egress will be equipped with prefabricated modular manway systems.

16.3.13.2 Refuge Stations

Refuge stations will be positioned so that all employees would access a refuge in less than 15 minutes from the moment they leave their workplace or at every 1,000 metres.

Each refuge station will be equipped with the following:

- Telephone or radio to surface, independent of mine power supply
- Compressed air, water lines, and water supply
- Emergency lighting
- Hand tools and sealing material
- Plan of the underground work showing all exits and the ventilation plans
- All other necessary items according to the applicable regulation

16.3.13.3 Fire Protection

Underground mobile vehicles will be equipped with automatic fire suppression systems in accordance with regulations. Fire extinguishers will be provided and maintained in accordance with regulations and best practices at the electrical installations, pump stations, service garages and wherever a fire hazard exists. Every vehicle will carry at least one fire extinguisher of adequate size and proper type.

16.3.13.4 Mine Rescue

Fully trained and equipped mine rescue teams will be established in accordance with Québec regulations. Mine rescue equipment and a foam generator will be located on site.

Rescue teams will be trained for surface and underground emergencies. An emergency response plan will be developed and kept up to date as the mine and regulations evolve.

16.3.13.5 Emergency Stench System

A mine stench gas warning system will be installed in all main surface ventilation system (temporary and permanent system). Another mine stench gas warning system will be installed at the mine compressed air system as a second means to alert underground workers in the event of an emergency.

16.4 Combined Production

16.4.1.1 Processing Schedule

The mill schedule includes a ramp-up in the pre-production year of approximately 33% nameplate throughput after which commercial throughput of 5.5 Mtpa is achieved for 10 years. The mill will be fed with the highest grade available from both underground and open pit while the lower grade will be stockpiled based on the mill needs. Mill feed is maximized with direct feed from the pit, historical tailings, the underground mine, and rehandled stockpiled material. Figure 16.40 depicts the milled tonnage and the average total gold head grade per period. Figure 16.41 depicts the produced gold per period before recovery. Gold production averages 250,000 troy ounces per year with an expected total of approximately 2,899,000 troy ounces of gold produced over 11.5 years.

Figure 16.42 depicts the End of Year (“EOY”) stockpile inventories. Higher grade is prioritized at the mill. Stockpile inventory peaks at Year 1 for a total of 2 m tonnes.

Figure 16.40: Mill Feed

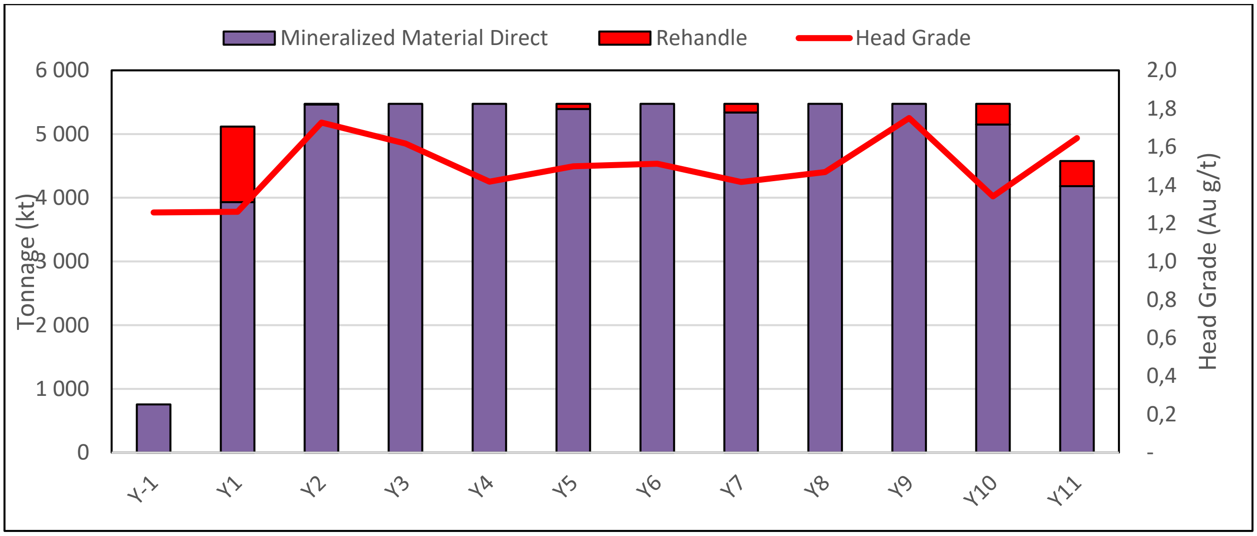


Figure 16.41: Gold Production

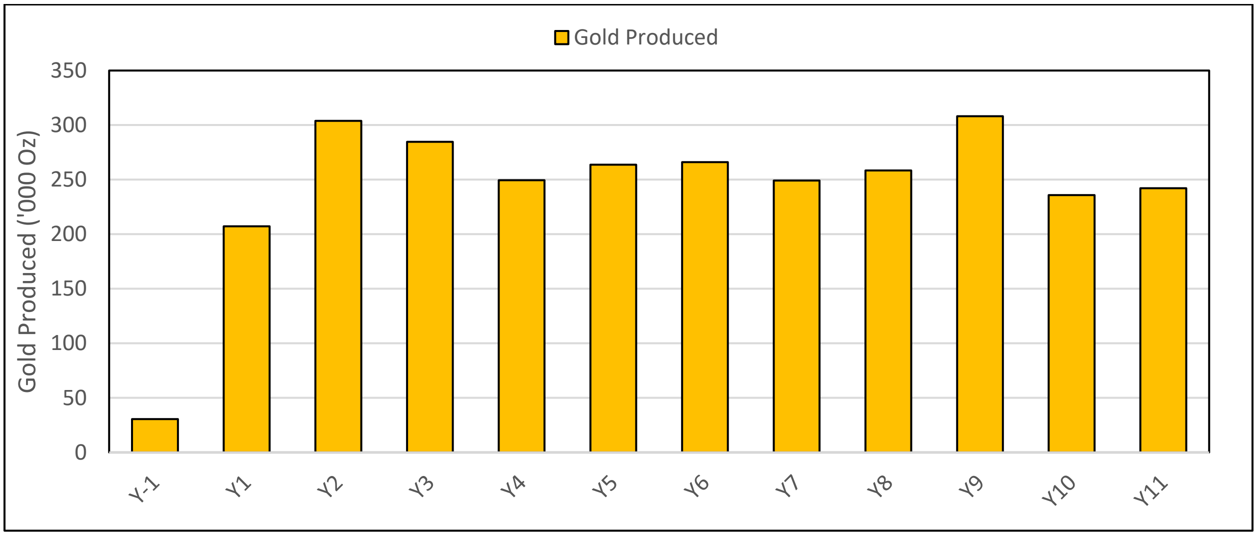


Figure 16.42: End of Period Stockpile

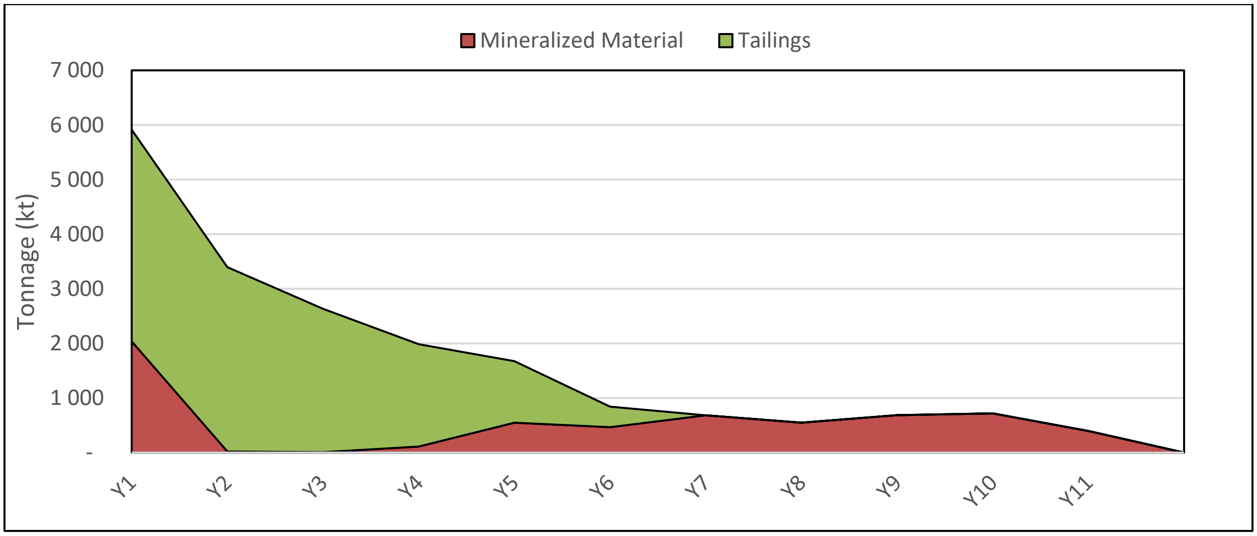
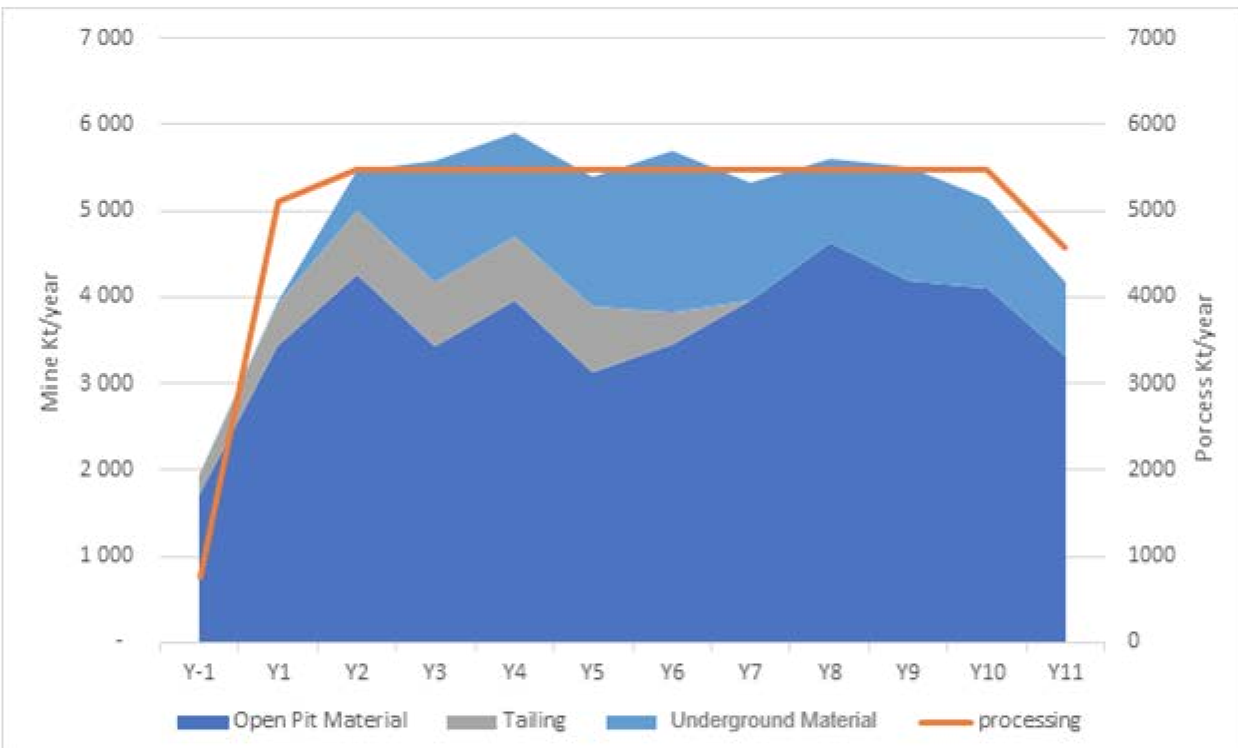


Figure 16.43: Tonnage per Mining Approach



17 RECOVERY METHODS

17.1 Introduction

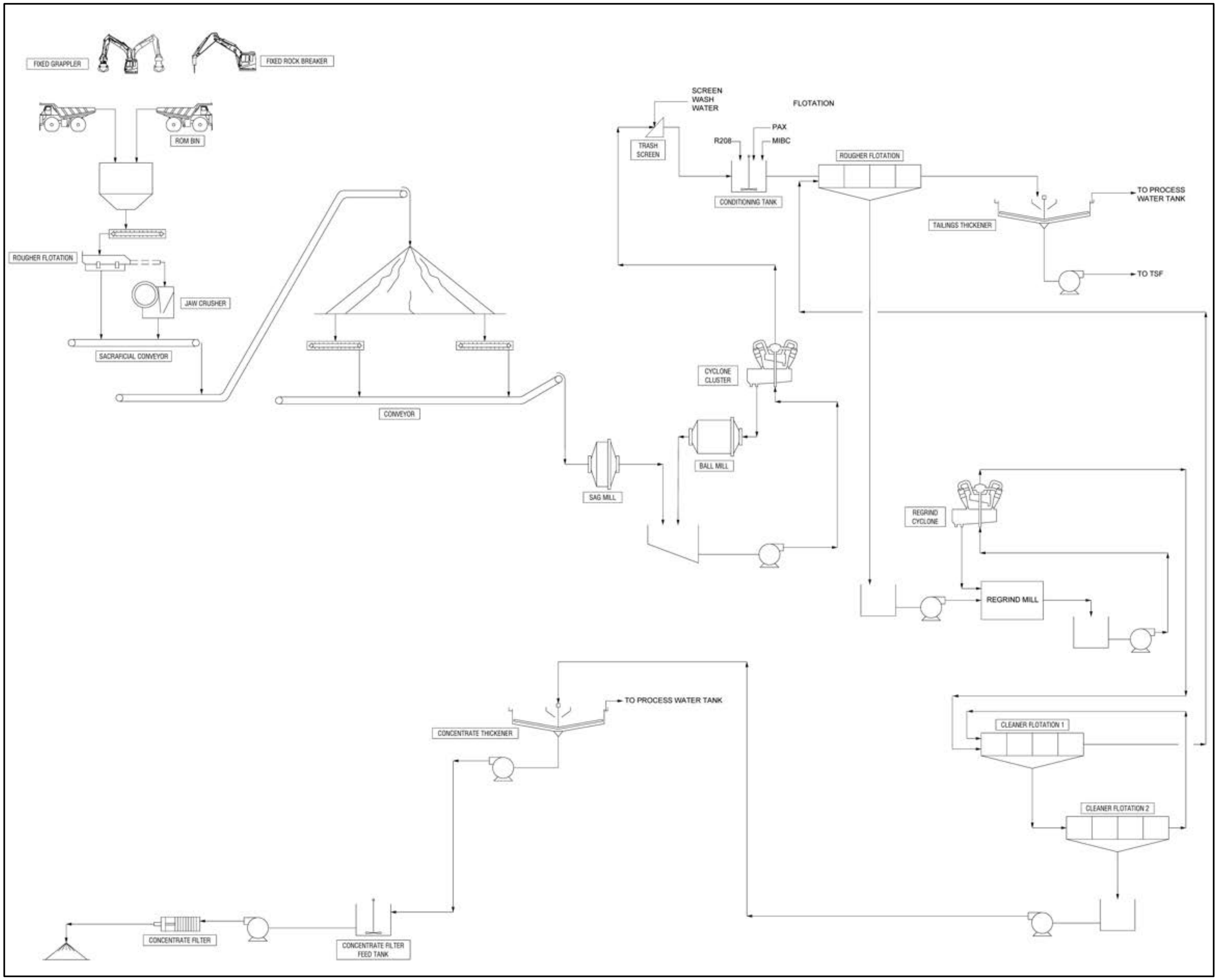
The preliminary process plant design for the Duparquet Project is based on a robust metallurgical flowsheet to treat gold-bearing material to produce a gold concentrate. The flowsheet is based on previous metallurgical test work described in Section 13, industry standards and conventional unit operations.

The process plant is designed to nominally treat 15,000 tonnes per day (t/d) of material and will consist of comminution and gold flotation circuits. Flotation tailings will be dewatered to produce a tailings slurry for storage onsite. Figure 13.1 represents the overall flowsheet for the Duparquet Project.

The key project design criteria for the process plant are listed below:

- Nominal throughput of 5,475 million tonnes per year (Mt/y) of material
- Crushing plant availability of 75%
- Grinding and flotation circuits availability of 92% through the use of standby equipment in critical areas, inline crushed material stockpile and reliable power supply
- Comminution circuit to produce a particle size of 80% passing (P80) of 100 µm
- Gold flotation circuit with an average mass pull of 4.3%
- Equipment selection based on suitability for the required duty, reliability, and ease of maintenance

Figure 17.1: Overall Flowsheet



17.2 Process Design Criteria

The proposed process plant will consist of the following operating units:

- Primary crushing of the Run of Mine material (ROM)
- Coarse material stockpile and reclamation
- Grinding circuit that consists of a semi-autogenous (SAG) mill and ball mill with hydrocyclones producing a final product P80 of 100 µm
- Two-stage flotation circuit to produce a sulphide concentrate
- Concentrate dewatering consisting of a thickener and filter press
- Tailings dewatering using a thickener and stored in a Tailings Storage Facility
- Water systems (potable water, raw water, gland seal water and process water)

Key process design criteria are summarized in Table 17.1.

Table 17.1: Key Process Design Criteria

Criteria	Unit	Nominal Value
Nominal Annual Throughput	t/y	5,475,000
Nominal Daily Throughput	t/d	15,000
Crusher Plant Availability	%	75
Process Plant Availability	%	92
Average Gold Head Grade	g/t	1.51
Average Gold Recovery	%	89.5%
Run of Mine (ROM), Maximum Size	mm	610
Crusher Circuit Product Size (P80)	mm	130
Stockpile Capacity (live)	h	12
SMC A x b	-	27
Bond Ball Mill Work Index (BBWI)	kWh/t	18.5
Bond Rod Work Index (BRWI)	kWh/t	19.1
Grinding Circuit Product Size (P80)	µm	100
Rougher Flotation Design Retention Time	min	70
Cleaner 1 Flotation Design Retention Time	min	25
Cleaner 2 Flotation Design Retention Time	min	15
Overall Flotation Mass Pull (granite)	%	4.3
Concentrate Regrind Size (P80)	Mm	38
Concentrate Thickener Underflow Density	%w/w	60
Concentrate Filter Press Filtration Rate	$kg/h/m^2$	425
Tailings Thickener Underflow Density	%w/w	60

17.3 Process Plant Description

17.3.1 Primary Crushing

Mineralized material from the open pit, at an estimated maximum p size of 610 mm, will be transported to the plant by 65-t high-capacity road trucks. The trucks will tip the material directly into the ROM bin.

Material will be withdrawn from the ROM bin, by a variable-speed apron feeder, directly to a vibrating grizzly (~100 mm aperture size). Oversize material from the grizzly will report directly to the jaw crusher, which will operate in open circuit. A rock breaker and a grapper will be installed to assist in breaking down oversize material retained above the jaw crusher. Crushed material from the crusher discharge, as well as the undersize material from the grizzly will be withdrawn by a sacrificial conveyor. A belt magnet at the sacrificial conveyor discharge will recover any trash metal. The sacrificial conveyor will feed crushed material to the stockpile feed conveyor to be deposited on to the crushed stockpile. The stockpile feed conveyor will be fitted with a weightometer to monitor the primary crusher throughput and to control the apron feeder variable speed drive.

The crushing circuit will be serviced by a single dust collection system consisting of multiple extraction hoods, ducting, and a baghouse. Dust collected from this system will be discharged onto the stockpile feed conveyor.

17.3.2 Crushed Material Stockpile

The crushed material will be conveyed to the crushed material stockpile. The stockpile will have a live capacity of approximately 8,150 t (equivalent to 12 hours of mill feed). Two reclaim apron feeders to be located underneath the stockpile, will be installed with variable speed drives (VSDs) to control the reclaim rate feeding the grinding circuit.

17.3.3 Grinding

Reclaimed material from the crushed material stockpile will feed a 9.75 m diameter by 4.88 m effective grinding length (EGL) SAG mill via the SAG mill feed conveyor. The SAG mill will be installed with a 9,000-kW synchronous motor and a VSD to control the speed of the SAG mill. A belt-scale on the SAG feed conveyor will monitor the feed rate. Process water will be added to the SAG mill to maintain a 75% slurry discharge density. SAG mill discharge will pass through a trommel screen to remove grinding media scats and a small amount of pebbles. The SAG trommel undersized material will report to the cyclone feed pump box, where it will be combined with ball mill discharge. SAG trommel oversize material will be conveyed to the SAG mill feed conveyor.

Slurry from the cyclone feed pump box will be pumped to a cluster of hydrocyclones for size classification. The cyclone overflow, at a final target product P80 of 100 µm, will flow via gravity to the rougher flotation conditioning tank prior to sulphide flotation.

Cyclone underflow will feed a 7.9 m diameter by 10.36 m EGL ball mill with an installed 13,000 kW fixed speed motor. Slurry will overflow from the ball mill to a trommel screen, attached to the ball mill discharge end. Trommel undersize material will discharge into the cyclone feed pump box.

17.3.4 Flotation

The cyclone overflow will flow by gravity to a trash screen then into the rougher flotation conditioning tank. The rougher flotation conditioning tank will provide 5 minutes conditioning time for flotation chemicals.

The rougher flotation circuit will consist of a single bank of four 500 m^3-mechanical tank-cells. The rougher concentrate will feed a concentrate regrind circuit. The rougher tailings will be pumped to a tailings dewatering circuit.

The regrind circuit will grind the concentrate to a P80 of 38 µm and the product will feed the first cleaner flotation circuit.

The first cleaner flotation circuit will consist of a single bank of three 100 m^3 tank-cells. The first cleaner flotation concentrate will be pumped to the second cleaner flotation circuit, whilst the first cleaner flotation tailings will be pumped back to the feed of the rougher circuit.

The second cleaner flotation circuit will consist of a single bank of five 10 m^3 tank-cells. The second cleaner flotation concentrate will be pumped to the concentrate dewatering circuit and the second cleaner flotation tailings will be pumped back to the first cleaner circuit.

17.3.5 Concentrate Dewatering

Cleaner flotation concentrate will be pumped to an 8 m diameter thickener to increase slurry concentrate density for filtering. Flocculant will be added to the thickener feed to promote the settling of solids. The thickener overflow will report to the process water tank.

The thickener underflow at 60% weight percent (w/w) solids will be pumped to a filter feed tank and then pumped to a pressure filter to produce a gold concentrate at approximately 9% moisture. Filtrate from the filter press will be pumped back to the concentrate filter.

The dewatered gold concentrated will be loaded by front end loader into lined containers for export.

17.3.6 Tailings Handling

Rougher tailings will be pumped to a 32 m diameter thickener to increase tailings density. Flocculant will be added to the thickener feed to promote the settling of solids. The thickener overflow will report to the process water tank.

Thickener underflow at 60% w/w solids will be pumped to a tailings storage facility.

17.4 Reagents

Reagents consumed within the process plant will be prepared on site and distributed via various reagent handling and makeup systems. These reagents include potassium amyxanthate (PAX) collector, R208 collector, MIBC frother and flocculant.

For the management of unexpected reagent spills, the reagent preparation and storage facilities will be located within containment areas designed to accommodate volumes that exceed the maximum content capacity of the largest tank. Where required, each reagent system will be located within its own containment area to facilitate its return to its respective storage vessel and to avoid the mixing of incompatible reagents. Storage tanks will be equipped with level indicators, instrumentation, and alarms to ensure spills do not occur during normal operation. Appropriate ventilation, fire and safety protection, eye wash stations and showers, and material safety data sheet (MSDS) stations will be located throughout the facilities. Sumps and sump pumps will be provided for spillage control.

The reagents will be mixed, stored, and then pumped to the flotation and thickener areas. Dosages will be monitored and controlled by flow meters and control valves. The storage tank capacity will be designed to store one day of production.

17.5 Plant Services

17.5.1 Blower Air

Blowers will supply low pressure process air to the flotation cells.

17.5.2 Plant and Instrumentation Air

Air compressors will provide plant and instrument air for the process plant. Plant air receivers will act as a buffer storing air to account for variations in demand prior to being distributed throughout the process plant. Instrument air will be dried before being stored in the instrument air receivers and distributed throughout the plant.

17.5.3 Fresh and Fire Water

Refer to Section 18.

17.5.4 Domestic Water

Refer to Section 18.

17.5.5 Gland Seal Water

Water for the gland seal water system will be supplied from the raw water tank. The gland seal water tank will store and distribute gland water to the plant with gland seal water pumps in a duty-standby configuration.

To prevent particulates from causing damaged gland seals throughout the plant, the water feeding the gland water tank will pass through 25 µm particulate filters.

17.5.6 Process Water

Process water will consist of concentrate thickener overflow, flotation tailings thickener overflow, tailings reclaim water, and fresh makeup water when required. Process water will be stored in the process water storage tank and distributed by the process water pumps, in a duty: standby configuration, to consumption points in the grinding and flotation circuits.

17.6 Metallurgical Accounting

Metallurgical samplers will be used to generate shift composite samples that will be assayed for plant metallurgical accounting. The following process streams will be equipped with metallurgical samplers:

- Primary cyclone overflow
- Flotation tailings.

The plant feed and tailings products will be sampled by mechanical metallurgical samplers which will allow the plant to determine an accurate metal balance.

A weightometer on the stockpile feed conveyor will measure the primary crushed material tonnage, and a weightometer on the SAG mill feed conveyor will determine the mill feed tonnage.

A manual belt cut sampling point on the SAG mill feed conveyor will allow for the collection of a mill feed head grade sample for cross-validation with the calculated head grade. This sample will also be utilized to determine and review the moisture content of the mill feed.

Water supplied and used in the various areas will continuously be monitored.

Reconciliation of the reagents used over relatively long periods will be achieved by delivery receipts and stock takes. On an hourly basis, reagent usage rates to unit operations will be measured and accumulated using flowmeters.

17.7 Plant Consumption

17.7.1 Water

Approximately 300 m^3/h of raw water is required for makeup water.

17.7.2 Energy

The power demand for the process plant, along with the rest of the project, will be provided by grid power. The average power demand for the process plant is approximately 15 MW. The average power demand does not reflect the instantaneous power demand for equipment start-up and power plant capacity sizing.

17.7.3 Reagents and Consumables

Reagent storage, mixing and pumping facilities will be provided for all reagents for the process plant. Reagents and consumables usage are summarized in Table 17.2 and Table 17.3.

Table 17.2: Reagents Consumption

Description	Consumption
MIBC Frother	35 g/t feed
PAX Collector	151 g/t feed
R208 Collector	63 g/t feed
Flocculant	33 g/t feed

Source: GMS, 2023

Table 17.3: Consumables Consumption

Description	Consumption
SAG Mill Liners	1.6/y
Ball Mill Liners	1.3/y
SAG Mill Grinding Media (150 mm)	0.67 kg/t feed
Ball Mill Grinding Media (75 mm)	0.98 kg/t feed
Regrind Mill Grinding Media (15 mm)	0.50 kg/t feed

Source: GMS, 2023

17.8 Process Plant Personnel

The personnel for the process plant will consist of management, operations, maintenance, and laboratory disciplines. The process plant will operate 24-hours per day. Operating staff will work 12-hour days and night shifts on a 2-week on-2-week off rotation cycle and management will work 12-hour days.

Annual process plant personnel requirements are provided in Table 17.4.

Table 17.4: Process Plant Personnel

Position	Head Count per Shift	Total Complement
Management		
Plant Manager	1	1
Maintenance Manager	1	1
Technical		
Metallurgical Clerk	2	2
Senior Metallurgist	1	1

Position	Head Count per Shift	Total Complement
Junior Metallurgist	1	2
Metallurgical Technician	1	1
Chemist	2	8
Laboratory Supervisor	1	1
Sample Technician	1	4
Analytical Technician	2	8
Operations		
Shift Supervisor	1	4
Control Room Operator (Shift)	1	4
Crusher/Conveying Area Lead Operator (day)	4	4
Crusher/Conveying Area Labourer (day)	1	4
Shift Operator Grinding	1	4
Shift Operator Flotation	1	4
Shift Operator Concentrate Handling/Bagging	1	4
Reagent Area Operator (day)	1	1
Utility Operator (day)	2	2
Non-Specialty Operator (Roaming)	1	4
Plant Maintenance		
Electrician (shift)	1	4
Mechanical Fitter (shift)	1	4
Maintenance Foreman (day)	1	1
Maintenance Planner (day)	1	1
Mechanical Fitter (day)	4	4
Boilermaker (day)	2	2
Electrician (day)	3	3
Instrument Technician (day)	2	2
Trades Assistant (day)	5	5
TOTAL	-	90

Source: GMS, 2023

18 PROJECT INFRASTRUCTURE

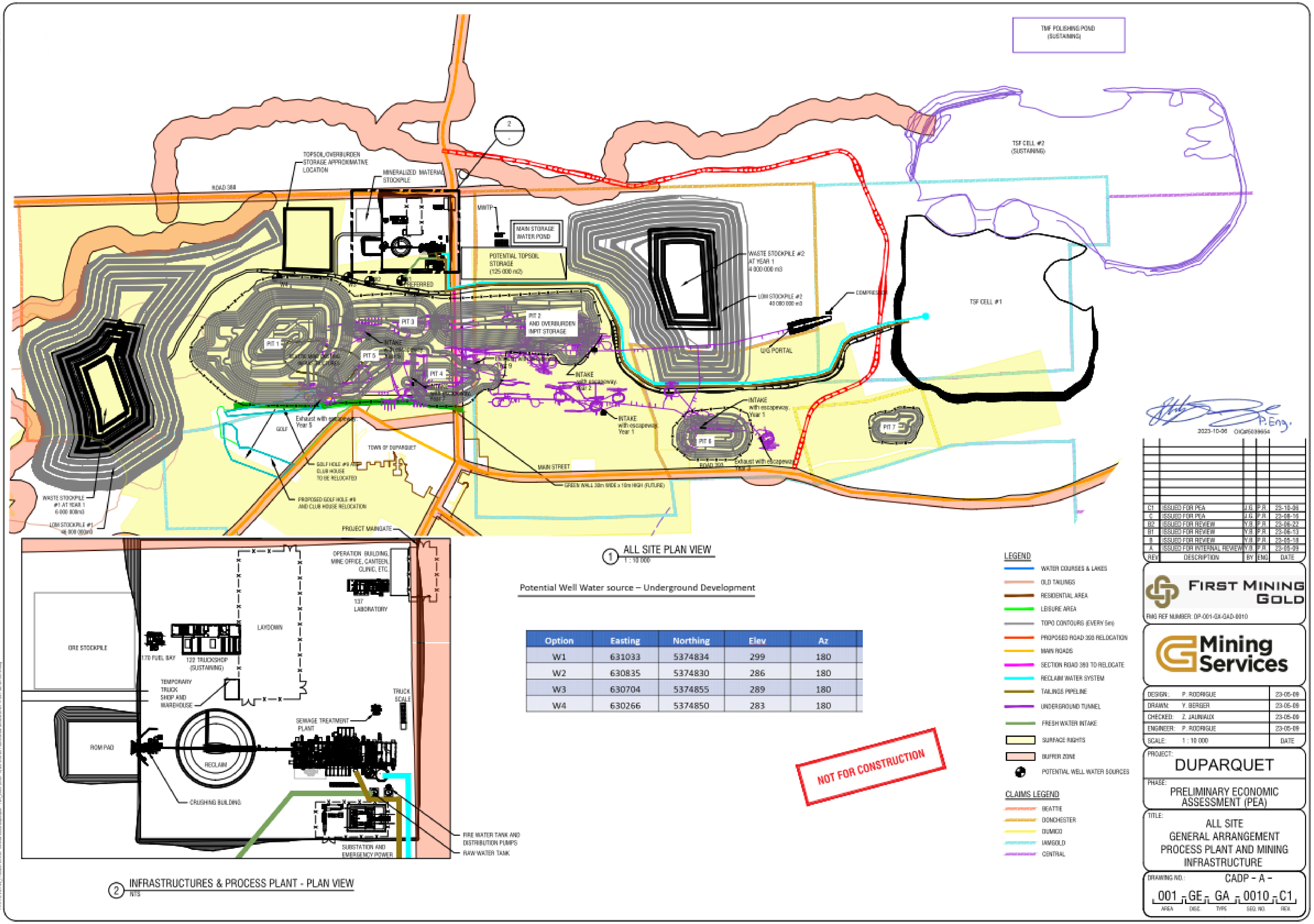
This section aims to highlight the general project infrastructure that is required to support the mining, processing and tailings operations for the Duparquet Project. In the sections to follow, more detail will be provided on the following areas:

- Roads (site roads, access roads and road relocation)
- Tailings storage facility (TSF) and water reclamation
- Waste rock stockpiles
- Pads and laydown areas
- Water management and treatment (fresh, sewage, domestic, fire protection)
- Site run-off and spillage control
- Fuel storage system
- Power supply and distribution
- Buildings
  - Service buildings (mining and processing)
  - Operation building
  - Administrative offices
  - Explosive magazine
- Security
- Site vehicles and mobile equipment
- Underground facilities
- Green wall
- Relocation and remediation

18.1 General

The balance of plant's infrastructure and the processing facilities are located on the north side of the open pits. The waste rock stockpiles are located on each side of the pits. Figure 18.1 demonstrates the initial sizes of the stockpiles shown in dark grey and the final footprint in lighter grey. The two cells planned for the TSF, which will be constructed in phases, are also shown in Figure 18.1.

Figure 18.1: All Site General Arrangement



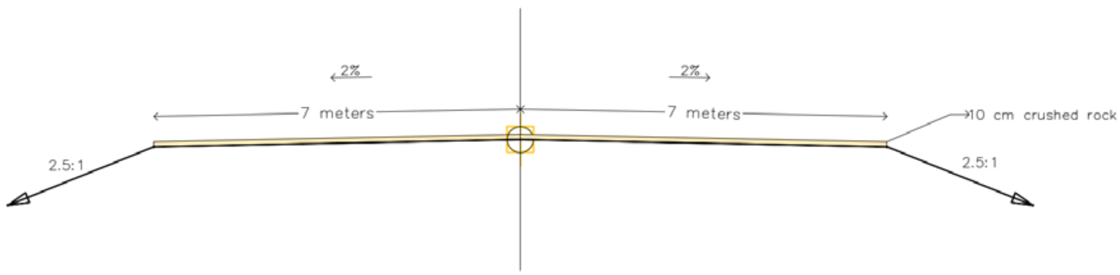
Option	Easting	Northing	Elev	Az
W1	631033	5374834	299	180
W2	630835	5374830	286	180
W3	630704	5374855	289	180
W4	630266	5374850	283	180

18.2 Roads

18.2.1 Haul Road

The 4.5 km haul road will give access to the infrastructure, stockpiles and the TSF area. The road will predominantly be constructed using the waste rock from the pre-production mining activities and overlaid (capped) with a 10 cm layer of crushed rock. According to the 2014 PFS geochemical studies (Fournier, 2013), it is considered that the rock from the mine is not acid generating and is suitable for construction. Figure 18.2 shows the road assembly.

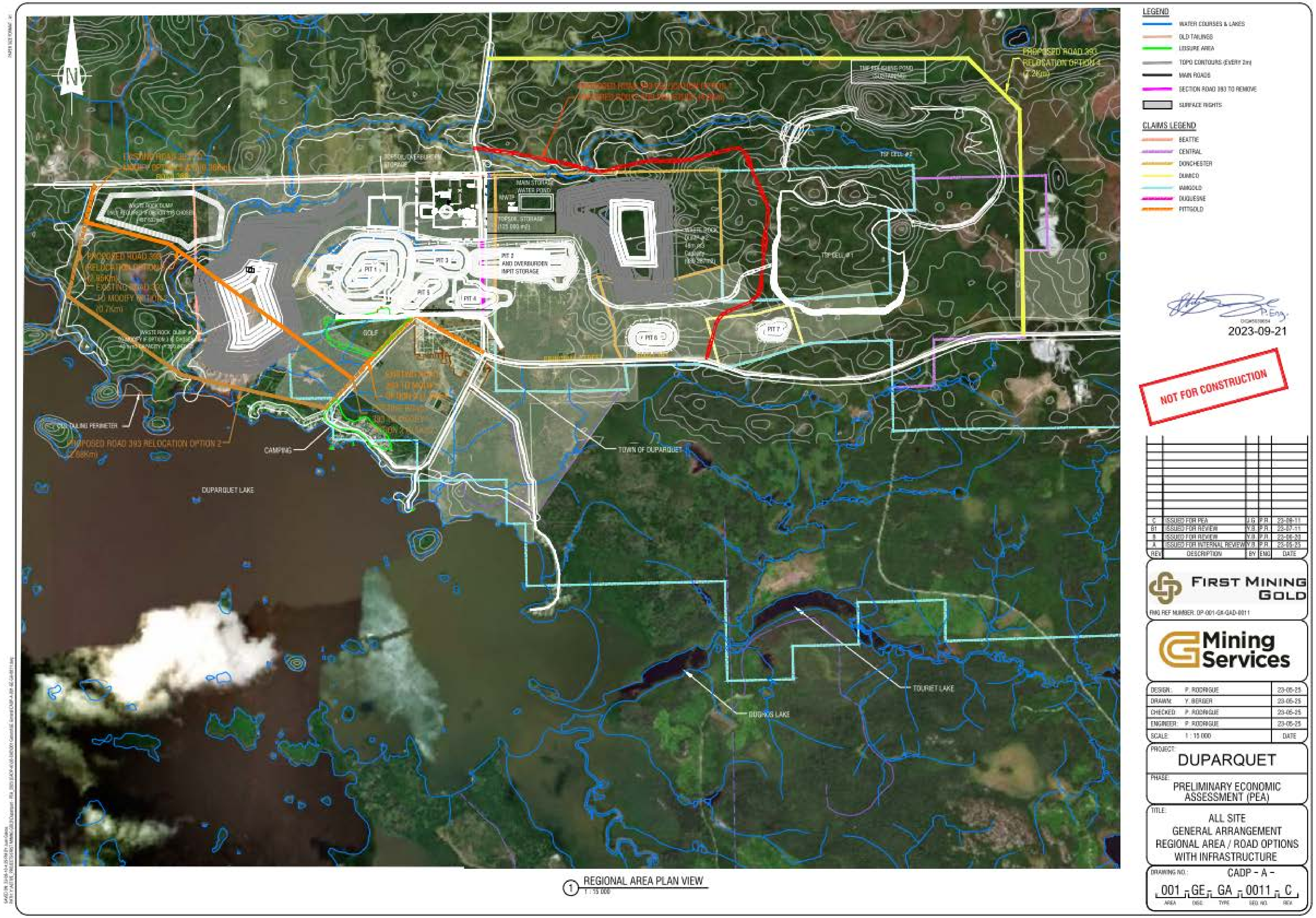
Figure 18.2: Road Assembly



18.2.2 Provincial Road Relocation

Due to the development of the Duparquet Project, the 393 provincial road crossing the property from north to south will be in the footprint of Pits 2 and 4. This road will need to be relocated before Year 2. Related costs were taken into consideration in sustaining capital expenditure. The required asphalt road will be constructed to the same standards as the existing road, 4.8 km long, with a 12 m-wide shoulder to shoulder, and ditches on both sides for proper drainage. During the project study, four alternative options were considered for the road relocation, as shown in Figure 18.3 below. The proposed new road contemplated in the study is located on the east side of the project and has a length of approximately 5 km.

Figure 18.3 Road Relocation Options



18.3 Tailings Storage Facility

The tailings storage facility (“TSF”) will take advantage of the existing topographic and ground conditions in the eastern part of the Project site and will provide enough capacity for 34.5 million m^3 of tailings. No cyanidation will be involved in the processing of the ROM material (see Sections 13 and 17) and therefore, the TSF does not require lining. Further verification must be conducted to validate the tailings requirements and capacity.

A tailings deposit basin will be created by building a main dam at the downstream end of the valley. The dam is designed as an earth dam which is formed by compacted soil and rockfill from the mine waste, and will have proper water management. The tailings dams will be constructed in phases to minimize the initial CAPEX.

18.4 Waste Rock Stockpiles

According to the results from geochemical studies conducted during a 2014 study (Poirier et al., 2014), the different waste rock samples are not acid generating (Fournier, 2013) and potentially leachable, indicating that the waste rock is non acid-generating (NAG) and therefore the waste rock stockpiles will not require a liner. Stripping and grubbing, and removal of topsoil is necessary to provide suitable ground for the waste deposition. The initial Waste Rock Stockpile pads are designed with a capacity of 10M t of waste rock and will be expanded throughout the Life of Mine as required. Precipitation falling on the Waste Rock Stockpile pads will follow a proper drainage system and the water will flow to the respective underdrain collection outlets.

18.5 Pads and Laydown Areas

The tasks listed below will be performed during construction at the process and mine infrastructure area:

- Stripping and grubbing
- Topsoil removal
- Backfilling with suitable material
- Ditch excavation and geotextile
- Revegetation
- Culvert placement
- Final grading

18.6 Water Management

18.6.1 Wastewater

Domestic wastewater will be treated using a standard containerized sewage treatment plant. The wastewater will undergo physical, biological, and chemical treatment, as required, before being released back into the environment.

Any residual solid waste will be removed periodically and sent off-site by means of a contractor.

18.6.2 Fresh Water

Four potential freshwater collection points have been identified, all of which require directional drilling to access the water source in the historical mine stopes. The preferred access point, W1 (Figure 18.1), is located immediately to the south of the process plant and infrastructure pad. The freshwater intake system will consist of two pumps: one duty pump and one standby pump. This intake system will provide enough water for industrial, process, as well as potential domestic water needs. All water holding tanks will be located on the same process and infrastructure pad.

18.6.3 Tailings and Reclaim

The process plant tailings will be pumped to the TSF through a 4 km pipeline made of DR17 HDPE pipe. In the first year of operation, the tailings are assumed to be discharged at a single point in the TSF. Over time, a system of spigots will be installed to allow tailings discharge at different points along the perimeter of the TSF.

The reclaim water system will consist of a reclaim barge equipped with two reclaim water pumps; one duty and one standby. This reclaim water system will send water back to the process plant through a 4 km pipeline made of high density polyethylene (HDPE). The reclaim water pipeline will not be heat traced or insulated because it will either be recirculated or be flushed to avoid sedimentation or freezing.

18.6.4 Domestic Water

Domestic water will be drawn from a water well and pumped into a holding tank near the mine infrastructure buildings. It is expected that the well will be drilled to the north-west of the process plant and infrastructure pad, located on the northern side of provincial road 388. No domestic water treatment facility is considered, and it is assumed that the water drawn from the well will be deemed safe for domestic water use and will meet the applicable standards. If further studies reveal poor water quality, bottled water will be brought to site for human consumption. For the purpose of this study, the water well is assumed to be within 1 km of the holding tank.

18.6.5 Main Water Treatment Plant

The Main Water Treatment Plant (MWTP) will serve to treat all contact water on-site before it is released back into the environment. Water from the event pond, as well as water from the TSF, will be pumped to, treated, and then pumped out of the MWTP to be sent back into the environment. The MWTP will consist of clarification, chemical treatment, and biological reactors. As there are currently limited details regarding the quality of the final effluent to be treated, further actions will be defined in the next phase of these project studies. Once more information is available, the design of the MWTP will be reviewed and if required, adjusted to ensure that the final quality of the discharge complies with all local, provincial, and federal standards and guidelines. For this study, it is assumed that the discharge location is within 1 km of the MWTP.

18.6.6 Fire Protection

The fire protection distribution system will be a standard containerized skid comprising one diesel pump, one electric pump, and one jockey pump to maintain pressure in the lines. The distribution system will be supplied by a fire water tank with a capacity of 175 m^2, that will be set up as an overflow to the raw water tank.

18.7 Site Run-off and Spillage Control

A network of purpose-built run-off ditches are planned to direct all contact water to the appropriate locations on-site. Run-off from the waste rock stockpiles, process plant, infrastructure pads, and overburden pile will be drained and appropriately directed towards the Main Water Storage Pond which is located to the east of the process plant.

Water that has accumulated in the event pond, will be pumped to the MWTP, treated, and then released back into the environment in a dedicated location.

18.8 Fuel Storage System

The fuel storage system will have a 200,000 L capacity, consisting of two 100,000 L tanks. At the construction phase, one tank of 100,000 L will be installed. The full capacity will then be reached at

Year 1 of operation with the installation of the second tank. This will provide sufficient fuel storage for three days of consumption at the peak of the mining activities. Due to the nearby city's accessibility, deliveries can be conducted frequently, ensuring a consistent fuel supply.

18.9 Power Supply and Distribution

A new 120 kV transmission line of approximately 15 km is necessary to connect with the Reneault Hydro-Québec substation to feed the process plant. It is assumed this substation has sufficient available power for the project, but verification will be required during the next phases of the project studies.

The connected power at site is evaluated at 22.7 MW with an average running load of 17.4 MW. Table 18.1 outlines the load distribution over the site.

Table 18.1: Site Load Distribution

Area	Area Description	kW Connected	kW Peak	kW Average
100	Infrastructure	800	700	550
200	Electrical Distribution	300	260	200
300	Water Management	2500	2200	1720
500	Mine	500	440	260
600	SAG Mill	5100	4300	3980
600	Ball Mill	7700	7100	6500
600	Process: rest of loads	5800	5100	4240
	Total kW	**22700**	**20100**	**17450**

The main distribution network is made at 13.8 kV from the main substation where two fully redundant power transformers are installed. Distribution to the equipment is made at 4.16 kV and 600 V.

An emergency generator will support the critical loads in case of grid power outage.

18.10 Communications

A fiber optic network should be available with high-speed link in the city of Duparquet. An LTE tower signal will be provided on site from existing city network or with the addition of a tower on site.

18.11 Buildings

Main access to the various buildings will be from national road 388, located on the north side of the project near roads 393 and 388.

18.11.1 Operation Building

This building will be located at the entrance of the mining site, serving as a multipurpose facility with various amenities. The building area will cover approximately 1,020 m^2 (60 m x 17 m), including:

- Security guard office
- Offices for technical personnel
- Conference rooms
- Change rooms
- Infirmary
- Lunchroom

18.11.2 Administrative Offices

It is considered that all administrative workers and office workers not required on the mining site would occupy offices already owned by First Mining in the town of Duparquet.

18.11.3 Truck Shop

During the initial years of the project, a workshop will be built, which will be a fabric shelter building. Around Year 4, a permanent truck shop will be built, featuring six bays designed for servicing 200 t trucks. Additionally, a wash bay is planned to be included in this building. Light vehicles will not be accommodated in this truck shop; their maintenance will be conducted in the nearby towns.

18.11.4 Process Plant Building

The process plant building will include five key areas with a total surface covering approximately 4,700 m^2 and will be made up by the following:

- Grinding area
- Flotation area
- Concentrate handling area
- Main electrical room
- Reagents preparation and storage

18.11.5 Reagent Storage

There will be no separate reagent storage building. Instead, a storage area will be included within the process plant building in the reagent preparation area.

18.11.6 Assay Lab

The Assay Lab building is a dedicated facility designed for analytical laboratory operations. It includes a sample receiving and preparation area, a fire assay section, a wet lab, offices, and storage. It will include various specialized areas associated with assaying. This building area will cover approximately 465 m^2 (46.5 m x 10 m) and will be located on site.

18.11.7 Warehouse

There will be no warehouse on-site since it is assumed owned buildings can be used as warehouses in the nearby town, which is conveniently close to the site. Once the truck shop is constructed, the workshop could be used as a warehouse.

18.11.8 Explosive Magazine

Containerized cartridge and detonator magazines will be considered for the project with a capacity of approximately 25,000 kg. It is assumed that the explosive magazine is located near an existing road or a road to be constructed for other purposes. It is also assumed that the chosen location is far enough from any structures to minimize the construction of berms.

18.11.9 Employee Accommodations

There will be no camp on site since the project is located near the town of Duparquet. Workers will have the option to reside in the town of Duparquet or nearby larger cities (La Sarre, Rouyn-Noranda, etc). At the time of this study there is a contractor camp established in Rouyn-Noranda which could also be used.

18.12 Security

A suitable fence will be installed at the entrance of the mining site, around the main substation and laydowns and around the pits as the mining progresses. There will be a security guard office in the operations building, which will be located at the site's entrance south of provincial road 388 in order to control access to site.

18.13 Site Vehicles and Mobile Equipment

The utilization rate for the site vehicles and mobile equipment is based on mine production rates, mill process rates, and concentrates handling rates as per mass balance and Life of Mine Plan.

Equipment costs assume only fuel, lubricants, and parts and maintenance costs. They are split in two major categories which is Fuel and O&M (operation & maintenance).

The main equipment list being considered is as follows:

- Wheel loader 271 hp
- Manlift 60 ft
- Telehandler 8-9 t
- Skidsteer
- Fire truck
- Ambulance

18.14 Underground Facilities

For the underground component of the planned mining activities, the portal will be located on the east side of the property between waste rock dump #2 and the TSF. A round multiplate tunnel will be used in the box cut and a compressor building will be located adjacent to it. Following the mine sequence, the surface installations required for the ventilation raises are considered.

18.15 Green Wall

An appropriate vegetation covered berm (green wall) will be installed between the town of Duparquet and the open pits to mitigate the impacts of noise, dust, and visibility of the pits during mining activities. The berm will be built with waste rock and covered with organic soil to facilitate revegetation. More details on the green wall are covered in Section 20.

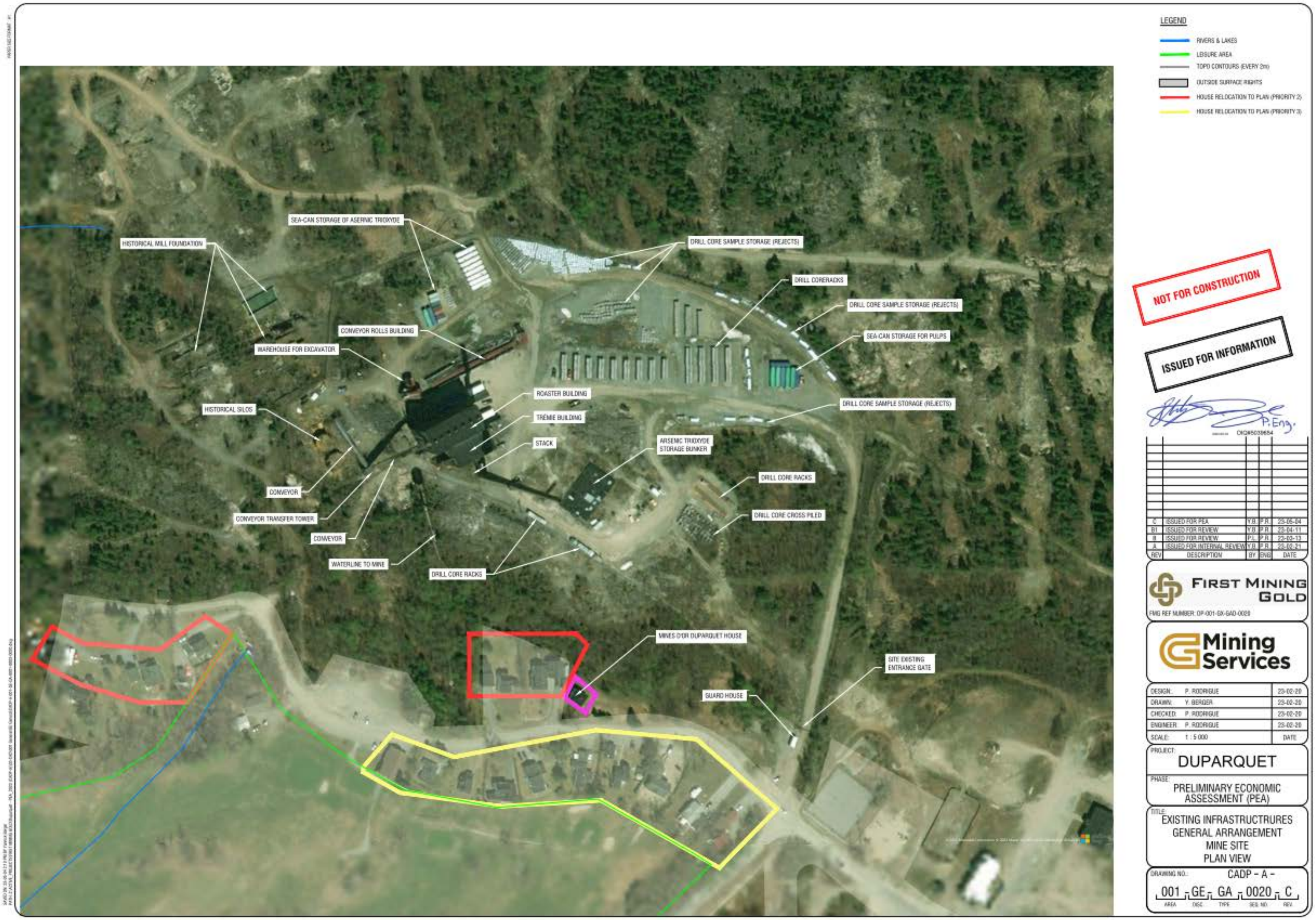
18.16 Relocations

During the 2014 PFS study (Poirier et al., 2014), it was highlighted that some houses in the town of Duparquet will need to be purchased or relocated ahead of mine development. One of these houses now belongs to First Mining and may be used occasionally to accommodate employees. Based on the current infrastructure layout, a small portion of the golf course potentially including the ninth hole and the clubhouse towards the north side of the course, will be subject to relocation.

18.17 Remediation of Existing Infrastructure

It is important to note that the Duparquet project is situated on the former Beattie mining site, which was in operation and use until the 1950s. Numerous old facilities, for example the main roaster building, ore conveyors and the gas exhaust stack, are still present on the site and will require demolition. See Figure 18.3 for a plan view of those infrastructures. A study was completed in 2012 (Allard, 2012) to identify alternatives for demolition and remediation of the legacy infrastructure. In 2021, First Mining solicited updated proposals for the demolition and removal of the legacy infrastructure (First Mining, June 2021 and August 2021) and more detailed execution plans for the demolition will be required as the project advances.

Figure 18.4: Existing Infrastructure Plan View



19 MARKET STUDIES AND CONTRACTS

19.1 Markets

Gold is a freely traded commodity in an established and mature market that is known to be an investor's safe haven. It is a metal that has national, as well as international, reputable smelters and refineries. It is a commodity that is sold daily through banks and traders at a spot price for immediate delivery.

The Duparquet project will produce a relatively clean, high grade gold concentrate of 31.5 g/t Au and will be available for sale to local and international smelters or roasters.

Based on initial market studies, the produced concentrate will be readily saleable to a number of markets locally and internationally, examples of which include:

- The Horne smelter located approximately 50 km south of the Duparquet Project in Rouyn-Noranda
- Asian smelters such as those located in China, Japan and South Korea
- European smelters located in Norway, Sweden, Finland, Germany and Bulgaria
- Roasters located in the United States

Arsenic content is relatively minimal in the produced concentrate however, the Horne, Japanese, Korean and European smelters, as well as American roasters will typically evaluate the concentrate based on the prevailing overall market supply at the time of tendering, and the produced concentrate may be subject to penalties for contaminants or impurities.

19.2 Contracts

There are no mining, concentrating, smelting, refining, transportation, handling, sales and hedging, forward sales contracts, or arrangements for the Duparquet Project. This situation is typical at this development stage where the project is still several years away from potential production. The sale of concentrate is expected to include a mixture of long-term and spot contracts.

19.3 Smelter Term Assumptions

The assumed contract payment terms for the gold concentrate are:

- Gold payability: 96%
- Treatment charge: USD 75/dmt

- Refining charge: USD 5/oz Au
- Transportation charge: CAD 30/t

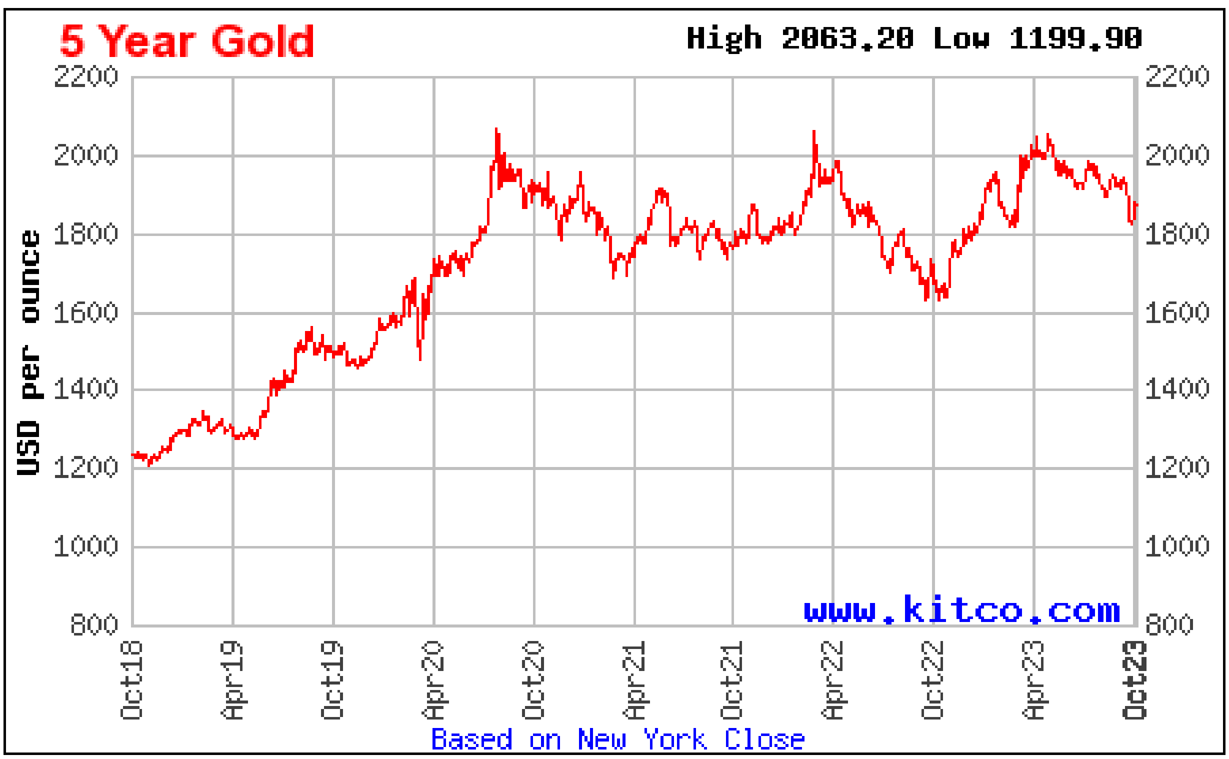
19.4 Metal Prices

Together, GMS and First Mining established metal price projections for use in the PEA. The projections incorporate consideration of recent market information, trailing metal prices, and consensus of banking analyst long-term price estimates. The resulting gold price and exchange rate assumptions used in the PEA are:

- Gold: USD 1,800/oz Au
- Exchange rate: 1.33 USD : CAD

Figure 19.1 shows the historical closing value of gold for the last five years. The 5-year average as of March 10 is 1,631 USD/troy-ounce and the 3-year moving average is 1,808 USD/troy-ounce.

Figure 19.1: Historical Gold Price



Source Kitco 2023

19.5 QP Comments on "Section 19: Market Studies and Contracts"

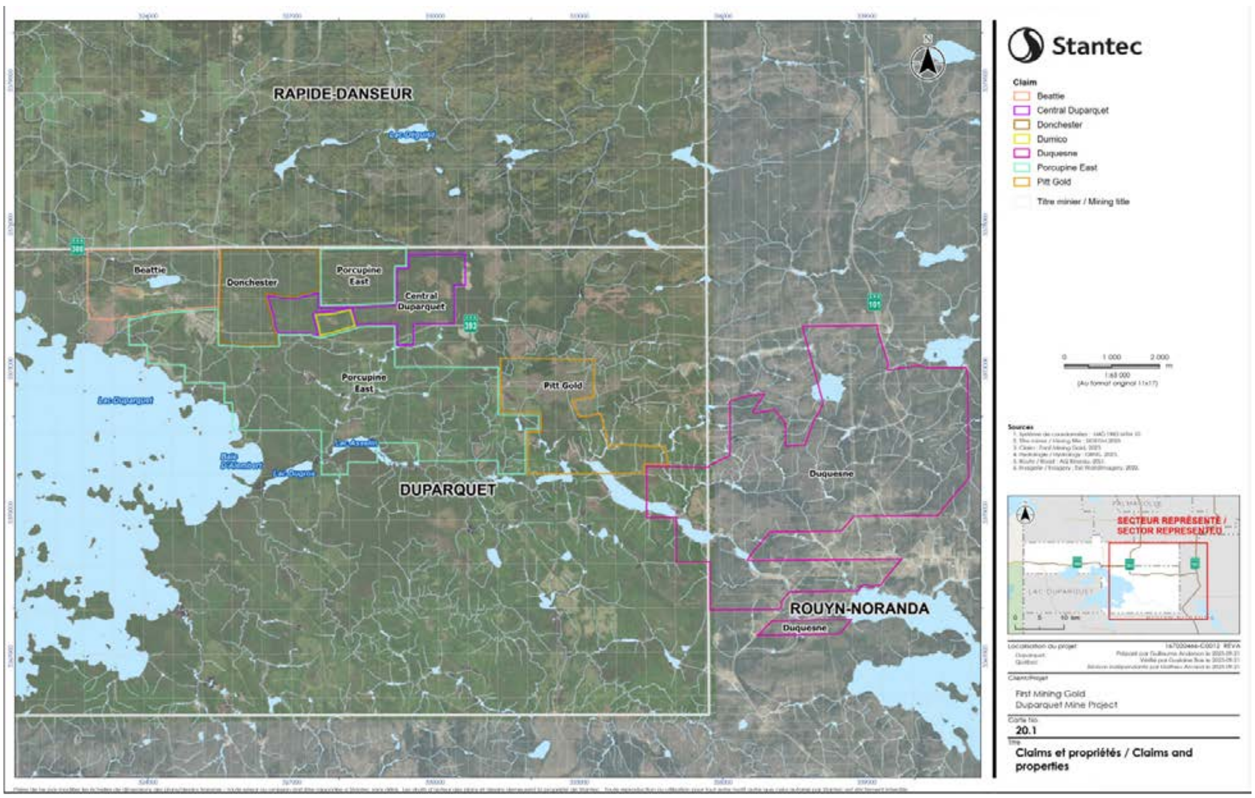
The QP is of the opinion that the marketing and commodity price information is suitable to be used in cashflow analysis to support the PEA.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

Information presented in this section is based on information gathered by First Mining and publicly available information, including the 2014 technical report and pre-feasibility study for the Duparquet Project (Poirier et al., 2014). The Property, as defined for the purposes of this PEA, is shown in Figure 20.1. Information included herein may require review and reassessment should changes to the scope, area, or design of the project occur as project planning and design progress. The 2014 PFS covered the the Beattie, Donchester, Central Duparquet, Dumico, and a portion of the Porcupine East claim blocks. This PEA includes the same Duparquet project limits from a mining development perspective, but adds Duquesne and Pitt Gold mineral resources to the global resource estimate.

Figure 20.1: Claim Blocks and Property Extents



Source: Stantec, 2023

20.2 Environmental Setting

The Project is located in the Abitibi-Témiscamingue region of Québec, approximately 30 km northwest of Rouyn-Noranda, and immediately north of the town of Duparquet, Québec. The Project is composed of the claim blocks at Beattie, Donchester, Central Duparquet, and Dumico, and adds as well as Duquesne and Pitt Gold claim blocks from a resource perspective. Currently, the land tenure for the Project includes 199 mining claims covering an area of 5,804 ha. Three of the Project's claim blocks –Beattie, Donchester, and Duquesne contain historical mine sites, where production has intermittently occurred since the early 1900s. The Abitibi-Témiscamingue region is also known for commercial forestry, mineral exploration, outfitters, cabins, harvesting (e.g., trapping, hunting, and fishing), and recreational land use (e.g., hiking, boating, snowmobiling, and ATV use). Six mines are currently active in the area, three are in care and maintenance phases, and eleven mining projects are in development around Rouyn-Noranda and Val-d'Or (MRNF, 2023a; b).

The following sections summarize the terrestrial and aquatic ecosystems present in the vicinity of the project and are based on literature reviews, previous studies, and geomatics tools. The social, cultural, and economic environment of the region is also discussed.

20.2.1 Terrestrial Ecology

The project is in the Abitibi Plain ecological region (region 5a) (Government of Québec: MFFP, 2021) and in the Lake Abitibi plain ecological district (CERQ). This ecological district occupies an area of approximately 1,756 km^2 (Government of Québec: MFFP, 2021; Government of Québec: MELCCFP, 2023).

The Project is located within the balsam fir–white birch domain and are abundant in the project area (Government of Québec: MFFP, 2019). The balsam fir–white birch domain can be divided into two subdomains, one of them being the western domain (where the project area is located), which is relatively flat and features few differences in elevation. Since the fire cycle is shorter here, this accounts for the abundance of leafy or mixed stands of light-seeking species like trembling aspen, white birch, and jack pine. The forest landscape is dominated by stands of fir and spruce, mixed with white birch on mesic sites but, since the subdomain has been subjected to at least one forestry cut since the 1930s, it is not the original forest. On less favourable sites, black spruce, jack pine, and tamarack are often accompanied by white birch or trembling aspen. In this area, the spruce budworm is the main factor affecting the forest dynamic, as well as fire potential.

The book 'La Flore Laurentienne' (Brother Marie-Victorin, 1947) suggests that uniform acidity of rocky outcrops determines the flora found near the project area. Furthermore, vegetation growing in a limestone setting at a relatively warm temperature are excluded from the territory (MTQ, 2009).

According to the most recent CDPNQ data (2023), there have been occurrences of species at risk within 8 km of the PEA study area, of Lake-cress (Rorippa aquatiqua), Sand Violet (Viola sagittata var. ovata) and Calypso (Calypso bulbosa var. americana).

The soil maps indicate pedological data that may serve as wetland indicators. According to pedological maps 32D11101 and 32D11102 of the IRDA (2009), the study area is generally surrounded by heavy clay deposits, but a peatland is observed approximately 400 to 500 metres west of it. An area of organic accumulation (various soils), however, has been noted about 400 to 500 metres west of the project area. Likewise, according to IEQM (2023), several potential wetlands could be found in the vicinity of the project area, mostly bog. Moreover, in this area, numerous beaver habitats are present (ponds, dams), which contribute to alteration of the hydric nature of the habitat.

The province of Québec is divided into 96 fur-bearing animal management units (UGAF), which account for the range of species. Based on the annual statistics of gross pelt quantities sold compiled by the management system of the trapping on public lands included in the UGAF, the project area is located in UGAF3 and is close to UGAF5. Furthermore, according to the 2021-2022 data collected by the MNR for Abitibi-Témiscamingue (UGAF 1 to 7), 1,092 weasels (Mustella), 4,423 beavers (Castor canadensis), 177 coyotes (Canis latrans), 362 squirrels (Sciurus), 136 wolves (Canis lupus), 299 otters (Lutra canadensis), 752 Canadian lynx (Lynx canadensis), 2,196 American martens (Martes americana), 9 skunks (Mephitis mephitis), 92 black bears (Ursus americanus), 595 fishers (Martes pennanti), 1,659 muskrats (Ondrata zibethicus), 107 racoons (Procyon lotor), 713 red foxes (Vulpes vulpes) and 453 minks (Mustela vison) were captured in the territory between 2021 and 2022, as well as one bobcat (Lynx rufus) and one polar bear (Ursus maritimus), although no local sightings of polar bear have been reported in Duparquet area.

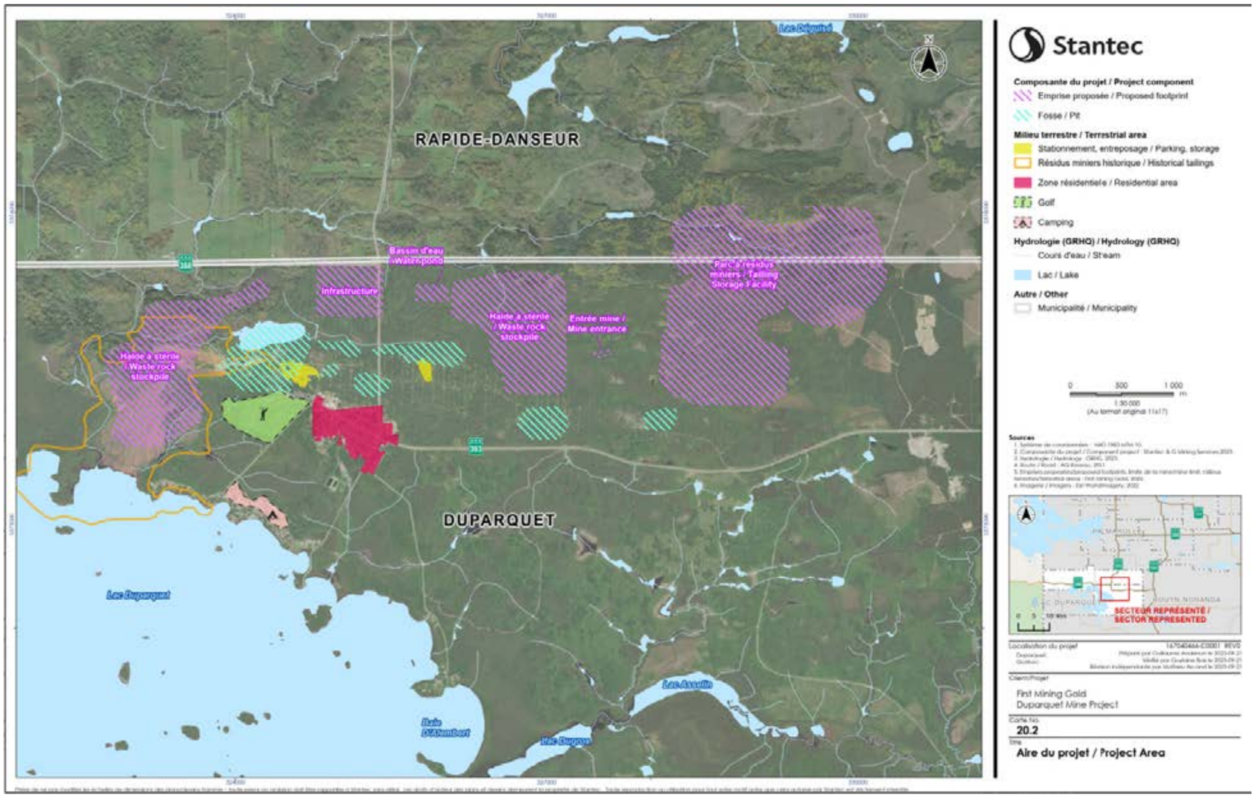
According to the latest data from the World Ornithological database, there have been 274 species of birds identified in the Abitibi-Témiscamingue Rouyn-Noranda region in 2022, including six threatened species, six invasive alien species and one species that is extinct (Avibase, 2022). According to the latest CDPNQ data (2023), there have been occurrences in the project area of the bank swallow (Riparia riparia), the black tern (Chlidonias niger), and the bald eagle (Haliaeetus leucocephalus).

Furthermore, according to CDPNQ data, the bald eagle (Haliaeetus leucocephalus) is also recorded at two places southwest of the project area. This bird has been designated as a vulnerable species. The presence of an aquatic bird concentration area, heron colonies and bald eagle nests (special status species) were confirmed in the area. Bird and terrestrial wildlife surveys should be completed in subsequent environmental assessments.

No official list of amphibians and reptiles exists for the study area. According to the report on the status of the pickerel frog (Lithobates palustris), prepared by Mathieu Ouellette for MNR in June 2012, frogs are important components of the ecosystems. Furthermore, several international studies and monitoring activities have shown that the vulnerability of frog species is related to the fragmentation of their habitat and exposure to chemical pollutants. Moreover, during the course of August 2013 surveys, one species of snake was recorded (Roche, 2013). CDPNQ (2023) also indicates that an occurrence of Blanding's turtle (Emydoidea blandingii) was observed north of Lake Duparquet near chemin Gamache and on Route Principale (National road) 393 in 2012.

The technical teams who will lead the environmental assessment of the Duparquet Project will develop several inventories of terrestrial habitats, wetlands, and watercourses to identify plant species present in the Project area (Figure 20.2), as well as those that may potentially be present. No exhaustive floral inventory has been made on the Project area to date. Therefore, the absence of reports of other threatened or vulnerable species in the study zone may not necessarily mean absence of species but that there have been no field surveys in this area. The same applies to wildlife species. Teams will be conducting field work and inventories in the project area.

Figure 20.2: Project Area



Source: Stantec, 2023

20.2.2 <u>Aquatic Ecosystem</u>

The area within and around the project includes several waterbodies and watercourses, the Glory Hole, a water-filled historical mine opening to surface, and to the south, Lake Duparquet (Figure 20.3). The majority of inventories will be carried out in the project area. Aquatic fauna habitats will also be characterized and sampled in waterbodies and streams in the area surrounding the project.

According to the MRNF, two spawning areas are potentially present in the region: one for walleye (Stizostedion vitreum) and the other for pike (Esox lucius). To document the use of potential spawning grounds as well as the presence of young fish near the shoreline, inventories will be carried out in the watercourses/water bodies and in Lake Duparquet during fieldwork. Additionally, characterization of fish habitat will be based on approved protocols (Impact Assessment Act, Fisheries Act, and provincial requirements) adapted to the size of the area. Efforts will be made to identify aquatic species at risk and will be performed in potential habitat.

The area contains a number of naturally occurring lakes. The largest is Lake Duparquet, which has a surface area of 50 km^2, and Lake Hébécourt, which has a surface area of 8 km^2 and is located west of

Lake Duparquet. The area also includes the Duparquet River north of Lake Duparquet, the Magusi River west of Lake Duparquet and the Mouilleuse River farther south. They all have a hydrological connection to Lake Duparquet but are not located near the project site.

According to the CDPNQ (2023), 35 fish species are potentially present within an 8 km buffer from the project area. Table 20.1 below presents those species. Only the lake sturgeon is listed as endangered as per species at risk act (SARA) and likely to be designated threatened or vulnerable under the Québec Threatened or Vulnerable Species Act.

According to Ducks Unlimited (2009), heavy metal inputs into the aquatic environment and contamination of fish flesh have been observed in Lake Duparquet.

Table 20.1: List of Fish Species Potentially Present within an 8 km Radius from Project Area

English Name	Latin Name
Northern largemouth bass	*Micropterus dolomieu*
Brown bullhead	*Ameiurus nebulosus*
Spoonhead sculpin	*Cottus ricei*
Spoonhead sculpin	*Cottus bairdii*
Slimy sculpin	*Cottus cognatus*
Shorthead redhorse	*Moxostoma macrolepidotum*
Lake cisco	*Coregonus artedi*
Rock bass	*Ambloplites rupestris*
Pumpkinseed	*Lepomis gibbosus*
Yellow walleye	*Sander vitreus*
Sauger	*Sander canadensis*
Brook stickleback	*Culaea inconstans*
Lake sturgeon	*Acipenser fulvescens*
Common logperch	*Percina caprodes*
Pike	*Esox lucius*
Lake whitefish	*Coregonus clupeaformis*
Mooneye	*Hiodon tergisus*

English Name	Latin Name
Goldeye	*Hiodon alosoides*
Burbot	*Lota lota*
Freshwater drum	*Aplodinotus grunniens*
Lake chub	*Couesius plumbeus*
Emerald shiner	*Notropis atherinoides*
Golden shiner	*Notemigonus crysoleucas*
Blacknose shiner	*Notropis heterolepis*
Finescale dace	*Chrosomus negogaeus*
Northern redbelly dace	*Chrosomus eos*
White sucker	*Catostomus commersonii*
Longnose sucker	*Catostomus catostomus*
Allegheny pearl dace	*Margariscus margarita*
Brook trout	*Salvelinus fontinalis*
Trout-perch	*Percopsis omiscomaycus*
Yellow perch	*Perca flavescens*
Spottail shiner	*Notropis hudonius*
Johnny darter	*Ethostoma nigrum*
Pimephales promelas	*Pimephales promelas*

20.2.3 Air Quality

The air quality is expected to be typical of rural areas as the town of Duparquet consists of forested areas, farm fields and some small industrial activities including gravel pits. The recent attention received in the media regarding emissions from the Glencore Horne Smelter located in Rouyn-Noranda, which is about 35 km southeast of the project and unlikely to have an effect on the Project area. This publicity has heightened public awareness in the region regarding air quality. While the Glencore Smelter is expected to be too distant from Duparquet to have significant impact on local air quality, quantifying baseline air quality will be important.

20.2.4 Social, Cultural and Economic Environment

The Duparquet Project is located in the Abitibi-Temiscamingue region in its namesake community. The nearby communities, along with Duparquet, include LaSarre and Rouyn-Noranda, and have been shaped primarily by natural resource-based industries, including mining and forestry. There are currently six operating gold mines in the region and 11 mine projects under development according to the MRNF. In 2019, mineral exploitation activity generated 1 in 7 jobs in the region (OAT, 2019).

Exploration in the Duparquet area began in the early part of the 20^{th} century, and production of gold began in 1932 at the Beattie mine. The mining operation continued until 1956. From 1956 to 1987, the Beattie mine remained mostly dormant apart from custom roasting of molybdenum concentrate. Between 1987 and 2010 there was a second period of activity in the area, mainly involving diamond drilling programs. From 2008 to 2013, Clifton Star undertook several drill programs in the area. In 2016, First Mining completed a business transaction with Clifton Star to acquire the Duquesne Project and a minor interest in the Duparquet Project. In 2022, First Mining closed the acquisition of the Duparquet Project and in 2023 acquired the Porcupine East claim block, thereby consolidating the Duparquet, Pitt Gold, Duquesne, and Porcupine East properties into a single contiguous land package.

Forestry and logging were important economic drivers in the Abitibi-Temiscamingue region from the early 20^{th} century and remain so today. The industry was primarily in support of the pulp and paper industry, but also construction supply.

According to the 2021 Canadian census, the main industries providing employment to residents of the Abitibi-Ouest RCM were health care and social assistance, mining, quarrying, and retail trade (Statistics Canada, 2021).

The region is also used for recreational activities, including hunting, fishing, hiking, canoeing, backcountry camping, snowmobiling, ATV use and boating. The local quad and snowmobile associations maintain roads and trails which provide access to the area for recreational and other users. There are several private cabins and chalets in the region, primarily around ponds, lakes, and rivers. There are also many surface leases on public lands registered with the MRNF in the vicinity of the Project area, five of which are active within the Project area (according to MRNF). The Project area occurs within hunting zone No. 13 for big game (e.g., moose, caribou, black bear) and UGAF 03 trapping areas for small game (e.g., beaver, weasel, muskrat, furbearers).

The province manages 5,088 protected areas, including 31 provincial parks, 72 ecological reserves, 1,104 wildlife habitat areas, 2,856 wildlife refuges, 242 exceptional forest ecosystems (EFE) and other lands reserved for protected areas or natural habitat with voluntary conservation (MELCCFP, 2022). There are four provincial protected areas in a 3 km buffer from the project, including to the west the Akotekamik Old-Growth Forest, the Pointe-aux-Cabines Rare Forest Ecosystem, to the north the Ruisseau Daiguisier aquatic bird concentration area, and to the south the Lac Duparquet, Île Amik Heronry. The closest National Park is Aiguebelle approximately 20 km east of the Project. Furthermore, the Lake Duparquet Teaching and Research Forest (FERLD) has three EFEs within its boundaries: the ancient Akotekamik forest, the ancient Lake Bayard Forest and the rare Lake Duparquet Forest. These three ecosystems are located approximately 5 km southwest of the Project.

20.3 Acid Rock Drainage / Metal Leaching

The Duparquet Project lies within the Abitibi terrane of the Archean Superior Province. The local geological setting is represented by the Kinojevis, Timiskaming, and Blake River groups. The Property area is characterized by the presence of two syenitic plutons orientated east-west, bounded by E-W trending major faults, which are interpreted as splays of the main SE-trending Destor-Porcupine Fault Zone. Rocks underlying the Duparquet Project are generally made up of intercalated felsic (rhyolitic to dacitic) and mafic (basalt to andesite) metavolcanic flows. Metasedimentary layers consisting of arkosic sandstones, greywackes, argillites, crystal tuffs, and conglomerates are also present.

Gold mineralization in the Duparquet deposit generally occurs within shears or fracture zones along or within the adjacent syenitic intrusions and is associated with finely disseminated pyrite and minor arsenopyrite replacement. Minor amounts of chalcopyrite, molybdenite, sphalerite and galena have been observed, associated with the gold-bearing mineralized zones. Sulphide content in the mineralized zones is generally low (0.5 to 4%), although it can be up to 10% in cases. Gold-bearing mineralization within the Duparquet deposit is associated with carbonate, chlorite, fuchsite, and sericite alteration as a product of hydrothermal fluid interaction. The typical mineral assemblage found within the mineralized material zones is characterized by the presence of feldspar, quartz, sulphides (pyrite and arsenopyrite), sericite, chlorite, and other secondary minerals. Mill tests suggest that approximately 35% of the gold is in a free state, with the remainder associated with sulphides.

Historical tailings boundaries were outlined by Fillion (2009). The mine tailings are contained within a well-defined, naturally occurring topographic basin that prevents them from spreading, except on the side of Lake Duparquet. There, the tailings have spread over a distance of 300 m into the lake along a very gentle slope. The tailings overlie lacustrine clay. A cover of organic matter, sometimes containing fire residue, is often present between the tailings and the lacustrine clay. Many intermittent creeks appear and then drain out over the course of the year in the general area of the tailings. One main trail crosses the entire area up to the lake and can be used all year long. Vegetation grows slowly on the tailings surface and consists of several species of trees, including birch, poplar, and spruce. A marsh is present in the northwest part of the property. A permanent waterway isolates the west part of the tailings area. Tailings samples were collected to allow estimation of Measured, Indicated, and Inferred mineral resources, and to determine the potential amenability of the material for processing.

According to the PFS (Poirier et al., 2014), different waste rock samples (including samples of sedimentary, volcanic and syenite rock) have been previously tested and results showed that they are not acid generating and potentially leachable according to TCLP test results. A geochemical program will be undertaken by First Mining to confirm that the waste rock will have minimum long-term environmental impact and is potentially useful for engineering purposes to construct an access road.

The Duparquet flowsheet described in Section 17 is a conventional flotation-based process with stages of crushing, grinding, comminution, rougher flotation, filtration, and tailings storage. The flotation circuit is proposed to create a saleable concentrate which will be further smelted off-site. No cyanide will be introduced in the flotation circuit. The produced tailings stream will be discharged to the tailings storage facility (TSF) on site. First Mining must carry out a detailed geochemical assessment on the ore material, the flotation tailings, and the waste rock, to adequately identify potential risks for acid generation and metal leaching. Acknowledging that the flotation tailings resulting from the flotation dewatering circuit will mainly contain oxide materials and reagents (i.e., flocculants, collectors, xanthates) with low sulphur content (<0,3%), this portion is expected to be a non-acid generating material. And potentially if sulphide oxidation occurs, it is expected that the content of carbonate minerals with intermediary reactive minerals of pyllosilicates will contribute to the neutralization. This hypothesis will be confirmed during the detailed geochemical assessment through static and kinetic testing. Preliminary understanding of the proposed metallurgical process indicates a low risk of acid generation potential and as no cyanidation is proposed on site the tailings are not at risk due to cyanide exposure.

The interpretation of the geochemical data will be based on the regulatory criteria of Directive 019 (Government of Québec, 2020) and federal guidance provided in Price (2009) followed by the assessment of materials for risk of leaching potential. Initially, mining waste samples will be screened and will be submitted for the following analyses: whole rock analysis, quantitative X-Ray Diffraction (“XRD”), strong acid digest ICP-OES/MS elemental analysis, leaching potential, modified acid-base accounting (“ABA”), net acid generation testing, and decant solution chemical analysis. In a subsequent study phase, kinetic column testing will be carried out to accurately understand the geochemical behavior of these tailings over short and long term. The column test leachates will be evaluated to the screening criteria of Québec regulatory guidelines for surface water (RESIE). A similar geochemical process will also be assessed for the historical tailings present on site.

20.4 Environmental Baseline Studies

Table 20.2 lists the environmental studies and data collected in the vicinity of the Duparquet Project development area.

Additionally, a number of environmental baseline studies proposed for the Project in support of anticipated environmental assessment have been developed by First Mining in collaboration with Stantec. First Mining will further develop and implement environmental studies in collaboration with regulatory agencies and other stakeholders.

Table 20.2: Environmental Studies and Data Collection

Valued Component	Name, Author, and Issued Date	Description
Soil and Terrain	Drinking Well Studies (Stavibel, 2014)	Soil quality regarding the construction of a drinking water pipeline along Chemin du Camping. Report shows several samples (in TR-01, TR-04 and TR-07) with metal exceedances, more specifically with arsenic. Arsenic concentration is above Appendix III values as per *Règlement sur la protection et la rehabilitation des terrain* (C criteria), but none of the sample exceed Appendix I (D criteria). Sampling was completed in seven trenches for a total of 15 soil samples and four duplicates.
	Mineral Resource Estimate (Genivar, 2009)	This report presents the characterization of the Beattie Mine tailings to determine the potential of the material for future processing, including a resource estimate for a portion of the tailings area. (271 stations, with or without taking samples) Eight sample points were selected to obtain assays for Be, As, Hg, Cu, Ag, Pt, Pd, Pb, Cr+6, BPC, Cd. Samples were taken for the VOC (Volatile Organic Compounds) analysis at the same time as the samples for gold were taken.
	Technical Report & Pre-feasibility Study for the Duparquet Project (Poirier et al., 2014)	This report present physiography with general specification of soil and terrain in the vicinity of the project area

Valued Component	Name, Author, and Issued Date	Description
Water resource Hydrogeology	Technical Report & Pre-feasibility Study for the Duparquet Project (Poirier et al., 2014)	The PFS presents the result of the 2010-2011 surface water study at Creek #1 (24 samples). In addition, it shows the results of the surface water sampling in 2013 in the watercourse and lake in the vicinity of the project. Groundwater monitoring was also present. This monitoring consisted of 21 sampling programs conducted between June 1999 and May 2011.
	Historical Roaster Dust Storage Unit As (III) Bunker Characterization Plan (Blumetric/Stantec, 2022)	This document presents data collection and review leading to the Groundwater Monitoring Plan for Arsenic Trioxide Storage Unit. Ten groundwater monitoring wells were installed around the historical roaster dust storage unit. Groundwater samples were collected during summer 2022. Samples were submitted to the laboratory and analyzed for C10-C50 petroleum hydrocarbons, metals, dissolved organic carbon and inorganic compounds as well as several physico-chemical parameters. Results shows concentrations of dissolved arsenic in groundwater ranging above applicable criteriaL. Comparison between sampling (2022) and baseline studies (2012 and 2013) shows that dissolved arsenic across the Project area varied between 14,600 and 3,860,000 µg/L while the 2021 due diligence sampling indicated a variance between 96 and 5,900,000 µg/L. Conclusions of the due diligence sampling were that the analytical results were consistent with the historical groundwater quality data for the area including the historical roaster dust storage unit.
	Groundwater Sampling (WSP, 2022)	Table shows analytical results for groundwater samples

Valued Component	Name, Author, and Issued Date	Description
Technical Process	Stabilization Of Arsenic Residues Using the GlassLock™ Process: Environmental Classification of Duparquet Glass (Dundee, 2022)	The study evaluates the Glasslock™ vitrification process: • Comparison of Ca-Mn based glasses versus Ca-Mg based. • Content in arsenic of vitrified products ≈ 12%wt The environmental characterization program included: • Chemical / mineralogical composition of glasses • Acid generation potential • Leaching of contaminants: Static tests • Leaching and mobility of contaminants: Kinetic tests Conclusion: Glass is not leachable Study recommends on site test, cost evaluation and several other evaluations regarding As in glass.
Social	Municipality maps	Town of Duparquet maps regarding public infrastructure such as sewage, aqueduct, wastewater and land use (built environment and place of leisure)
Terrestrial	Technical Report & Pre-feasibility Study for the Duparquet Project (Poirier et al., 2014)	This document presents Department of Energy and Natural Resources of Québec (MNR) information regarding vegetation and wetlands and terrestrial wildlife. It also indicates that in 2014, no exhaustive inventory was held for those topics.
Aquatic	Technical Report & Pre-feasibility Study for the Duparquet Project (Poirier et al., 2014)	This document present existing data. It also presents fish habitat characterization held in August 2013 in 9 watercourses. No experimental fisheries were achieved during the August 2013 field surveys. Accredited lab performed several geochemical tests on various samples of waste rocks and ore selected by Clifton Star's geologists. Flotation and POX tailings samples were produced by SGS Minerals Services. The results indicated that the Duparquet's mining residues were not high risk, not potentially acid generating except for POX tailing and are potentially leachable
Geochemistry	Technical Report & Pre-feasibility Study for the Duparquet Project (Poirier et al., 2014)	This document presents results of waste rock, mineralized material, and tailings environmental characterization.

20.5 Hydrology

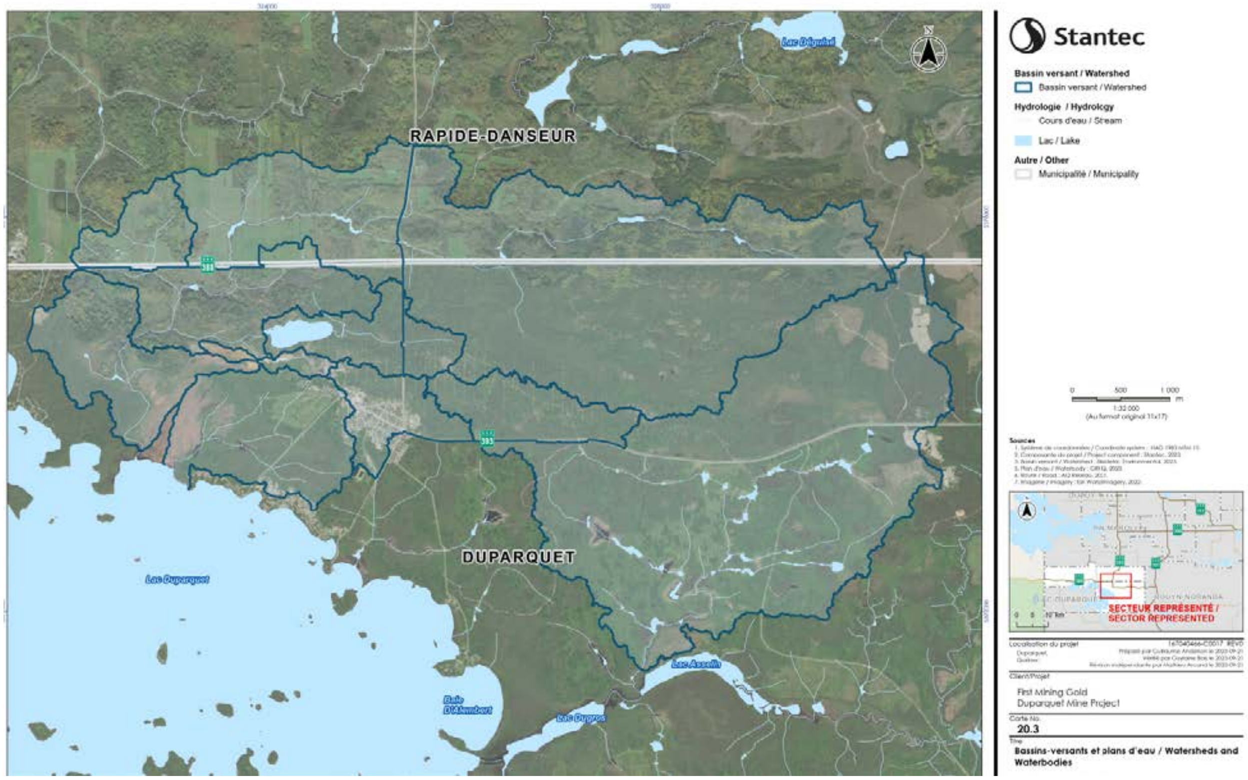
The mine is located just north of Lake Duparquet and will discharge effluent water into this lake. Lake Dasserat, Lake Arnoux, and Lake Flavrian, located about 30 km south of the mine, discharge their water into Lake Duparquet through the Magusi, Kanasuta, and Mouilleuse rivers. Water from Lake Duparquet then flows to Lake Abitibi, about 15 km downstream, through the Duparquet River. Figure 20.3 depicts the watercourses and waterbodies within and surrounding the Project area. As depicted in Figure 20.3, the main watercourse whose watershed overlaps the project area is referred to locally as West Creek but is officially an unnamed stream. It starts flowing from the east to west and then turns south and flows into Lake Duparquet, just west of the existing tailings beach. The historical mine pit, termed the Glory Hole, is located in the West Creek watershed. The West Creek watershed drainage area is approximately 1,600 ha. Close to one third of the Property is located within this watershed. The remainder of the Property is located in the headwater areas of several watersheds flowing to the south, i.e., also towards Lake Duparquet.

Flow and water levels were recorded at several local monitoring stations in June and July 2011. Apart from these hydrometric measurements in 2011, no hydrometric monitoring program has been completed.

Three surface water quality sampling campaigns were completed in the summers of 2012, 2013, and 2022. The 2012 campaign included 24 sampling stations, with two stations to the north of the site, upstream from the influence of the historical tailings, several stations around the historical tailings, and in Lake Duparquet. The water quality sampling campaign that took place in 2013 was smaller but provided more details about the physical environment around each station. Three stations were located around the historical tailings, one station in Lake Duparquet, and six stations were located upstream and downstream of the mine site, close to access roads and highways.

The Project is subject to the federal Metal and Diamond Mining Effluent Regulations (“MDMER”), SOR/2002-222), and Effluent Monitoring Condition – Schedules 3, 4, and 5 list the requisite surface water quality monitoring parameters and requirements. Directive 019 for the mining industry, from the *Ministère de l’Environnement, de la Lutte contre les Changements Climatiques, de la Faune et des Parcs* (MELCCFP, 2012) describes effluent limits and monitoring parameters in Section 2 of the Directive.

Figure 20.3: Waterbodies and Watersheds



Source: Stantec, 2023

20.6 Hydrogeology

Mining activities can have a significant impact on groundwater resources, including contamination, depletion, and alteration of groundwater quality and quantity. To mitigate these impacts, mining companies operating in Québec are required to comply with several regulations at the provincial and federal levels. In terms of groundwater, the main regulation is *Directive 019 sur l'industrie Minière* (March 2012) – Government of Québec.

Directive 019 contains two important components in terms of legislation for groundwater in a mining context, namely:

- The protection of groundwater for specific equipment/infrastructure that can pose a risk to the environment, such as an ore processing plant, mine tailings accumulation area, storage area for petroleum and chemical products.
- The presentation of a hydrogeological context and the establishment of the local hydrogeological characteristics; including examining the possible hydraulic links between the study site and various receptors present in the region, such as catchments, aquifers, bodies of water, watercourses, and wetlands.

No comprehensive site-wide hydrogeological assessment has been performed to date for the Duparquet Project. Several targeted groundwater investigations have been undertaken in relation to historical tailings (SNC-Lavalin Environment, 1995), the Beattie deposit (SNC-Lavalin Environment, 2012) and groundwater monitoring surrounding an arsenic trioxide storage bunker on site. From data collected in the past it appears that groundwater flows to the south, towards Lake Duparquet. Based on a review of geological maps, soils on the site consist of thin layers of sand or silty sand and clay.

First Mining is developing a comprehensive Duparquet project site-wide groundwater investigation plan incorporating the following considerations:

- Historical mining activities consisted of underground workings that extended to depths greater than 600 m. The proposed pit will overlay the existing underground workings, which will need to be considered during the initial phase of pit dewatering. It is likely that the underground workings will need to be dewatered in advance of the open pit development to reduce large inflows and to facilitate drilling of dry blast holes. Underground working dewatering is the likely most effective means of pit zone dewatering.
- The proposed pits and mine infrastructure are near Lake Duparquet and the Glory Hole (which connects with the historical underground workings). Understanding the groundwater regime and the interaction between the surface and ground water features will be important when assessing the potential environmental impacts of future mine infrastructure.
- Hydraulic characterization of the Beattie Fault Zone (“BFZ”), Donchester Fault Zone (“DFZ”), and Central Duparquet Fault Zone (“CDFZ”) and their potential connection with the mineralized deposits and historical underground workings will be critical to development of the conceptual site model and assessing potential mine inflows.
- The proposed project includes re-processing a portion of the historic tailings and ultimately depositing them within a new tailings storage facility permitted to current standards. Therefore, characterization of the historical tailings and their effect on groundwater quality is critical to demonstrate the benefit of the Project to improving historical impacts to groundwater quality.

As a site with historical mine workings, including unconfined tailings deposited at surface and into Lake Duparquet, the development of the Project has the potential to improve existing groundwater conditions. One way is by the collection, reprocessing, and placement of historical tailings in a modern, engineered tailings impoundment, and another is by reversing the hydraulic gradient toward Lake Duparquet from zones where mine waste was deposited toward the open pit. Open pit dewatering will be treated to current regulatory criteria prior to discharge to the natural environment. Thus, during the time of open pit development and pit refilling, the hydraulic gradient will direct potentially contaminated groundwater away from natural receivers to the pit where it will be treated prior to discharge. Other potential improvements include remediation works regarding the arsenic trioxide bunker and covering, and/or removal of other deposited mine waste.

The field groundwater program will assess existing monitoring wells on site, develop new monitoring wells and build off exploration wells that may be used for monitoring and testing purposes.

20.7 Duparquet Project Site Environmental Factors

Several specific environmental factors are important considerations for the Duparquet Project, including arsenic and molybdenum management, reprocessing of historic tailings, and proposed construction of a green wall separator berm.

20.7.1 Historical Roaster Dust Arsenic Management

The Duparquet Project is located on former mining sites which were operated for gold production between 1933 and 1956. Within the current project area, there are historical mining arsenic trioxide roaster and flue dust from the previous roasting process stored on site. Approximately 3,500 t of arsenic trioxide is stored in barrels and within a concrete bunker structure. First Mining is currently taking measures to ensure a sound and efficient management of these residues while respecting the environment, including investigations such as GlassLock™ stabilization of roaster and flue dust residues as described in Table 20.2.

The proposed solution for the disposal of the residues will involve placing them in certified UN Super Sacs. These Super Sacs (big bags) will then be carefully placed in shipping containers on site. To provide optimal sealing, the interior of the maritime containers will be coated with polyethylene liners. This measure represents a significant precautionary and secondary containment measure aimed at preventing spills into the environment. Groundwater monitoring at the temporary storage site will be conducted in accordance with Directive 019 for the mining industry.

The potential for revalorization of gold-containing arsenic trioxide will be considered during the evaluation of the treatment option for the Duparquet Project. It is important to confirm that the selected treatment process can handle, neutralize, and securely store these residues. However, if revalorization proves to be unfeasible, thorough research will be conducted to find a permanent solution, such as finding a smelter which would accept those residues for revalorisation. If this avenue is chosen, the residues already in Super Sacs and containerized will be easily transportable.

Throughout the entire process, First Mining is committed to diligently adhering to the established residue management plan, thereby demonstrating its dedication to environmental preservation. Plans for a new storage containment system for the arsenic trioxide and demolition of the historic storage bunker are under consideration with regulatory authorities. The remediation and revised management of arsenic trioxide is an activity First Mining is engaged in and committed to independently from the PEA and the proposed reopening of the Duparquet mine site, and thus its costs and activities while discussed herein are not specifically a mine development activity nor are included in PEA mine development costs.

20.7.2 Molybdenum Management

Approximately 200 barrels, some of which contain a molybdenum concentrate derived from other mines are stored on site in metal barrels. The molybdenum concentrate is being transferred to more secure plastic barrels to be housed in shipping containers. First Mining is actively seeking opportunities to provide the material to other users of molybdenum concentrate and/or have the material disposed of at a secure and licensed disposal facility.

20.7.3 Reprocessing of Historic Tailings

During historic mining operations, tailings were deposited on the landscape in an unconfined manner. Tailings have been deposited west and southwest of the town of Duparquet covering an area of approximately 289 ha. Tailings were deposited primarily in the valley of a smaller watercourse west of Chemin Massicotte and east of Isle des Noyés. Tailings were deposited into Lake Duparquet and at the water's edge a 'beach', referred to as Plage du Lac Duparquet, is used as a recreational and swimming area. Much of the tailings surface has established a low-lying vegetative cover, but some locations remain unvegetated. First Mining is proposing to remediate by removal approximately 4.1 Mt of the existing historic tailings in accessible areas above the highwater mark outside the beach area and in swampy areas, reprocess them, and send them to the new proposed tailings storage facility for long term storage.

20.7.4 Green Wall

A noise-and-visual separation berm is planned to be sited between the urban area of Duparquet and the active mine site boundary. The berm is planned to extend along the southern edge of Pits 1, 5, and 4 from near the northern portion of ninth hole of the golf course east to the east side of the provincial road 393, as depicted in Figure 18-1. The berm will be vegetated with grasses and trees to stabilize the soils and provide an aesthetic natural noise and visual barrier between the community and the active mine site.

20.8 Community Relations and Consultation

First Mining is committed to operating the project within a sustainable development framework which protects the environment, contributes to local communities, respects human and Indigenous rights, and adheres to openness and transparency in operations. As per their Stakeholder Engagement Policy, First Mining has engaged (Table 20.3) and continues to engage with relevant government departments and agencies, Indigenous groups, and stakeholder organizations, including communities, business and industry organizations, fish and wildlife organizations, environmental non-governmental organizations, and individuals (i.e. land users, surface rights holders). The objectives of First Mining regarding stakeholder engagement and consultation efforts are to:

- Facilitate respectful, transparent, and timely engagement about their projects.
- Provide opportunities for stakeholders to share feedback about their projects and respond to questions and comments in a timely manner.
- Work with local stakeholders to understand existing and potential future economic development goals and initiatives and participate in those where possible.
- Seek opportunities to leverage and align project development plans with regional development goals for the long-term benefit of area residents and businesses.
- Provide early information about opportunities related to future operations to support stakeholder readiness planning.
- Hire staff and source goods and services for their projects locally and regionally where feasible. First Mining will monitor their performance in this regard and report annually to their stakeholders.

In addition, First Mining renovated and opened its community relations office in the heart of Duparquet in the summer of 2023. First Mining supports community-based initiatives through local sponsorships and is active in the community of Duparquet. Since acquiring the Project, First Mining has added four local resources to the Project team from Duparquet.

Table 20.3: Community Relations and Consultation Activities

Stakeholder or Indigenous Peoples	Date	Description
Duparquet citizens	November 2, 2022	General company and project presentation including the next steps and studies required to validate the development potential. A total of 160 Duparquet citizens were present.
	September 19, 2023	Project update presentation and overview of the Preliminary Economic Assessment and main focus for the next year. A total of 150 Duparquet citizens were present. An open house style tour of the Duparquet community relations and geology office was also held.
	Other	First Mining holds regular update meeting with the Mayor and council of Duparquet on all aspects of on-going work and future planning. Planning initiatives to date have been well-received by the Municipality.

20.9 Regulatory Engagement

Since acquiring the Project in September 2022, First Mining has held meetings with the MELCC, MNRF and Ministry of Mines. The focus of the meetings has been to establish introductory dialogue and share the current status and next steps associated with the advancement of the project. Specific discussions have focused on on-going exploration, and the planning for the reclamation of the historical roaster dust storage bunker. First Mining has emphasized that the future site redevelopment will also support managing the existing brownfield site conditions from historical mining activity on the property including historical tailings, impacted soils and groundwater.

20.9.1 Stakeholder Engagement

First Mining has initiated outreach to local stakeholders with a focus on local land users including the snowmobile club, golf club, and business community. Key contacts have been updated on the current scopes of work and next steps planned for the Project. First Mining is a major sponsor of the golf club and provides for an annual agreement with the snowmobile club to use certain areas of the property for trails. Future plans include expanding the network of stakeholders to share information about the Project.

20.9.2 Indigenous Engagement

The Duparquet Project has not yet received Impact Study Guidelines from IACC nor MELCCFP regarding Indigenous engagement. Introductory outreach to date has focused on the First Nation community of Pikogan located approximately 60 km east of the project. Additionally, as per the Indigenous Peoples Policy, First Mining acknowledges the unique relationship Indigenous Peoples hold within their traditional territories and the rights associated with those lands and resources. First Mining will focus on the environmental protection on those territories in the concept project planning, and through meaningful consultation and collaboration the project can be developed to support the respective vision. The following actions allows First Mining to support these statements:

- Facilitate respectful, transparent, and timely consultation with all potentially affected communities.
- Foster cultural awareness and understanding across the Company of the history and culture of Indigenous Peoples.
- Provide opportunities for local Indigenous communities to share their Traditional Knowledge and land use and incorporate such knowledge in project planning and monitoring studies.
- Provide opportunities and resources for Indigenous communities to participate in environmental studies, identification of environmental protection measures, and ongoing monitoring.
- Collaborate with local Indigenous communities to identify and support community development goals that provide lasting benefits.
- Offer employment, training, and contracting opportunities for Indigenous community members and businesses to participate in First Mining’s projects.
- Support activities that strengthen Indigenous culture, land use, and community wellbeing.

20.10 Rehabilitation and Closure Planning

20.10.1 Activities Involved and Regulations

Under the Québec Mining Act, a person carrying out exploration work prescribed by regulation or operating company must submit a rehabilitation plan for the land affected by its activities to MERN for approval. This approval is conditional upon receiving consent from the MELCCFP. Persons covered by Section 232.11 of the Mining Act must submit a rehabilitation plan and restore the site in accordance with the requirements outlined in Chapter II of the regulatory document. The Mining Act does not supersede or restrict application of the Environmental Quality Act. The applicant is responsible for checking with the MELCCFP and any other municipal or governmental entity to ensure other necessary authorizations are obtained to complete these activities.

Rehabilitation aims to return the site to a satisfactory state by:

- Eliminating health risks and ensuring the safety of people
- Limiting the production and spread of contaminants that could affect the environment and, in the long term, eliminating the need for maintenance and monitoring
- Restoring the site to a visually acceptable condition
- Returning the infrastructure site (excluding tailings and waste rock accumulation areas) to a state compatible with future use

The mining activities which are covered by the rehabilitation plan are:

- Development of accumulation areas (waste rock piles and tailings sites)
- Surface mining
- Treatment of ores or mine tailings
- Work on mine tailings
- Development of accumulation areas for foundry activities and pellet plants

For the mining works listed previously, all mineral substances require the filing of a reclamation plan, with the exception of oil, natural gas, brine, and surface minerals (aggregate). Also excluded from the mineral substances referred to, are the inert mine wastes used for construction purposes, for the manufacture of building materials or for the amendment of soils (chapter M-13.1, r. 2, s. 110). Mineral substances on private land are also affected (chapter M-13.1, s. 217-218), because the definition of “operator” in Section 218 of the Mining Act does not distinguish between deposits located on public or private lands.

20.10.2 Pre-Existing Conditions: Storage and Management of Previous Mining Wastes

The proposed mining area includes a former mining site that was active from 1937 to 1956, the Beattie gold mine, and portions of the infrastructure and mine waste accumulation areas relating to the mine are still present on the site. Arsenic contamination persists on the site, as well as high levels of molybdenum and traces of mineral oils and grease (Poirier et al., 2014). Although, according to investigations carried out on the former waste storage areas of the site in 2010-2011, the mine tailings do not appear to generate acid mine drainage, the levels of several elements exceeded the regulatory criteria, in particular for arsenic, manganese, molybdenum, and in some cases copper, nickel, lead, and selenium (Poirier et al., 2014). Groundwater is also impacted by previous mining activities on this former mining project. The restoration of the new site, whether as progressive rehabilitation or during closure, will improve the current environmental conditions of the site.

Other mining projects in the region have demonstrated solutions to environmental problems on abandoned mining sites. For example, at the Manitou site near Val-d'Or, non-acid generating (NAG) tailings from the Goldex mine made it possible to confine the tailings of the former Manitou site, by constructing a monolayer-type cover with a raised water table.

Arsenic trioxide is one of the most significant environmental by-products of the gold mining industry. The Beattie and Donchester mines contributed to production of this by-product. Up to 3,500 tons of this material are still stored on the Project site in barrels and a concrete bunker and must be managed. A vitrification process is one of the avenues explored for the management of this by-product. A new arsenic trioxide storage approach was developed over the course of this PEA.

20.10.3 Rehabilitation Approaches

The rehabilitation plan must provide the various stages of rehabilitation according to the different components of the mine listed below.

20.10.3.1 Infrastructure

Dismantling of Buildings and Infrastructure

At the end of the mining operations and following the closure of the mining site, the buildings on the site must be dismantled and removed from the site. To the extent possible, they must be reused, resold, or the materials that make them up must be recycled. Buildings and infrastructure could be offices, changing rooms / drys, concentrator, crusher, water treatment plant, etc.

Vehicles and Machinery

At the beginning of the rehabilitation works, all the vehicles and machinery working or in use on the site must be inspected and, if necessary, decontaminated/cleaned to carry out rehabilitation works without generating accidental contamination.

Paths and Access Roads

The removal of asphalt surfaces and the scarification of the underlying terrain of the roads may be considered only after consulting all the stakeholders who may use the access and service roads leading to the site. Soil characterization must be carried out and, depending on the post-rehabilitation use of these roads, the regulatory levels as per the Appendix 2 of the *Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés* concerning the contamination of soils must be respected.

Electrical Infrastructure

Without an alternate agreement with Hydro Québec, power lines supplying only the mining site must be dismantled.

20.10.3.2 Mine waste accumulation areas

Mine Tailings

A preliminary tailings physico-chemical characterization must be carried out, to determine, among other things, the acid generation potential ("AGP") and the CGP (contaminant generation potential). Ideally, this characterization should be carried out continuously during the operating phase.

According to economic and technical process considerations, a major part of the tailings should be placed in the pit for backfilling. Due to the rock volume expansion during its extraction, only part of the tailings may potentially be backfilled. For this reason, tailings that generate the most acid rock drainage ("ARD") or CND (contaminated neutral drainage) should be prioritized for backfilling.

To reduce the rehabilitation effort after closure, decontamination using a desulphurization approach or vitrification of tailings may be considered throughout the period of mining activity. Depending on the availability of materials in the vicinity of the site (e.g., borrow pit, non-ARD and CND generating tailings, overburden, etc.) and on the weather and climate conditions of the site, it will be necessary to construct a cover structure to reduce the risk of ARD generation. The possibilities are numerous but require knowledge of the geochemical, geotechnical, and hydrogeological context of the tailings storage facility. Water flow modeling at the surface and within the tailings facility will help determine the preferred approach. Compilation of the geotechnical and hydro-geochemical behavior of the tailings will determine the most advantageous long-term and cost-effective rehabilitation scenario. Examples of capping structures include capillary barrier effect (CCBE), single layer capping with raised water table, air and water infiltration limiting caps, water capping, geomembranes, etc.

Post-reclamation monitoring of these structures must be carried out using hydrogeological (piezometer) and climatic (meteorological station) instrumentation, and also include geochemical (chemical analysis of the water leaving the structures), and biological (monitoring of vegetation and its effect on the performance of the cover structure) monitoring.

Waste Rock

Like tailings, waste rock should be backfilled when possible, prioritizing the waste rock most at risk of ARD and CND generation. A physico-chemical characterization, static and/or tests combined with microscopy analysis of the composition of the waste rocks, could make it possible to determine in advance the risks of generating contamination of the soils post-reclamation, determining the potential for solubilization of the contaminating elements (arsenic, antimony, chromium, etc.) and their release into the environment. The co-disposal of waste rock and tailings is also possible to ensure the geotechnical stability of the tailings facilities and reduce the risk of liquefaction.

The waste rock piles that will be maintained after backfilling the pit will be subject to post-rehabilitation hydrogeological and geochemical monitoring.

20.10.3.3 Revegetation of the Site

All tailings storage areas and mining area land areas must be revegetated. Consultation with land users is required to determine their needs and the use of the post-restoration area. Several approaches are possible, depending on expectations in terms of social acceptability and the economic and technical feasibility of the work on site, as listed below:

- **Improvement approach (technical reclamation):** expensive and quick. This approach requires several technical and mechanical interventions. It often involves improving substrates with scarification, amendments, planting trees or even seeding. It offers a rapid greening of the area and emphasizes the return of plant biomass.
- **Adaptive approach (natural colonization):** inexpensive and slow. This approach essentially involves monitoring the natural colonization of plant species on the site. It mainly integrates the concept of primary succession and although results take longer, it focuses on the return of biodiversity and ecological services.
- **Hybrid approach**: combining the two approaches mentioned above (example: nurse species, vegetation islands, etc.).

Some technical and/or economic limitations do not allow either approach (example: slope of the waste rock piles, contamination of the tailings, etc.). It will be important to conduct soil amendment and revegetation trials during the operational phases to determine the preferred revegetation approach for site restoration. Emphasis should be placed on the re-establishment of native species. It will be important to carry out post-restoration monitoring of the revegetation of the site, particularly, assessing the presence of invasive alien species. The design of the mine site revegetation plan and the monitoring of post-restoration vegetation is a registered professional activity in Québec and must be undertaken by an agronomist belonging to the Québec Order of Agronomists.

Post-Restoration Water Treatment

When rehabilitating mine waste storage areas, it may be necessary to add a passive final effluent treatment system for water flowing through and from the covered storage facilities. These temporary treatment systems can improve the performance of the accumulation area covers. Several approaches are possible:

- Passive chemical treatment system, some examples are limestone/dolomitic drain, sequential alkalinity-producing system (SAPS)
- Passive biochemical treatment system (example: microbial bioreactor)
- Multi-stage treatment system (example: three-unit system with two limestone/dolomitic drains and a microbiological reactor).

Post-rehabilitation monitoring of the performance of these systems is essential to confirm the quality of the water leaving the site.

Chemical monitoring of the water quality by laboratory analysis will therefore have to be carried out at the level of the final effluent, several years after the rehabilitation work.

20.10.4 Financial Assurance

As defined in the *Mining Act*, a lessee of a mining lease shall provide financial assurance as part of a Rehabilitation and Closure Plan prior to site development. The financial assurance amount is based on the cost estimate for the closure activities as presented in the Rehabilitation and Closure Plan. The Rehabilitation and Closure Plan is yet to be developed for the Duparquet Project. Refer to Section 21 of this report for further closure cost details.

The financial assurance provides guarantee that funds will be available to carry out the works planned in the rehabilitation and closure plan in case of default by the applicant. It covers the full cost of the rehabilitation and reclamation works for the entire mining site as laid out in the restoration plan (Chapter M-13.1, 232.4). The costs of all the studies required for the rehabilitation and reclamation of the mining site, including environmental characterization studies, environmental monitoring, must be taken into account in the calculation of the financial assurance. The restoration costs must be estimated and works carried out by a third party. The applicant carrying out or having works of exploitation carried out must submit its financial assurance to the MERN before the start of the works. The applicant carrying out works of exploitation must pay the financial assurance according to the following terms (Chapter M-13.1, Regulation 2, 113): 50% of the total amount must be provided within 90 days of receipt of approval of the plan; 25% of the total amount must be provided one year after the date of approval of the plan; 25% of the total amount must be provided two years after the date of approval of the plan.

The financial assurance must remain in effect until a release certificate is issued under Section 232.10 of the Québec Mining Act. However, the amount of the financial assurance may be adjusted based on the progress of the restoration work outlined in the approved restoration plan or if changes to the mining activity warrant a revision of the restoration plan.

20.11 Jurisdiction, Applicable Laws, and Regulations

20.11.1 Federal Impact Assessment Act (IAA) (2019) and Québec Environment Quality Act

Regarding potential IAA triggers, there are two conditions within the Physical Activities Regulations issued under the IAA that may designate this Project under the Act, for which an impact assessment would be required, as follows:

- The construction, operation, decommissioning, and abandonment of one of the following: …(c) a new metal mine, other than a rare earth element mine, placer mine or uranium mine, with an ore production capacity of 5 000 t/day or more.
- The expansion of an existing mine, mill, quarry or sand or gravel pit in one of the following circumstances: …(d) in the case of an existing metal mill, other than a uranium mill, if the expansion would result in an increase in the area of mining operations of 50% or more and the total ore input capacity would be 5,000 t/day or more after the expansion.

The Duparquet Project is likely to trigger the IAA under both of these clauses – if the Project is considered a new mine, then the ore production capacity will be exceeded, or even if the Project is considered an expansion of the previously operating mines, the anticipated footprint of the new mine in combination with the ore production capacity will be exceeded as well.

However, there is a possibility First Mining may avoid triggering the IAA if this Project is considered an expansion of the existing mines on site consolidated into one mine property, and if the footprint of the consolidated mining operations area of the historical mines does not increase by 50% or more, even though the total ore capacity of the Project is expected to exceed 5,000 t/day. This will depend on the consolidated size of the operating limits of the previous mines and the ultimate footprint of the new mining operation, as well as a positive reception from the Impact Assessment Agency of Canada (IAAC) regarding this interpretation.

Based on a review of provincial environmental assessment requirements, one condition within the regulation regarding the environmental impact assessment and review of certain projects issued under the Québec Environment Quality Act (EQA) that trigger the environmental impact assessment and review procedure, is as follows:

- (2) the establishment of a mine whose maximum daily capacity for extracting any other metal ore [uranium or rare earth] is equal to or greater than 2,000 metric tons.

For any project subject to a federal impact assessment, the IAAC requires the Agency to develop an Impact Assessment Cooperation Plan that sets out how it will work with other jurisdictions. These plans aim to satisfy the requirements and objectives of the IAA and the participating provincial jurisdiction to reduce duplication, increase efficiency and certainty, and draw on the best available expertise. Cooperation plans will be developed with other jurisdictions during the planning phase, setting out how the jurisdictions plan to cooperate during the impact assessment process of a specific project.

Federal – Provincial Cooperation may take one of three forms:

- A coordinated impact assessment (IA) in which the federal and provincial governments coordinate a single IA through information sharing, creating joint working groups or public engagement, coordination project guidance, and wholly delegating parts of the IA to the EQA process.
- Substitution, in which the federal government would rely on the EQA process.
- A Joint Review Panel, in which the federal Ministry of Environment and Climate Change would enter into an agreement with the MELCCFP to jointly establish a Review Panel to undertake the IA.

A Federal – Provincial Cooperation Plan typically sets out how the IAAC will cooperate with the province on matters including the approach to cooperation, gathering and review of proponent information, timeline management, information sharing, public engagement, Indigenous consultation, and decision-making.

20.11.2 Québec Mining Act

The Mining Act and the Regulation respecting mineral substances other than petroleum, natural gas, and brine contain provisions requiring companies to reclaim the land that is affected by their activities. These requirements apply to both mineral exploration activities and mining operations. The law requires corporations to submit a rehabilitation and restoration plan (subsequently referred to as the "Closure Plan") and provide financial guarantees covering the cost of reclamation work. The Closure Plan must be approved by the *Ministère des Ressources Naturelles et des Forêts* (MRNF) before mining activities begin in the case of mineral exploration, and before a mining lease is issued in the case of mining operations.

The Québec Mining Act binds the government and its departments and agencies that are mandataries of the State. The Act specifies that mining activities must consider the rights and interests of Native communities as an integral part of reconciling mining activities with other possible uses of the territory.

20.11.3 Species at Risk Act (SARA) and QC Threatened or Vulnerable Species Act

Both federal and provincial governments regulate species at risk and their protection through specific legislation. SARA is intended to protect species at risk in Canada and their “critical habitat” (as defined by SARA). Under SARA, proponents are required to demonstrate that no harm will occur to listed species, their residences or critical habitat, or identify adverse effects on specific listed wildlife species and their critical habitat, followed by the identification of mitigation measures to avoid or reduce effects. Activities must comply with SARA, with prohibitions against (1) the killing, harming, or harassing of endangered or threatened SAR (Sections 32 and 36); and (2) the destruction of critical habitat of endangered or threatened SAR (Sections 58, 60 and 61).

The Québec MELCCFP also provides special protection for 86 native plant and 38 animal species considered to be endangered, threatened or vulnerable in Québec. In addition, 235 vascular plants and 187 nonvascular plants (bryophytes), and 115 animals are likely to be designated threatened or vulnerable.

20.11.4 Natural Heritage Conservation Act

As per the first paragraph of this Act: The purpose of this Act is to ensure the conservation of Québec’s natural heritage and of the associated values. More specifically, the Act is intended to:

- (1) facilitate the expansion of the network of areas covered by conservation measures in Québec and the efficient management of protected areas
- (2) allow citizens as well as local and Aboriginal communities to become more involved in the conservation of biodiversity, in particular in the creation and management of protected areas
- (3) ensure that the various government departments and bodies that assume biodiversity conservation-related responsibilities collaborate in the selection, designation, and management of protected areas.

The conservation measures provided for by this Act, including protected areas, constitute a set of measures intended to ensure the maintenance of Québec's natural heritage and of the ecosystems it comprises, particularly, their protection, ecological restoration, and sustainable use.

20.11.5 Fisheries Act

Amendments to the Fisheries Act came into force in 2019, reintroducing provisions for the protection of fish and fish habitats, notably the prohibition against harmful alteration, disruption, or destruction (HADD) of fish habitat. The Act also prohibits activities that cause the "death of fish" (other than permitted fishing activities), considers the cumulative effects of development activities, and provides additional protection for highly productive, sensitive, rare, or unique fish and/or fish habitats. If death of fish or the HADD of fish habitat will likely result from a project, proponents are required to apply for an authorization from the Minister of Fisheries and Oceans as per Paragraph 34.4(2)(b) or 35(2)(b) of the Fisheries Act Regulations. The application must include an offsetting plan to counterbalance the HADD, along with a financial guarantee as an assurance mechanism should the offsetting plan not be completed. A Fisheries Act authorization includes terms and conditions the proponent must follow to avoid, mitigate, offset, and monitor impacts to fish and fish habitat resulting from a project. Other key amendments to the Act include strengthening the role of Indigenous peoples in application reviews, introducing a new permitting framework, codes of practice, and new decision-making criteria.

20.11.6 Metal and Diamond Mining Effluent Regulations (MDMER)

The MDMER, pursuant to the Fisheries Act, replaced the former Metal Mining Effluent Regulations (MMER), with provisions that have come into effect between June 1, 2018, and June 1, 2021.The MDMER strengthens effluent quality standards and improves the efficiency of environmental effects monitoring (EEM).

The MDMER adds requirements for a fish tissue study for selenium (under specified monitoring results), and additional substances to be monitored (i.e., chloride, chromium, cobalt, sulphate, thallium, uranium, phosphorus, and manganese) as part of effluent characterization and water quality monitoring studies. Sub-lethal toxicity testing focuses on the most sensitive test species, and biological monitoring studies focus on aquatic communities facing situations of higher risk for environmental effects. Exemptions may be allowed from some biological monitoring requirements for mines with effluent presenting lower risks of affecting fish and fish habitat.

Effective June 1, 2021, the authorized discharge limits for some deleterious substances (arsenic, copper, cyanide, lead, nickel, and zinc) were reduced for existing mines (i.e., mines that become subject to the regulations within three years of promulgation of the Amendments), and reduced even further for new mines (i.e., mines that become subject to the regulations more than three years after promulgation of the Amendments). Effective June 1, 2021, un-ionized ammonia was also added as a deleterious substance as well as a new requirement that effluent to freshwater not be acutely lethal to Daphnia magna.

20.11.7 Carbon Emissions Pricing

In 2016, the federal government announced the Pan-Canadian Approach to Pricing Carbon Pollution, providing flexibility to provinces and territories to develop carbon pollution pricing systems of their own and outlining the required criteria for these systems (ECCC, 2019). Provinces and territories could implement one of two system types, either a direct price on carbon pollution or a cap-and-trade system (ECCC, 2016a). To support this initiative and to facilitate achieving federal emissions reduction targets, the federal government, in consultation with the provinces and territories, developed the Pan-Canadian Framework on Clean Growth and Climate Change. Provinces and territories without jurisdictional carbon pollution pricing systems (meeting the federal benchmark requirements) are required to comply with the federal carbon pollution pricing system.

In 2013, Québec set up a cap-and-trade system for greenhouse gas emission allowances (SPEDE) to fight climate change. Its primary objective is to encourage businesses and citizens to innovate and change their behavior to reduce GHG emissions. In 2014, Québec linked its system with California's under the Western Climate Initiative, creating the largest carbon market in North America. The carbon market targets the following companies:

- Industrial establishments that emit 25,000 metric tonnes of CO_2 equivalent (t CO_2 eq.) or more per year (aluminum smelters, cement works, refineries, chemical plants, steelworks, mines, etc.)
- Electricity producers and importers, whose GHG emissions associated with the production of this electricity equal or exceed 25,000 t eq. CO_2 per year
- Fossil fuel distributors used in Québec (gasoline, diesel, propane, natural gas, and heating oil)
- Distributors must cover the GHG emissions of the products they distribute

20.11.8 Canadian Navigable Waters Act

The Canadian Navigable Waters Act (CNWA), which came into force in August 2019 and replaced the former Navigation Protection Act, applies to anyone planning activities that will affect navigation in navigable waters. The CNWA regulates major works and obstructions on navigable waters, even those not listed on the schedule of navigation, and creates a new category for “major works”. Transport Canada administers the CNWA through the Navigation Protection Program. The watercourse management associated with new mining infrastructure could trigger CNWA requirements.

20.11.9 Wetlands and Watercourses

The Québec regulations respecting activities in wetlands, bodies of water and sensitive areas prescribe certain general standards applicable to the carrying out of activities in wetlands and bodies of water covered by Section 46.0.2 of the Environment Quality Act (chapter Q-2), and in other sensitive areas as a particular supplement to the rules prescribed by other statutes and regulations (Québec, 2022).

20.11.10 Archaeological

The inclusion of archaeology and heritage in project planning is based on the application of three Québec laws. The Cultural Heritage Act (LPC, P-9.002) and its regulation on archaeological research (P-9.002, r.2.1) provide a framework for the practice of archaeology in Québec, imposing guidelines on the practice of archaeology and discoveries with or without a permit. Section 31.9 of the Environment Quality Act (LQE, Q-2) stipulates that the proponent of a project must take archaeology and heritage property into consideration when carrying out projects, accounting for current and missing data. A statement of current knowledge and recommendations, where appropriate, for additional archaeological surveys must be drawn up. Section 6k of the Sustainable Development Act (LDD, D-8.1.1) ensures that cultural heritage is identified and protected, and that mitigation and enhancement measures are proposed.

The Archaeological Research Regulation (P-9.002, r.2.1) provides minimal requirements regarding archaeological research and reporting.

20.12 Permitting Process

Upon release from the provincial and federal EA processes, numerous approvals, authorizations, and permits are required prior to initiating project construction. Each of these permits or authorizations is applied for separately with relevant information included in the applications. Where an EA is required, regulators can only issue permits following release of the project from the EA process. However, to reduce potential schedule delays, some long-lead items can be initiated and discussed with regulators, and some applications may potentially be filed prior to release from the EA processes. Compliance with terms and conditions of approvals, standards contained in federal and provincial legislation and regulations, and commitments made during the EA processes (including application of mitigation measures and monitoring and follow-up requirements), needs to be assured throughout all project phases.

20.13 Permits to Obtain

Table 20.4 provides a general, overarching list of approvals, authorizations, and permits that may be required from provincial and federal agencies and departments for a mine in Québec.

First Mining currently has mining claims and exploration permits in place for the existing exploration activities. The Duparquet Project, as identified in Table 20.3, First Mining will continue to engage with regulatory authorities throughout project planning to confirm regulatory permitting and compliance requirements.

Table 20.4: General Environmental Approvals, Authorizations and Permits Typically Required for Mining Projects in Québec

Agency	Permit/Approval	Legislation	Component
Federal			
Fisheries and Oceans Canada (DFO)	Authorization for Works Affecting Fish Habitat	Fisheries Act	The fish and fish habitat protection provisions of the Fisheries Act are the authorities for the regulation of works, undertakings or activities that risk harming fish and fish habitat. Specifically, these include the two core prohibitions against persons carrying on works, undertakings or activities that result in the death of fish by means other than fishing (hereafter referred to as the death of fish) (Subsection 34.4(1)), and the harmful alteration, disruption, or destruction of fish habitat (Subsection 35(1)). Additionally, DFO processes applications regarding federally listed aquatic species at risk.
ECCC	Schedule 2	MDMER	Amendments to Schedule 2 of the MDMER authorize the use of water frequented by fish for mine waste disposal. Mine waste includes tailings and waste rock. In some cases, ECCC has also considered overburden to be mine waste, depending on the constituents and chemistry of the overburden.
Natural Resources Canada	Licence for Explosives Magazine	Explosives Act and associated Regulations	Explosives storage (blasting for mineral extraction).
Transport Canada	Transportation of dangerous goods	Transportation of Dangerous Goods Act	Transportation of dangerous goods.
Transport Canada	Watercourse deviation	Navigable Waters Act	Watercourse management to the implementation of new mining infrastructure.
Provincial			

Agency	Permit/Approval	Legislation	Component
MELCCFP	Subsection 22	Environment Quality Act and associated Regulations (including Directive 019)	• Archaeological potential assessment. • Historical soil contamination (characterization, management, and rehabilitation). • Management of historical mining infrastructure. • Hazardous materials management. • Demolition of historical mining infrastructure. • Temporary storage of on-site construction and demolition materials. • Site-wide surface water management and on-site treatment. • Groundwater catchment • Drinking water intake. • Quarries and borrow pits (including crushing and sieving activities). • Open pit and mining operations. • TSF management. • Site-wide infrastructure layout of the Project (treatment plant and stockpiles). • Stockpile management (waste, ore, and overburden). • Final effluent management and discharge. • Prevention and reduction actions regarding the release of contaminants into the atmosphere. • Noise and vibration. • Deviation of urban infrastructure to accommodate new mining infrastructure. • Construction within or in the proximity of wetlands and waterbodies. • Monitoring programs.
MERN		Mining Act and associated Regulations	Site-wide infrastructure layout of the Project (treatment plant and stockpiles). Conceptual closure plan. Lease management.
MFFP	Subsection 213	Mining Act and associated Regulations	Deforestation on public lands.

Agency	Permit/Approval	Legislation	Component
MFFP	Subsection 128.7	Act respecting the conservation and development of wildlife	Alteration of a wildlife habitat (fish habitat, threatened or vulnerable wildlife species habitat)
Municipal and Other Agencies			
Ville de Duparquet	Compliance	Municipal	Zoning. Water management.
Régie du bâtiment du Québec	Compliance	Governmental	Installation, management, and operation of high-risk petroleum equipment
Sûreté du Québec	Compliance	Governmental	Storage, management, and operation of explosives

21 CAPITAL AND OPERATING COSTS

The CAPEX estimate is established using a hierarchical work breakdown structure. A Class 4 estimate is prepared in accordance with AACE International's Cost Estimate Classification System. The accuracy range of the capital cost estimate is +50 / -30%. The base currency of the estimate is Canadian dollars (CAD). This estimate is set as of Q2-2023 and is expressed in constant Canadian dollars.

The initial capital expenditures are scheduled over a 24-month period.

21.1 Capital Expenditures

The CAPEX estimate is summarized in Table 21.1. Work Breakdown Structure ("WBS") Areas 100 to 600 include the Project's direct costs, while WBS Areas 700 to 900 cover indirect costs, owner's costs and mine pre-production. The CAPEX for construction, equipment purchases, and pre-production activities is estimated at CAD 706.0M, excluding pre-production revenues. The CAPEX includes a contingency of 25% of the total directs and indirect costs. The pre-production revenue of the construction period is estimated at CAD 58.1M.

A summary of the capital expenditures is presented in Table 21.1.

Table 21.1: Capital Expenditures Summary

Capital Expenditures	M CAD
100: Infrastructure	10.4
200: Power and Electrical	14.7
300: Water	37.4
400: Mobile Equipment	4.5
500: Mining	102.2
600: Process Plant	189.9
700: Construction Indirects	89.8
800: General Services	53.9
Construction Cost	**502.7**

Capital Expenditures	M CAD
990: Contingency	125.7
900: Pre-production, Start-up, Commissioning	57.2
Working Capital	20.3
Total	**706.0**

Note: Numbers may not add up due to rounding

21.2 Infrastructure

The detailed descriptions of infrastructure and roads are presented in Section 18. A capital expenditure summary for infrastructure is presented in Table 21.2. The costs were developed based on GMS cost database and labour rates.

The infrastructure capital cost includes:

- Site road
- Fencing
- Temporary truck shop (permanent truck shop in sustaining capital period)
- Explosive magazine
- Truck scale
- Operation building (security guard office, offices for technical personnel, conference rooms, change rooms, infirmary, and lunchroom)
- Assay lab
- Fuel systems storage
- Waste pad
- Topsoil stockpile

It is considered that all administrative workers and office workers not required on the mine site would occupy offices already owned by First Mining in the town of Duparquet.

Table 21.2: Infrastructure Capital Expenditures

Area 100	M CAD
110: Roads, Bridges and Fencing	**1.1**
112: Site Roads	1.0
116: Fencing	0.1
120: Workshops / Storage	**2.5**
122: Truck Shop (Fabric Shelter)	2.0
125: Explosive Magazine	0.3
128: Truck Scale	0.2
130: Support Buildings	**4.5**
131: Operation Building	2.4
137: Assay Lab	2.1
170: Fuel Systems Storage	**0.5**
171: Fuel Systems Storage	0.5
180: Stockpile Pads & Platforms	**1.8**
182: Waste Pad	1.7
186: Topsoil Stockpile	0.1
Total	**10.4**

Note: Numbers may not add up due to rounding

21.3 Power Supply and Communications

A summary of the CAPEX for electrical and communications is presented Table 21.3. The list includes all equipment and installations for power supply and distribution. The length of the power line, number and capacity of main site substation and secondary substation are based on the General Arrangement design and experienced project scope. The detailed descriptions of power and communication are presented in Section 18.

Table 21.3: Power Supply and Communications Capital Expenditures

Area 200	M CAD
210: Main Power Generation	**13.9**
212: Power Line	6.0
213: Site Main Substation	7.9
220: Secondary Power Generation	**0.9**
221: Process Power Generation	0.9
Total	**14.8**

Note: Numbers may not add up due to rounding

21.4 Water

Water management consists of the fresh water supply, water ponds and water management, effluent water management, reclamation water, and tailing storage facility, with details and descriptions presented in Section 18.

Domestic wastewater will be treated using a standard containerized sewage treatment plant. Fresh water collection points require directional drilling to access the water source in the old mine stopes.

Domestic water will be drawn from a water well and pumped into a holding tank near the mine infrastructure buildings. At this time, no domestic water treatment facility is being considered.

The process plant tailings will be pumped to the TSF through a 4 km pipeline. The reclaim water system will consist of a reclaim barge equipped with two reclamation water pumps; one duty pump and one standby pump. This reclamation water system will send water back to the process plant through a 4 km pipeline.

The TSF will take advantage of the existing topographic and ground condition in the eastern part of the Project site. The TSF will provide enough capacity for 34.5 m m^3 of tailings. For more details on the TSF refer to Section 18.3.

The main water treatment plant will serve to treat all contact water on-site, before it is released back into the environment. For more details on the water treatment refer to Section 18.6.5.

A capital expenditures summary for water is presented in Table 21.4.

Table 21.4: Water Capital Expenditures

Area 300	M CAD
310: Fresh Water Intake	**4.5**
311: Raw Water Intake from Stope	4.5
320: Water Ponds and Water Management	**0.9**
321: Water Ponds and Water Management	0.9
360: Effluent Water Treatment	**15.0**
361: Effluent Water Treatment	15.0
370: Reclaim Water	**4.0**
371: Reclaim Pipelines	4.0
380: Tailing Storage Facility	**12.9**
381: Tailings Dams	12.9
Total	**37.4**

Note: Numbers may not add up due to rounding

21.5 Surface Mobile Equipment

Mobile equipment includes all capital expenditures related to the acquisition of the surface equipment (non-mining) and light vehicle fleet. Equipment CAPEX include the purchasing cost, assembly cost and all safety and optional installations on the equipment.

A summary for the capital expenditures for mobile equipment is presented in Table 21.5.

Table 21.5: Mobile Equipment Capital Expenditures

Area 400	M CAD
410: Surface Operations Equipment	**4.5**
413: Surface Mobile Equipment	2.6
415: Light Vehicles	1.9
Grand Total	**4.5**

Note: Numbers may not add up due to rounding

21.6 Mining (Open Pit and Underground)

The open pit mine development includes overburden and waste rock stripping that is required before mining production commences. Surface mine equipment includes all capital expenditures related to the acquisition of primary mining, auxiliary, support, light, and miscellaneous equipment. Equipment CAPEX includes the purchasing cost, assembly cost, and all safety and optional installations on the equipment. All costs related to the development of the underground mine are included in the sustaining capital section. The operational costs of the open pit mine for the period before the start of production are included in Section 900: Pre-production, Start-up, Commissioning.

A summary of the capital expenditures for mining is presented in Table 21.6.

Table 21.6: Mining Capital Expenditures

Area 500	M CAD
510: Open Pit Mine Development	**8.9**
511: OVB Stripping	8.2
512 – Waste Stripping	0.6
550: Surface Mine Equipment	**93.3**
551: Primary Mining Equipment	58.7
552: Auxiliary Mining Equipment	15.4
553: Support Equipment	3.9
554: Light Vehicles	1.5
555: Operation and Maintenance	10.5
559: Miscellaneous Equipment	3.3
Grand Total	**102.2**

Note: Numbers may not add up due to rounding

21.7 Process Plant and Related Infrastructure

The capital cost estimate for the processing areas is presented in Table 21.7. The estimate includes earthworks, concrete, structural steel, mechanical, piping, electrical / instrumentation, architecture, equipment, and labour.

Table 21.7: Processing Capital Expenditures

Area 600	M CAD
600: Process Plant: General	**22.2**
601: Site Prep / Road / Berms	22.2
610: Comminution	**96.1**
611: Crushing	17.4
612: Ore Stockpile, Reclaiming and Handling	13.3
613: Grinding	65.4
630: Flotation, Regrinding and Concentrate	**34.2**
631: Flotation (Rougher & Cleaner) & Regrinding	25.4
632: Concentrate Thickening	1.8
633: Concentrate Filtering and Loadout	7.0
650: Reagent	**12.5**
651: Reagent	12.5
680: Cyanide Destruction & Tailings Handling	**4.5**
682: Tailings Thickener	2.9
683: Tailings Pumping	1.6
690: Process Plant Services	**20.4**
690: Process Plant Services	20.4
Total	**189.9**

Note: Numbers may not add up due to rounding

21.8 Construction Indirects, Owner's Cost and Pre-production and Commissioning Expenditures

Construction indirect costs and owner's costs have been developed primarily based on the GMS historical data for similar projects from detailed estimates. Construction indirects make up 25% of direct cost. Owner's cost is 15% of direct costs.

Construction indirect and owner's costs are presented in Table 21.8.

Table 21.8: Construction Indirects and Owner's Costs

Area 700 & 800	M CAD
700 – Construction Indirects	**89.8**
800: General Services: Owner's Costs	**53.9**
Total	143.7

Note: Numbers may not add up due to rounding

21.9 Pre-production, Commissioning Expenditures and Working Capital

Pre-production and commissioning expenditures are presented in Table 21.9. These costs include the mining pre-production, process pre-production, commissioning, and spare parts expensed prior to commercial production. Revenues from metals produced during pre-production are excluded in this section but are estimated at CAD 58.1M.

The working capital (WC) is required to finance supplies in inventory. Given the accessibility of the site, the working capital requirements are considered low compared to remote operations. For concentrate sales an estimate based on 45 days of production was included as receivables, which could be longer for overseas export. The WC estimate includes $20.3M of parts and consumable inventory built up during the pre-production period.

Table 21.9: Pre-production and Commissioning Expenditures

Pre-Production and Working Capital	M CAD
900: Pre-production, Start-up, Commissioning	**57.2**
Working Capital	20.3
Total	77.5

Note: Numbers may not add up due to rounding

21.10 Contingencies

Contingencies are presented in Table 21.10.

The CAPEX includes a contingency of 25% of the total costs before contingency. Pre-production costs are excluded in the contingency calculation. There is no provision for escalation in the CAPEX.

Table 21.10: Contingency

Area 990	M CAD
990: Contingency	125.7
Total	125.7

Note: Numbers may not add up due to rounding

21.11 Sustaining Capital

Sustaining capital of CAD 737.8M is required over the LOM for the following main items:

- Infrastructure
- Power supply
- Mine equipment purchases (additions and replacements)
- G&A and surface equipment purchases (additions and replacements)
- Mine development expenditures
- Underground mine development

All infrastructure sustaining capital is presented in Table 21.11.

21.12 Exclusion

The capital costs do not consider the following items:

- Any cost for demolition or decontamination for the current site
- Permitting process cost
- Sunk cost
- Cost for subsequent study
- Sales taxes, custom fee, import duty
- Taxes not listed in the economic analysis
- Cost escalation
- Exchange rate change
- Project scoping change

- Modification on geotechnical assumption
- Modification on hydrogeological assumption
- Costs associated with mineral rights, rental fees, and land acquisition or usage

Table 21.11: Sustaining Capital Costs

WBS	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
100 – Infrastructure	**16.1**	**1.2**	**22.2**	**1.3**	**1.0**	**1.2**	**1.2**	**0.6**	**0.1**	**-**	**-**
110 – Roads, Bridges and Fencing	14.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-
120 – Mine Infrastructure	-	-	21.0	-	-	-	-	-	-	-	-
170 – Fuel System Storage	1.1	-	-	-	-	-	-	-	-	-	-
180 – Stockpile Pads & Platforms	0.5	1.1	1.0	1.1	0.8	1.1	1.1	0.5	-	-	-
200 – Power & Electrical	**5.1**	**7.5**	**6.4**	**5.5**	**4.2**	**0.8**	**1.3**	**1.3**	**1.7**	**0.8**	**-**
250 – Electrical Underground Distribution	5.1	7.5	6.4	5.5	4.2	0.8	1.3	1.3	1.7	0.8	-
400 – Surface Operations	**0.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
410 – Surface Operations Equipment	-	-	-	-	-	-	-	-	-	-	-
500 – Mining (Open Pit and/or UG)	**105.5**	**128.1**	**86.6**	**45.6**	**62.6**	**31.5**	**24.4**	**17.0**	**20.8**	**6.4**	**0.2**
510 – Open Pit Mine Development	17.6	10.1	23.6	4.6	14.7	2.7	4.3	4.8	3.3	-	-
520 – UG Mine Development	35.2	81.0	31.3	32.2	32.1	5.1	9.8	10.0	13.0	5.8	-
540 – Mine Infrastructure	2.4	5.3	4.9	3.5	4.3	0.6	1.2	1.0	1.5	0.5	0.2
550 – Surface Mine Equipment	31.5	0.4	7.8	0.8	6.9	15.9	6.0	0.9	0.3	-	-
560 – UG Mine Equipment	10.2	23.3	11.4	1.5	-	-	-	-	-	-	-
570 – Mine Dewatering	4.4	2.63	2.4	1.5	0.5	0.1	0.1	0.1	0.2	0.1	-
580 – Ventilation & Services	4.2	5.3	5.2	1.5	4.1	7.1	3.0	0.2	2.5	-	-
700 – Construction Indirect	**9.4**	**7.6**	**7.4**	**1.7**	**3.2**	**0.9**	**1.1**	**1.0**	**0.8**	**0.1**	**-**
990 – Contingency (15% of total Sustaining CAPEX)	**20.5**	**21.7**	**18.4**	**8.1**	**10.6**	**5.1**	**4.2**	**3.0**	**3.5**	**1.1**	**0.0**
Total Sustaining Capital Costs	156.8	166.1	141.0	62.1	81.5	39.5	32.3	22.9	26.9	8.4	0.2

21.13 Closure Costs

The closure costs are estimated to be CAD 30M. Closure costs would cover the following activities:

- Tailings reclamation
- Site closure, dismantling, and reclamation
- Salvaging of major plant equipment
- Post closure monitoring

21.14 Operating Costs

The OPEX include open pit and underground mining, processing, G&A and royalties. The costs for concentrate transportation to smelters, smelting and refining charges, are not considered site operating costs and are therefore excluded from the OPEX estimate. The transportation costs and smelter conversion charges (TC/RC) are deducted from gross smelter revenues to estimate the NSR. These costs are detailed in Section 19 on Market Studies and Contracts. The LOM operating cost summary is presented in Table 21.12 and the OPEX by year is presented in Table 21.13. The total cash operating cost per ounce produced is USD 751/oz and the AISC per ounce produced is USD 976/oz, inclusive of all sustaining capital costs in Section 21.1 and closure costs in Section 21.2.

Table 21.12: Operating Cost Summary

Item	Total LOM Cost (M CAD)	Unit Cost (CAD / t milled production)
Mining Open Pit	872.9	20.85
Mining Underground	531.9	44.26
Total Mining	**1,404.8**	**23.82**
Processing	624.7	10.59
General and Administration	173.1	2.90
Total	**2,202.5**	**37.35**

Table 21.13 : Total Operating Cost Summary (M CAD)

Description	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Mining- Open Pit	61.2	77.7	71.6	85.6	75.2	82.3	84.4	85.9	89.8	87.1	72.1
Mining: Underground	-	-	65.6	63.6	73.8	72.2	57.7	52.4	61.7	48.8	36.1
Processing	56.5	50.4	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	54.4
General & Administration	16.2	16.2	16.2	16.0	16.0	15.7	15.7	16.0	16.0	15.3	13.8
Royalties	-	-	-	-	-	-	-	-	-	-	-
Total OPEX	**133.9**	**144.2**	**211.4**	**223.1**	**222.9**	**228.1**	**215.8**	**212.2**	**225.5**	**209.1**	**176.3**
Total Cost/t Milled	26.2	26.3	38.6	40.8	40.7	41.7	39.4	38.8	41.2	38.2	38.5
Total Cost/Au oz	645.9	474.5	742.4	894.5	845.6	857.8	865.7	821.3	731.7	886.3	728.3

Note: Numbers may not add up due to rounding

21.15 Mining Costs

The operating mining costs were evaluated based on the LOM and are supported by mine schedule, supplier quotations, industry comparable numbers, a detailed wage scale, and productivity estimates. The mining costs are estimated for the open pit mine and underground mine respectively. The open pit mine section includes the costs associated with the operation of various pits as well as the rehandling of the historical tailings. The open pit mining costs are divided into 16 categories representing the major mining activities. The underground mining costs are divided into seven categories representing the major mining activities. A sustaining development cost of $16.64 per tonne is required to maintain production which is excluded from the underground mining costs as it is included in sustaining capital as presented in Table 21.11. The open pit mining cost summary is presented in Table 21.14 and the underground mining cost summary in Table 21.15. The open pit OPEX by year is presented in Table 21.16 and the underground OPEX by year is presented in Table 21.17.

Table 21.14 Open Pit Mining Cost Summary

Mining Costs	M CAD
Mine Operations	36.2
Mine Geology	24.6
Mine Maintenance Admin	62.2
Mine Engineering	36.4
Drilling	90.6
Pre-Split Drilling and Blasting	24.5
Blasting	115.1
Loading	85.2
Hauling	208.5
Dewatering	13.1
Dump Maintenance	34.4
Road Maintenance	58.1
Grade Control	0.6
Support Equipment	72.9
Tailing Rehandling	4.7
Rehandling	5.6
Total	**872.9**

Note: Numbers may not add up due to rounding

Table 21.15 Underground Mining Cost Summary

Mining Costs	M CAD
Diamond Drilling and Geology	20.7
Stope Preparation	76.6
Mining	278.9
Mine Services	73.0
Mechanical Services	20.5
Electrical Services	36.2
Technical Services	25.9
Total	**531.9**

Note: Numbers may not add up due to rounding

Table 21.16: Open Pit Mining Cost Summary (M CAD)

Mining Costs	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Mine Operations	36.2	3.3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3
Mine Geology	24,6	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2
Mine Maintenance Admin	62.2	5.8	5.7	5.4	5.8	5.8	5.4	5.9	5.8	5.5	5.6	5.6
Mine Engineering	36.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Drilling	90.6	5.5	8.5	7.7	9.4	8.2	9.5	9.3	9.0	9.2	9.0	5.4
Pre-Split Drilling and Blasting	24.5	1.6	2.7	2.5	2.6	2.5	1.6	1.7	2.1	2.6	2.5	2.0
Blasting	115.1	8.2	10.6	9.8	11.5	10.3	11.6	11.4	11.1	11.3	11.1	8.2
Loading	85.2	5.2	8.0	7.2	8.8	7.6	8.9	8.7	8.5	8.6	8.5	5.2
Hauling	208.5	9.5	16.5	13.0	21.3	14.6	19.2	21.1	23.2	25.9	24.1	20.0
Dewatering	13.1	0.6	0.6	1.1	1.1	1.1	1.1	1.1	1.1	1.8	1.8	1.8
Dump Maintenance	34.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Road Maintenance	58.1	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Grade Control	0.6	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Support Equipment	72.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.8	5.8
Tailing Rehandling	4.7	0.8	0.9	0.9	0.8	0.9	0.5	-	-	-	-	-
Rehandling	5.6	-	0.0	0.0	0.1	0.1	0.4	1.1	1.1	0.8	1.3	0.8
Total Open Pit Mining Cost	**872.9**	**61.2**	**77.7**	**71.6**	**85.6**	**75.2**	**82.3**	**84.4**	**85.9**	**89.8**	**87.1**	**72.1**

Note: Numbers may not add up due to rounding

Table 21.17: Underground Mining Cost Summary (M CAD)

Mining Costs	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Diamond Drilling and Geology	20.7	0.0	0.0	2.4	2.1	2.7	3.4	2.5	1.8	2.3	1.9	1.6
Stope Preparation	76.6	0.0	0.0	11.8	12.2	15.1	9.7	5.1	6.7	10.1	5.1	0.6
Mining	278.9	0.0	0.0	33.8	31.5	37.7	40.9	32.2	26.1	31.4	25.1	20.1
Mine Services	73.0	0.0	0.0	8.5	8.5	8.7	8.6	8.3	8.2	8.2	7.3	6.6
Mechanic Services	20.5	0.0	0.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7
Electric Services	36.2	0.0	0.0	3.7	4.0	4.3	4.3	4.3	4.3	4.3	4.3	2.8
Technical Services	25.9	0.0	0.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.7	2.6
Total Underground Mining Cost	**531.9**	**0.0**	**0.0**	**65.6**	**63.6**	**73.8**	**72.2**	**57.7**	**52.4**	**61.7**	**48.8**	**36.1**

Note: Numbers may not add up due to rounding

21.16 Processing Costs

The processing plant operating costs were evaluated based on estimated reagent consumption rates, supplier quotations, a detailed wage scale, and standard industry practice. The processing costs are divided into six categories: labour, reagents, grinding media, liners, maintenance supplies, and electrical power. These costs include tailings and water pumping but exclude water treatment costs, which are included in the G&A environmental costs. The total summary of processing operating costs is presented in Table 21.18.

Mill labour is the primary cost item in the mill OPEX and accounts for 63.8% of the total cost or $10.59 per tonne processed. The process plant workforce consists of 90 individuals, including laboratory staff of 21 people.

Table 21.18: Summary of Processing Costs (M CAD)

Processing Costs	Total	Unit Cost (CAD t milled)	% Processing Cost
Mill Labour	398.8	6.76	63.8%
Reagents	39.8	0.68	6.4%
Grinding Media	0.2	0.00	0.0%
Liners	34.1	0.58	5.5%
Maintenance Supplies	34.1	0.58	5.5%
Power	117.7	2.00	18.8%
Total	**624.7**	**10.6**	**100.0%**

Note: Numbers may not add up due to rounding

21.16.1 General and Administration (G&A) Costs

General Services and Administration (G&A) costs include general management, accounting and finance, IT, environmental and social management, human resources, supply chain, camp, surface support, health and safety, security, and operating costs of the various supply chain equipment. In most cases, these services represent fixed costs for the site, as a whole. The G&A costs exclude certain costs such as transport of concentrates and environmental rehabilitation costs. Table 21.19 presents the G&A cost summary, G&A, OPEX by year is presented in Table 21.20.

Table 21.19 General Services & Administration Cost Summary (M CAD)

Description	Cost (M CAD)	Unit Cost (CAD t milled)
General Management	27.1	0.5
Finance and Accounting	10.3	0.2
Supply Chain	20.9	0.4
Information Technology	12.0	0.2
Human Resources	15.1	0.3
Health, Safety & Environment	44.4	0.8
Surface Support	37.9	0.6
Insurance	5.4	0.1
Total: G&A	**173.1**	**2.90**

Numbers may not add due to rounding

Table 21.20: General Services & Administration Cost Summary (M CAD)

Description	Total	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
General Management	27.1	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46
Finance & Accounting	10.3	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	0.09
Supply Chain	20.9	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Information Technology	12.0	1.17	1.17	1.17	1.17	1.17	1.06	1.06	1.06	1.06	0.92	0.92
Human Resources	15.1	1.42	1.42	1.42	1.42	1.42	1.38	1.38	1.38	1.38	1.23	1.23
Health, Safety & Environment	44.4	4.16	4.16	4.16	3.98	3.98	3.88	3.88	4.13	4.13	3.99	3.99
Surface Support	37.9	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.24	3.24
Insurance	5.4	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	-
Total: G&A	**173.1**	**16.2**	**16.2**	**16.2**	**16.0**	**16.0**	**15.7**	**15.7**	**16.0**	**16.0**	**15.3**	**13.8**
Cost/t Milled	**2.9**	**3.2**	**3.0**	**3.0**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.8**	**3.0**

22 ECONOMIC ANALYSIS

22.1 Overview

This Preliminary Economic Assessment is preliminary in nature and includes Inferred mineral resources, which are considered too geologically speculative to be categorized as mineral reserves with economic considerations. Therefore, there is no certainty that the Preliminary Economic Assessment will be realized.

The economic analysis presented in this report uses an economic model that estimates cash flows on an annual basis over the life of the Project, at a level deemed appropriate for a scoping study level of engineering and design. Cash flow projections are estimated over the LOM based on the sales revenue, OPEX, CAPEX and other cost estimates. CAPEX is estimated in three categories, initial, sustaining, and closure and reclamation. OPEX estimates include labour, reagents, maintenance, supplies, services, fuel, and electrical power. Other costs such as royalties, depreciation and taxes are estimated in accordance with the present stage of the Project. The financial model results are presented in terms of Net Present Value (NPV), payback period, and internal rate of return (IRR) for the Project. The economic analysis is carried out in real terms (i.e., without inflation factors) in US dollars in Quarter 2 of 2023 with equipment financing assumptions. The economic results are calculated from the start of initial capital expenditures, with taxation calculations considering all prior sunk costs..

22.2 Cautionary Statements

The results of the economic analysis discussed in this section represent forward-looking information as defined under the Canadian securities law. These results are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here.

The forward-looking information includes, but is not limited to, the following:

- The recovery rates in the process plant
- Recovery and treatment charge and penalties at the smelter
- Assumed prices for gold
- Cost inflation
- The proposed mine production plan
- Assumptions regarding mining dilution and mining recovery

- Proposed sustaining and operating costs
- Labour and materials availability
- Labour and materials costs being approximately consistent with the assumptions in the report
- Assumptions regarding closure costs
- Assumptions regarding environmental, social, and licensing risks
- Changes to tax rates
- Unexpected variations in the amount of mineralized material and material grade
- Geotechnical or hydrogeological considerations during mining, which differ from the assumptions
- Ability to maintain social license to operate
- Unrecognized environmental risks
- Unforeseen reclamation expenses
- Failure of plant, equipment, and processes to operate as anticipated
- The absence of significant disruptions affecting the development and operation of the Project
- The availability of certain consumables and services, and the prices for electricity and other key supplies being approximately consistent with the assumptions in the report

22.3 Key Assumptions

22.3.1 Metal Price and Exchange Rate

Metal prices are presented in Section 19.1. The gold price for economic evaluation follows a constant price of USD 1,800/oz.

Exchange rates are used to convert certain capital cost and operating cost items in Canadian dollars. The exchange rate assumptions are summarized in Table 22.1.

Table 22.1: Exchange Rate Assumptions

Parameters	Base Value	Base Value
Exchange Rate	CAD/USD	1.33
Gold Price	USD/oz	1,800

22.3.2 Fuel Price and Energy

The reference price for diesel fuel used to estimate operating costs is CAD 1.54/L. The price of diesel fuel is for off-road or off-highway use by mining equipment that will not be operated on public roadways. The price of electricity is estimated based on the consumption of the mine and the mill at the prevailing rates. Propane is an estimate of current prices. Fuel and Energy price assumptions are summarized in Table 22.2.

Table 22.2 Fuel and Energy Price

Parameters	Units	Base Value
Diesel	$/l	1.54
Electricity	$/Kwh	0.051
Propane	$/L	0.65

22.3.3 Processing Assumption

Parameters	Units	Base Value
Mass Pull	Tore/Tconc	23.25
Moisture Content	%	8.0
Concentrate Transport Losses	%	0.2
Gold Recovery	%	89.5
Treatment Charges	USD/dmt	75.00
Refining Charges	USD/oz	5.00
Payable Rates	%	96.0
Transport & Logistics	CAD/Wmt	30
Process Rate	K-tpy	5,475

22.3.4 Other Assumptions

The other key assumptions used in the economic analysis are as follows:

- Discount rate of 5%

- All cost estimates are in constant Quarter 2 2023 Canadian dollars with no inflation or escalation factors taken into account
- The decontamination work on the former historical mine site will be carried out prior to the operation and is therefore not included in this study
- The open pit and underground mining is undertaken by an equipment financed fleet under a Master Lease Agreement ("MLA") for a total of $187M in initial and sustaining capital at a rate of 7.8% p.a

22.3.5 Metal Production and Revenue

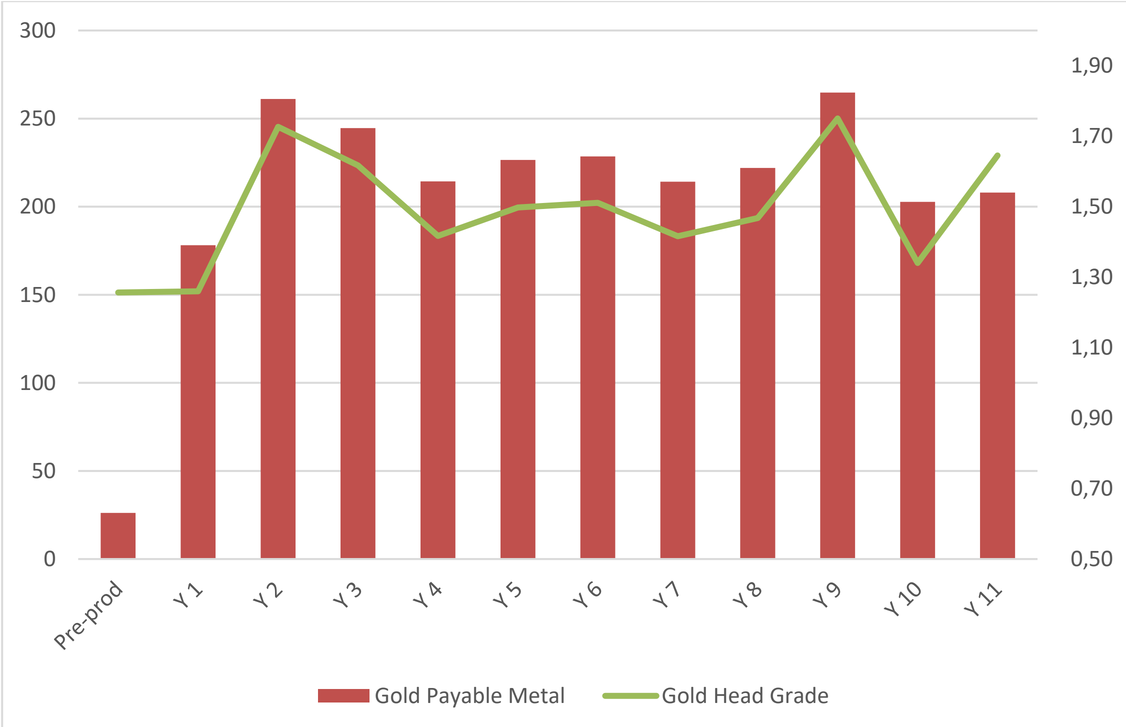
Gold produced over the Project life is 2.5 Moz with an annual average recovery of 233 koz over the 11-year LOM. The average payable gold rate is 96% with an annual average payable production of 224 koz.

The metal production is presented on an annual basis in Table 22.3 and in Figure 22.1.

Table 22.3 Metal Production

Production Physicals	Units	Total	Pre-Production	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Tonnage Processed	t	59,724	755	5,117	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	4,577
Gold Head Grade	g/t	1.51	1.26	1.26	1.73	1.62	1.42	1.50	1.51	1.42	1.47	1.75	1.34	1.65
Concentrate (dry)	t	2,563	32	220	235	235	235	235	235	235	235	235	235	196
Concentrate (wet)	t	2,786	35	239	255	255	255	255	255	255	255	255	255	213
Gold Contained Metal	Koz	2,899	30	207	304	285	249	264	266	249	258	308	236	242
Gold Recovery	%	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5
Gold Metal Production	Koz	2,595	27	186	272	255	223	236	238	223	231	276	211	217
Gold Payable Rate	%	96	96	96	96	96	96	96	96	96	96	96	96	96
Gold Payable Metal	Koz	2,491	26	178	261	245	214	227	229	214	222	265	203	208
Operating Periods	#	11	0	1	1	1	1	1	1	1	1	1	1	1

Figure 22.1: LOM Gold Production



22.3.6 Royalties

No royalties are applicable on the gold sales from the Duparquet Project.

22.4 Capital Expenditures

The capital expenditures include initial CAPEX as well as sustaining CAPEX to be spent after commencement of commercial operations.

22.4.1 Initial Capital

The initial CAPEX for project construction, equipment purchases, and pre-production activities is estimated at CAD 706M, excluding pre-production revenues. The CAPEX includes a contingency of 25% of the total direct and indirect cost.

Table 22.4 Initial Capital Summary

Capital Expenditures	M CAD
100: Infrastructure	10.4
200: Power and Electrical	14.7
300: Water	37.4
400: Mobile Equipment	5.0
500: Resettlement	102.2
600: Process Plant	189.9
700: Construction Indirects	89.8
800: General Services	53.9
Construction Cost	503.3
900: Contingency	125.7
990: Pre-Production	57.2
Working Capital	20.3
Initial Capital	**706.5**

22.4.2 Sustaining Capital

Sustaining capital is required during operations for additional equipment purchases for the open pit mine and to develop the underground mine. Additional work is required for water management, for the tailing torage facilities, and for building the maintenance shop.

The sustaining capital is estimated at CAD 737.8M over LOM and Table 22.5 shows the sustaining cost distribution.

Table 22.5: Sustaining Capital

Sustaining Capital	M CAD
100: Infrastructure	44.8
200: Power & Electrical	34.5
400: Surface Operations	0.3
500: Mining (Open Pit and/or Underground)	528.7
700: Construction Indirects	33.3
990: Contingency (15% of total Sustaining CAPEX)	96.2
Total	**737.8**

22.5 Closure Costs and Salvage Value

The closure costs are estimated to be CAD 30M. Closure costs would cover the following activities:

- Pads profiling and revegetation
- Backfilling of ditches
- Demolition of infrastructure (portal, buildings, water treatment plant at mine site)
- Post closure monitoring and maintenance program (physical stability, water monitoring).

The salvage value is estimated to be CAD 16.8M for the process plant and CAD 19.5M for all mobile and fixed mine equipment.

22.6 Working Capital

Working capital (WC) is required to finance the supplies in inventory. Given the accessibility of the site, working capital requirements are considered low as compared to remote operations. The WC is variable over the LOM with a maximum of CAD 69.2M.

22.7 Operating Cost Summary

OPEX includes mining, processing, G&A services, concentrate transportation and concentrate treatment, and refining charges. The concentrate transportation, treatment charges, and refining are deducted from gross revenues to calculate the Net Smelter Return (“NSR”). The NSR for the Project during operations is estimated at CAD 5,596.8M excluding CAD 58.1M of NSR generating during pre-production.

Detailed operating cost budgets have been estimated from first principles based on detailed wage scales, consumable prices, fuel prices and productivities. The operating costs are detailed in Section 21 of this Report.

Table 22.6: LOM OPEX Cost

Sustaining Capital	M CAD
Mining: Open Pit	872.9
Mining: Underground	531.9
Processing	624.7
General & Administration	173.1
Royalties	-
Total	**2,202.5**

22.8 Taxes

The economic analysis focused on three main tax regimes: federal income tax, Québec mining duties (Mining Tax) and Québec income tax. Table 22.7 shows the total amount of these tax regimes.

Table 22.7: Total Amount of Main Tax Regimes

Tax	M CAD
Québec Mining Duties	316.7
Québec Income Tax	189.7
Federal Income Tax	247.5
Total	**754.0**

22.9 Economic Model Results

The economic model results are presented in terms of NPV, IRR, and payback period in years for recovery of the initial CAPEX. These economic indicators are presented on both pre-tax and after-tax basis. The NPV is presented both undiscounted ($NPV_{0\%)}$ and using a discount rate of 5% ($NPV_{5\%}$). The economic results on a before-tax and after-tax basis are presented in Table 22.8.

The annual cash flow is summarized in Table 22.9 and illustrated in Figure 22.2.

Table 22.8: Economic Results Summary

Economic Results Summary	Unit	Before-Tax Results	After-Tax Results
$NPV_{0\%}$	CAD M	1,877.9	1,124.0
$NPV_{5\%}$	CAD M	1,073.0	588.2
IRR	%	24.9%	18.0%
Payback	Years	3.8	4.8

Figure 22.2: After-Tax Annual Project Cash Flow (with Equity)

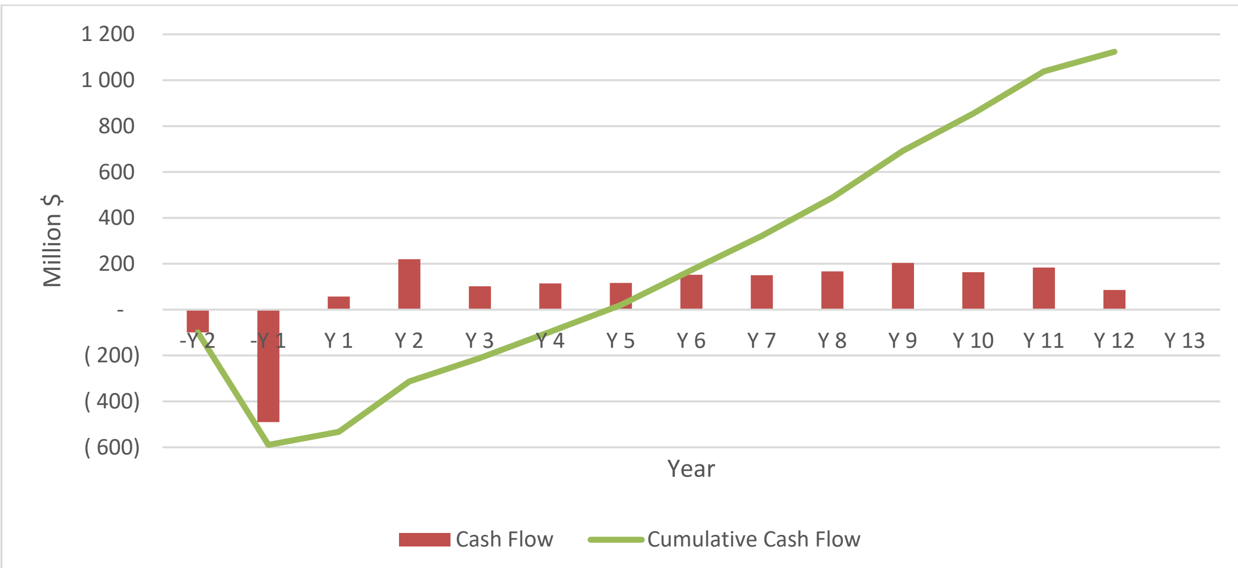


Table 22.9: Cash Flow Summary

	-Y2	-Y1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12
Revenue	-	62.7	426.3	625.2	585.6	513.1	542.3	547.1	512.6	531.4	633.8	485.3	498.0	-
Concentrate Transportation Costs	-	(1.4)	(9.5)	(10.2)	(10.2)	(10.2)	(10.2)	(10.2)	(10.2)	(10.2)	(10.2)	(10.2)	(8.5)	-
Treatment & Refining Charges	-	(3.2)	(21.9)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(19.6)	-
Net Smelter Return, included in Pre-production	-	(58.1)	-	-	-	-	-	-	-	-	-	-	-	-
Net Smelter Return	-	-	394.9	591.6	552.0	479.5	508.7	513.5	479.0	497.8	600.2	451.6	469.9	-
Royalties	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mining: Open Pit	(0.9)	(39.7)	(61.2)	(77.7)	(71.6)	(85.6)	(75.2)	(82.3)	(84.4)	(85.9)	(89.8)	(87.1)	(72.1)	-
Mining: Underground	-	-	-	-	(65.6)	(63.6)	(73.8)	(72.2)	(57.7)	(52.4)	(61.7)	(48.8)	(36.1)	-
Processing	-	(16.6)	(56.5)	(50.4)	(57.9)	(57.9)	(57.9)	(57.9)	(57.9)	(57.9)	(57.9)	(57.9)	(54.4)	-
General & Administration	-	-	(16.2)	(16.2)	(16.2)	(16.0)	(16.0)	(15.7)	(15.7)	(16.0)	(16.0)	(15.3)	(13.8)	-
OPEX, included in Pre-production	0.9	56.3	-	-	-	-	-	-	-	-	-	-	-	-
Working Capital	-	-	(28.5)	(16.7)	1.5	6.2	(2.2)	(0.9)	3.1	(1.8)	(9.6)	13.9	(0.8)	56.1
Operating Cash Flow	-	-	232.5	430.7	342.1	262.6	283.6	284.5	266.4	283.8	365.1	256.4	292.8	56.1
Investment Capital incl. Contingency	(108.5)	(597.5)	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	-	-	(156.8)	(166.1)	(141.0)	(62.1)	(81.5)	(39.5)	(32.3)	(22.9)	(26.9)	(8.4)	(0.2)	-
Salvage Value	-	-	-	-	-	-	-	-	-	-	-	-	-	36.2
Closure Costs	-	(0.4)	(2.6)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.3)	-
Net MLA Receipts / (disbursements)	9.4	107.5	(9.7)	(19.6)	(41.8)	(43.0)	(18.2)	(12.6)	(6.9)	(2.3)	(1.9)	(1.9)	-	-
Taxes	-	(0.1)	(6.5)	(22.4)	(54.5)	(40.2)	(64.5)	(77.8)	(74.7)	(89.2)	(130.0)	(80.5)	(106.7)	(7.0)
Project Cash Flow	(99.1)	(490.4)	57.0	219.8	102.0	114.5	116.6	151.9	149.8	166.7	203.5	162.9	183.6	85.4
Cumulative Cash flow	(99.1)	(490.3)	63.4	242.2	156.6	154.7	181.1	229.7	224.4	255.9	333.5	243.3	290.3	92.3

22.10 Sensitivity Analysis

The sensitivity analysis of the economic model was tested with respect to metal prices, initial CAPEX and OPEX for each case.

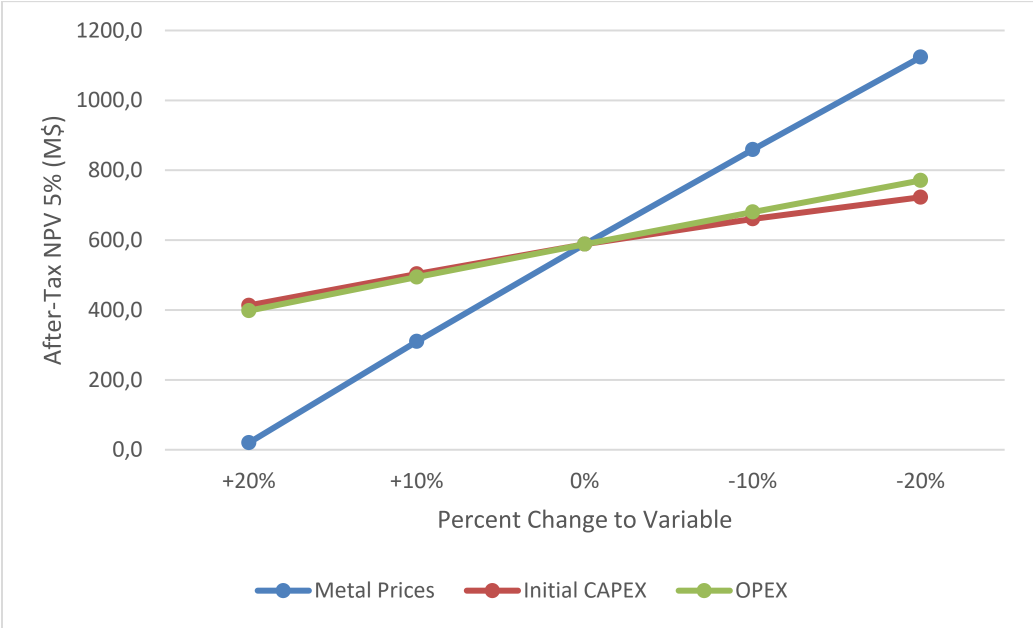
The value of each parameter was raised and lowered by 20% to evaluate the impact of such changes on the NPV and IRR. The after-tax sensitivity results are provided in Table 22.10. Figure 22.3 illustrates the $NPV_{5\%}$ sensitivity and Figure 22.4 shows the IRR sensitivity of the Project.

The after-tax NPV of the Project is most sensitive to changes in revenue, which is manifested as changes in metal prices or metal grades. For example, a USD 200/oz increase in the gold price increases the $NPV_{5\%}$ from USD 588M to USD 859M. Similarly, a decrease of USD 200/oz in the gold price reduces the $NPV_{5\%}$ to USD 310M.

Table 22.10: After-Tax Sensitivity Results

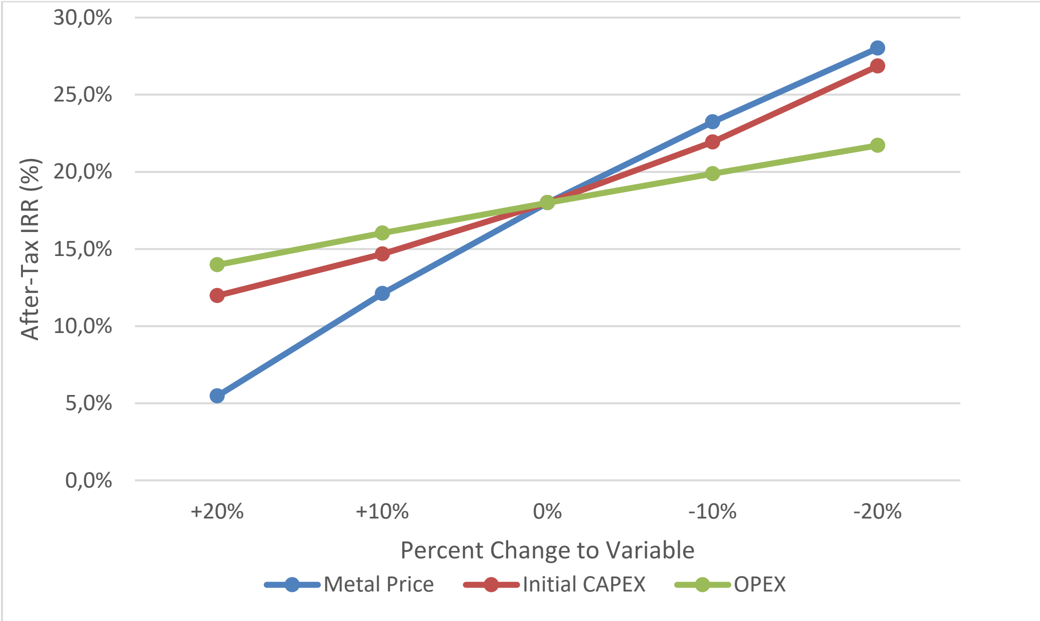
Variance	After-Tax Results		
	$NPV_{0\%}$ ($M)	$NPV_{5\%}$ ($M)	IRR (%)
Gold Price Sensitivities			
USD 1,400	318.7	20.0	5.5%
USD 1,600	725.7	309.8	12.1%
USD 1,800	1,124.0	588.2	18.0%
USD 2,000	1,514.3	858.8	23.2%
USD 2,200	1,897.0	1,123.5	28.0%
Initial Capital Cost Sensitivities			
+20%	965.8	413.2	12.0%
+10%	1,045.7	503.1	14.7%
0%	1,124.0	588.2	18.0%
-10%	1,190.5	660.7	21.9%
-20%	1,246.8	722.8	26.9%
Operating Cost Sensitivities			
+20%	853.5	398.0	14.0%
+10%	990.2	494.2	16.0%
0%	1,124.0	588.2	18.0%
-10%	1,255.5	680.3	19.9%
-20%	1,384.4	770.7	21.7%

Figure 22.3: NPV 5% Sensitivity



Gold price sensibility was done with rounded gold price, thus shown approximately in this graph to show the tendency.

Figure 22.4: IRR Sensitivity



Gold price sensibility was done with rounded gold price, thus shown approximately in this graph to show the tendency.

23 ADJACENT PROPERTIES

The east-west trending Destor-Porcupine Fault Zone ("DPFZ") encompasses several major gold deposits in Québec and Ontario. Exploration work around the Duparquet Project has been focused directly on the DPFZ and its splays. The Project is surrounded by properties belonging to third party mining and exploration companies or individuals.

Figure 23.1 shows all the current ownership of mining titles adjacent to the Project.

The descriptions in this section are drawn from information publicly disclosed by the owners of the adjacent properties. The information about mineralization on adjacent properties is not necessarily indicative of mineralization on First Mining's Duparquet Project. The QP has not verified the Mineral Resource Estimates or published geological information pertaining to the adjacent properties.

Adjacent to the north of the Duparquet Project, between the Central Duparquet, Pitt Gold, and Duquesne claim blocks, the mining claims are owned by Duparquet Assets Ltd., holder of the Duquesne West property, also known as the Duquesne-Ottoman Project. On September 8, 2011, Xmet published the results of a new NI 43-101 compliant resource estimate for the Duquesne-Ottoman property. The current mineral resource at Duquesne-Ottoman stands at 853,000 ounces of gold in the Inferred category uncut at a grade of 6.36 g/t Au, or 727,000 ounces of gold at a grade of 5.42 g/t Au applying a gold top cut-off grade of 30 g/t. The resource is distributed across eight zones, with the majority occurring in two zones; Fox, and Liz. The resource is in a greenstone-hosted mesothermal vein system. The resource estimate was carried out by Watts, Griffis McOuat Limited Consulting Geologists and Engineers of Toronto, Canada (Power-Fardy and Breede, 2011).

Adjacent to the east of the Duparquet Project, the mining claims are owned by IAMGOLD. The Lépine-Bassignac Property contains several gold deposits and showings, including the former Yvan Vézina mine, the Double Strike and Davangus deposits, as well as the Sylvanite Pit and Lépine showings. The Yvan Vezina mine, located approximately 4.6 km further east along the DPFZ, operated from 1982 to 1988. The mine produced 1,095,191 tonnes of ore at a grade of 3.72 g/t Au (source: www.sigeom.mines.gouv.qc.ca).

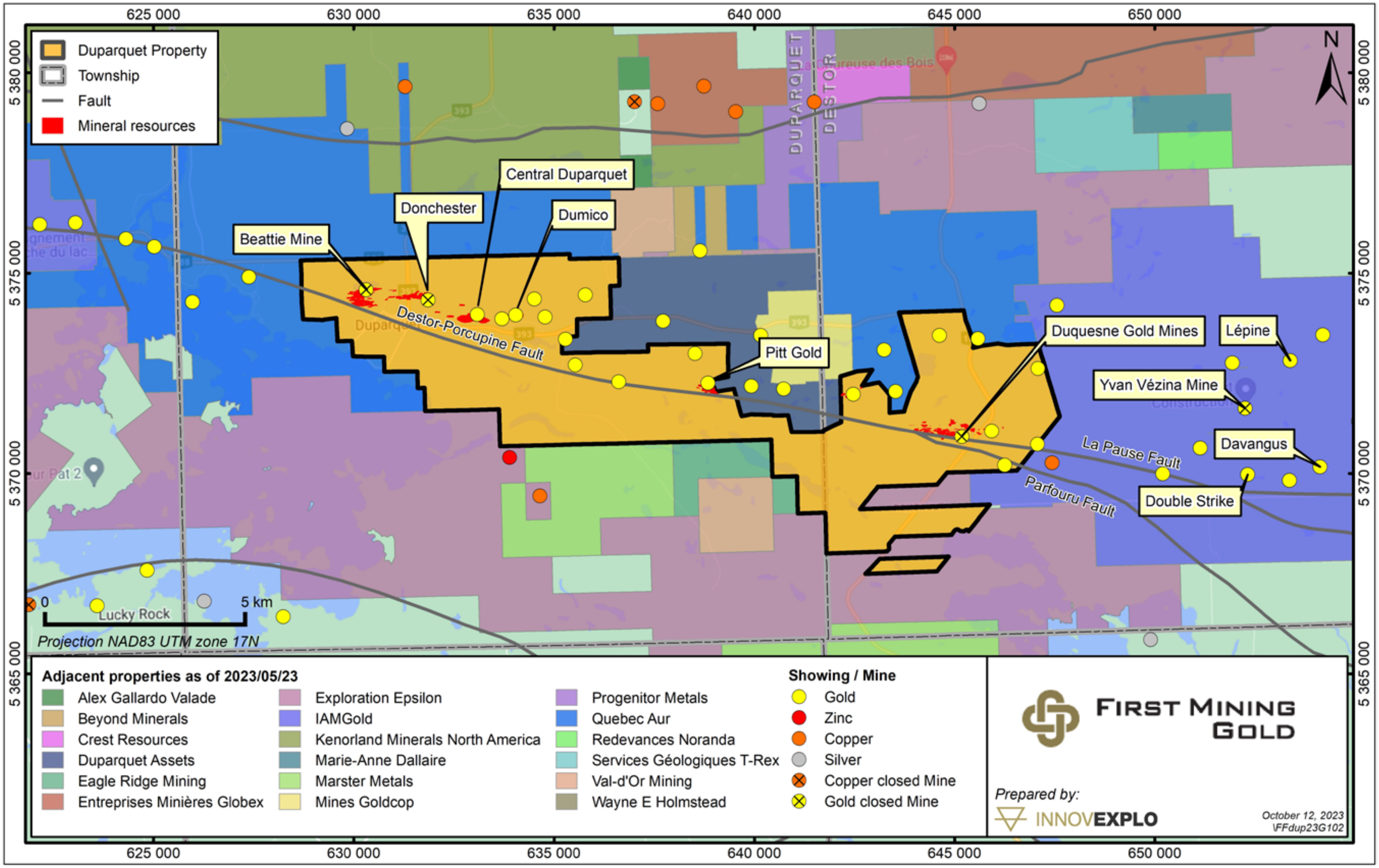
To the northwest and northeast, the Duparquet Project is bordered by mining claims owned by Québec Aur Ltd. The mineralization on their property is exposed on Beattie Island within Lac Duparquet and is hosted within the Destor Theolitic Unit of the Blake River Group. Mineralization is associated with interflow volcanic sediments between andesite flows and diorite sills. Gold occurs with pyrite-chalcopyrite in shallow-dipping quartz veins that crosscut the stratigraphy. Historical channel samples completed by

Lacana Mining Corporation in 1982 include 0.81 oz/ton Au over 5 feet, 0.165 oz/ton Au over 6 feet and 0.10 oz/to Au over 10 feet.

To the south of the Duparquet Project, mining claims are held by Exploration Epsilon Inc., Marster Metals Inc., and Eagle Ridge Mining Ltd.

Figure 23.1 presents the current owners of adjacent properties. There are no adjacent properties that are relevant to the Technical Report or to the progress of the Duparquet Project.

Figure 23.1: Adjacent Properties



24 OTHER RELEVANT DATA AND INFORMATION

24.1 Silver

Silver has not been included in the Mineral Resource Estimates for the Project, since few silver assays are available. For more information about silver sampling and testing, refer to the September 2022 NI 43-101 Technical Report and Mineral Resource Estimate Update for the Duparquet Project, prepared for First Mining by InnovExplo (Iund et al., 2022).

24.1.1 Project Schedule

This section discusses the project development schedule to lead the Duparquet Project from a Preliminary Economic Assessment (PEA) to commercial production.

The projected Project development milestone are provided in Table 24.1. The major activities leading to production are listed below.

- Permitting
- Delineation diamond drilling
- Extension diamond drilling
- Pre-feasibility study
- Feasibility study
- Detailed engineering
- Procurement
- Construction
- Open pit mine development and ramp-up
- Commercial production

Table 24.1: Project Projected Milestones

Description	Approximate Start Date	Approximate Finish Date
Permitting	Q1 2024	Q4 2029
Delineation Diamond Drilling	Q1 2024	Q1 2027
Extension Diamond Drilling	Q1 2024	Q1 2027
Pre-feasibility Study	Q2 2027	Q4 2027
Feasibility Study	Q1 2028	Q4 2028
Detailed Engineering	Q1 2029	Q4 2029
Procurement	Q1 2029	Q4 2031
Construction	Q1 2030	Q4 2031
Mine Development and Ramp-Up	Q1 2030	Q3 2031
Pre-Production	Q3 2031	Q4 2031
Commercial Production	Q1 2032	Q4 2040
Closure	Q1 2041	Q4 2043

Project execution plan, operational readiness plan, transport, logistics, contracting strategy, and risk management plan are to be developed in the feasibility study.

24.1.2 Pre-feasibility Study

The following phases of development of the project are to go through a pre-feasibility study (PFS). The PFS would be initiated and have a target completion date of Q4 2027. Additional data may be required to support a PFS as listed below:

- Drilling to increase Measured and Indicated resources
- Condemnation drilling in area of mill, waste rocks, tailings
- Geotechnical investigation – mine design
- Hydrogeological investigation – mine design
- Geotechnical investigation – surface infrastructure and tailings disposal facility
- Metallurgical test work to support processing facility design
- Engineering and data collection activities to support the environmental assessment

Recommendations to support a pre-feasibility study are provided in Section 26 of this report.

24.1.3 Feasibility Study

Once the PFS is completed, a feasibility study ("FS") would be initiated and have a target to be completed by Q4 2028. Additional data may be required to support a FS as listed below:

- Drilling to increase Measured and Indicated resources
- Geotechnical investigation to determine the final pit slope to complete the mine design
- Hydrogeological investigation to complete the mine design
- Metallurgical test work to support processing facility design
- Engineering and data collection activities to support the permit application.

24.1.4 Detailed Engineering

Once the FS is completed, detailed engineering can proceed to support procurement of equipment, material, and installation packages. Detailed engineering would be initiated in Q1 2029.

The main engineering packages are listed below:

- Tailings storage facility
- Open pit mine and infrastructure
- Processing facility
- Power distribution
- Water treatment plant
- Support infrastructure

25 INTERPRETATION AND CONCLUSIONS

25.1 Geology

25.1.1 Beattie, Donchester, Dumico and Central Duparquet Claim Blocks

The objective of InnovExplo's mandate was to provide an updated Mineral Resource Estimate for the Duparquet claim block (the "2022 MRE"). The mandate covers the historical Beattie and Donchester gold-producing mining concessions, the associated Beattie tailings disposal area, and the Dumico and Central Duparquet claim blocks. This technical report and the 2022 MRE herein meet this objective.

The authors conclude the following:

- The database supporting the 2022 MRE is complete, valid and up to date.
- Geological and gold-grade continuity has been demonstrated for all 72 mineralized zones.
- The key parameters of the 2022 MRE (density, capping, compositing, interpolation, search ellipsoid, etc.) are supported by data and statistical and/or geostatistical analysis.
- The 2022 MRE includes Measured, Indicated and Inferred resources for a combination of two mining scenarios: open pit and selective underground. The 2022 MRE complies with CIM Definition Standards and CIM Guidelines.
- Two cut-off grades of 0.40 and 1.50 g/t Au were used, corresponding to potential open pit and selective underground mining scenarios.
- Cut-off grades were calculated at a gold price of USD 1,650 per troy ounce and an exchange rate of 1.31 USD/CAD, using reasonable mining, processing, and G&A costs.
- In a combined pit and selective underground mining scenario, the Project contains an estimated Measured & Indicated resource of 65,081,200 t at 1.58 g/t Au for 3,316,100 oz of gold, and an Inferred resource of 37,371,900 t at 1.36 g/t Au for 1,636,000 oz of gold. The Project also contains the Beattie mine tailings with an estimated Measured & Indicated Resource of 4,125,100 t at 0.94 g/t Au for 124,500 oz of gold.
- Additional diamond drilling on multiple zones would likely upgrade some of the Inferred resource to Indicated resources and/or add to the Inferred resource since most of the mineralized zones have not been fully explored at depth or close to surface infrastructures.

At this stage, it is reasonable to believe that a hybrid operation consisting of an early open pit followed by later underground mining activities is amenable to the expectation of "reasonable prospects of eventual economic extraction" as stated in the CIM MRMR Best Practice Guidelines. The potential to add new resources in the open pit through exploration is best focused in the east direction because the favorable geology hosting the Project mineralization is constrained to the west by the DPFZ, and the pit itself is constrained to the south by the Project limit and the town of Duparquet. Drilling at a tighter spacing in the Inferred resource areas will enable conversion to Indicated resource by increasing confidence in the estimate. There is potential with further exploration to identify further mineralization at depth below the limits of the existing mineralization model which could be accessed from the underground infrastructure. The reader is cautioned that these potential exploration targets are not Mineral Resource Estimates and are conceptual in nature. There has been insufficient exploration to define them as a mineral resource and it is uncertain if further exploration will delineate the exploration targets as a mineral resource.

The authors consider the 2022 MRE reliable, thorough, based on quality data, reasonable hypotheses, and parameters compliant with NI 43-101 requirements, CIM Definition Standards and CIM MRMR Best Practice Guidelines.

25.1.1.1 Mineral Resource Estimate, Duparquet Deposit

Table 25.1: Duparquet Deposit 2022 Mineral Resource Estimate by Mining Method

Area (potential mining method)	Cut-off (g/t)	Measured Resource			Indicated Resource			Inferred Resource		
		Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au(g/t)	Ounces
Open Pit	0.4	163,700	1.37	7,200	59,410,600	1.52	2,909,600	28,333,000	1.07	970,400
UG Mining	1.5	-	-	-	5,506,900	2.26	399,300	9,038,900	2.29	665,600
Total	**-**	**163,700**	**1.36**	**7,200**	**64,917,474**	**1.59**	**3,308,880**	**37,371,851**	**1.36**	**1,636,044**

**Notes to accompany the Duparquet Deposit Mineral Resource Estimate:*

1. *The independent and qualified persons for the Mineral Resource Estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., Simon Boudreau, P.Eng., all from InnovExplo, and Guy Comeau, P.Eng. from Soutex. The effective date of the estimate is September 12, 2022.*
2. *These mineral resources are not mineral reserves, as they do not demonstrate economic viability. There is currently insufficient data to define these Inferred Mineral Resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of economic viability.*
4. *The estimate encompasses sixty (60) mineralized domains and one dilution envelope using the grade of the adjacent material when assayed or a value of zero when not assayed.*
5. *High-grade capping of 25 g/t Au supported by statistical analysis was done on raw assay data before compositing.*
6. *The estimate was completed using a sub-block model built in GEOVIA SURPAC 2021, a block size of 5 m x 5 m x 5 m and a minimum block size of 1.25 m x 1.25 m x 1.25 m. Grade interpolation was obtained by ID2 using hard boundaries.*
7. *A density value of 2.73 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
8. *The Mineral Resource Estimate is classified as measured, indicated and inferred. The Measured category is defined by blocks having a volume of at least 25% within an envelope built at a distance of 10 m around existing channel samples. The Indicated category is defined by blocks meeting at least one of the following conditions: (i) blocks falling within a 15 m buffer surrounding existing stopes, and/or (ii) blocks for which the average distance to composites is less than 45 m. A clipping polygon was generated to constrain indicated resources for each of the 60 mineralized domains. Only the blocks for which reasonable geological and grade continuity have been demonstrated were selected. All remaining interpolated blocks were classified as Inferred resources. Blocks interpolated in the envelope were all classified as Inferred resources.*
9. *The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the requirement of reasonable prospects for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. It is reported at a rounded cut-off grade of 0.4 g/t Au (in-pit) and 1.5 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = C$70.00 (UG); processing cost = C$11.9 to $17.0; G&A = C$8.75; refining and selling costs = C$5.00; gold price = USD 1,650/oz; USD/CAD exchange rate = 1.31; and mill recovery = 93.9%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
10. *The number of metric tons and ounces was rounded to the nearest hundred, following NI 43-101 recommendations, and any discrepancies in the totals are due to rounding effects.*
11. *The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues or any other relevant issue not reported in the Technical Report that could materially affect the Mineral Resource Estimate.*

25.1.2 Duquesne Claim Block

The objective of InnovExplo's mandate was to provide an updated Mineral Resource Estimate for the Duquesne claim block. This technical report and the 2023 MRE herein meet this objective.

The authors conclude the following:

- The database supporting the 2023 MRE is complete, valid and current.
- Geological and gold-grade continuity has been demonstrated for all 397 mineralized zones.
- The key parameters of the 2023 MRE (density, capping, compositing, interpolation, search ellipsoid, etc.) are supported by data and statistical and/or geostatistical analysis.
- The 2023 MRE includes Inferred resources for a combination of two mining scenarios: open pit and selective underground. The 2023 MRE complies with CIM Definition Standards and CIM Guidelines.
- Two cut-off grades of 0.50 and 1.75 g/t Au were used, corresponding to the potential open pit and selective underground mining scenarios, respectively.
- Cut-off grades were calculated at a gold price of USD 1,800 per troy ounce and an exchange rate of USD/CAD 1.30, using reasonable mining, processing and G&A costs.
- In a combined open pit and selective underground mining scenario, the Project contains an estimated Inferred resource of 11,330,000 t at 2.24 g/t Au for 817,400 oz of gold.
- Additional diamond drilling on multiple zones would likely upgrade some of the Inferred resource since most of the mineralized zones have not been fully explored at depth or on lateral extension.

At this stage, it is reasonable to believe that a hybrid operation consisting of open pit and underground mining activities is amenable to the expectation of "reasonable prospects of eventual economic extraction" as stated in the CIM MRMR Best Practice Guidelines. Potential exists to add new resources in the open pit to the areas west of the hydro-electric power and east of the road. There is potential to add resources at depth, below the limits of the existing mineralized model that could be accessed from the underground infrastructure. The reader is cautioned that these potential exploration targets are not Mineral Resource Estimates and are conceptual in nature. There has been insufficient exploration to define them as a mineral resource and it is uncertain if further exploration will delineate the exploration targets as a mineral resource.

The authors consider the 2023 MRE reliable, thorough, and based on quality data, reasonable hypotheses, and parameters compliant with NI 43-101 requirements, CIM Definition Standards and CIM Guidelines.

25.1.2.1 Mineral Resource Estimate, Duquesne Deposit

Table 25.2 : Duquesne 2023 MRE

Area (potential Mining Method)	Cut-off	Duquesne Inferred Resource		
	(g/t)	Tonnage (t)	Au (g/t)	Ounces
Open Pit	0.5	6,300,000	1.56	316,000
UG Mining	1.75	5,030,000	3.1	501,400
Total		**11,330,000**	**2.24**	**817,400**

**Notes to accompany the Duquesne Mineral Resource Estimate:*

1. *The independent qualified persons for the Duquesne Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. from InnovExplo. The effective date of the estimate is August 31, 2023.*
2. *These mineral resources are not mineral reserves, as they do not demonstrate economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *In-pit and Underground: High-grade capping of 55 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *The estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6 m x 6 m x 6 m and a minimum block size of 1.5 m x 0.5 m x 0.5 m. Grade interpolations were obtained by ID2 using hard boundaries.*
6. *In-pit and Underground: a density value of 2.7 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *In-pit and Underground: The Duquesne Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Duquesne was prepared using 3D block modelling and the inverse distance squared ("ID2") interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 75 m for Inferred in all zones.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2 m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *In-pit and Underground: The Mineral Resource Estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Duquesne resources are reported at a rounded cut-off grade of 0.5 g/t Au (in-pit) and Duquesne resources (underground) are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD/CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *Royalty % in the MRE input parameters represents NSR % after First Mining purchases the remaining NSR*
13. *The number of metric tons was rounded to the nearest thousand and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
14. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

25.1.3 Pitt Gold Claim Block

The objective of InnovExplo's mandate was to provide an updated Mineral Resource Estimate for the Pitt Gold claim block. This technical report and the 2023 MRE herein meet this objective.

The authors conclude the following:

- The database supporting the 2023 MRE is complete, valid, and up to date.
- Geological and gold-grade continuity has been demonstrated for all 111 mineralized zones.
- The key parameters of the 2023 MRE (density, capping, compositing, interpolation, search ellipsoid, etc.) are supported by data and statistical and/or geostatistical analysis.
- The 2023 MRE includes Inferred resources for selective underground mining. The 2023 MRE complies with CIM Definition Standards and CIM MRMR Best Practice Guidelines.
- Two cut-off grades of 0.50 and 1.75 g/t Au were used, corresponding to potential open pit and selective underground mining scenarios.
- Cut-off grades were calculated at a gold price of USD 1,800 per troy ounce and an exchange rate of USD/CAD 1.30, using reasonable mining, processing, and G&A costs.
- With only an underground mining scenario, the Project contains an estimated Inferred resource of 2,120,000 t at 2.75 g/t Au for 187,200 oz of gold.
- Additional diamond drilling on multiple zones would likely upgrade some of the Inferred resource since most of the mineralized zones have not been fully explored at depth or on lateral extension to the west.

At this stage, only an underground mining activity is amenable to the expectation of "reasonable prospects of eventual economic extraction" as stated in the CIM MRMR Best Practice Guidelines. There is potential with further exploration to add material at depth below the existing mineralized model and to the west where only shallow drill holes are present. The reader is cautioned that these exploration targets are not a Mineral Resource Estimate and are conceptual in nature. There has been insufficient exploration to define them as a mineral resource and it is uncertain if further exploration will delineate the exploration targets as a mineral resource.

The authors consider the 2023 MRE reliable, thorough, and based on quality data, reasonable hypotheses, and parameters compliant with NI 43-101 requirements, CIM Definition Standards, and CIM Guidelines.

25.1.3.1 Mineral Resource Estimate, Pitt Gold Deposit

Table 25.3: Pitt Gold 2023 MRE

Pitt Gold – Potential Underground Long Hole Mining				
Gold Price ($)	**COG (g/t Au)**	**Sum of Tonnes**	**Sum of Ounces**	**Grade (g/t Au)**
1,800	1.75	2,120,000	187,200	2.75

**Notes to accompany the Pitt Gold Mineral Resource Estimate:*

1. *The independent qualified persons for the Pitt Gold Mineral Resource Estimate, as defined by NI 43-101, are Olivier Vadnais-Leblanc, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. from InnovExplo. The effective date of the estimate is September 15, 2023.*
2. *These mineral resources are not mineral reserves, as they do not demonstrate economic viability. There is currently insufficient data to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category. The Mineral Resource Estimate follows current CIM Definition Standards.*
3. *The results are presented in-situ and undiluted and have reasonable prospects of eventual economical extraction.*
4. *Underground: High-grade capping of 20 g/t Au. High-grade capping supported by statistical analysis was done on composited assays.*
5. *The estimates used a sub-block model in GEOVIA SURPAC 2023 with a unit block size of 6 m x 6 m x 6 m and a minimum block size of 1.5 m x 0.5 m x 0.5 m. Grade interpolations were obtained by ID2 using hard boundaries.*
6. *A density value of 2.7 g/cm^3 was used for the mineralized domains and the envelope. A density value of 2.00 g/cm^3 was used for the overburden. A density value of 1.00 g/cm^3 was used for the excavation solids (drifts and stopes) assumed to be filled with water.*
7. *The Mineral Resource Estimate is completely classified as Inferred due to a lack of confidence in certain drill hole collar and underground development locations.*
8. *The Mineral Resource Estimate for Pitt Gold was prepared using 3D block modelling and the inverse distance squared (“ID2”) interpolation method.*
9. *The mineral resources are categorized as Inferred based on drill spacing, as well as geological and grade continuity. A maximum distance to the closest composite of 210 m for Inferred in all zones for Pitt Gold.*
10. *The reasonable prospect for an eventual economical extraction is met by having used reasonable cut-off grades both for a potential open pit and underground extraction scenarios (minimum mining width of 2 m) and constraining volumes (Deswik optimized shapes and Whittle optimized pit-shells).*
11. *Underground: The out-pit mineral resource met the reasonable prospect for eventual economic extraction by having constraining volumes applied to any blocks (potential underground extraction scenario) using DSO. Pitt Gold resources are reported at a rounded cut-off grade of 1.75 g/t Au (UG). The cut-off grades were calculated using the following parameters: mining cost = CAD 84.86 (UG); processing cost = CAD 21.010; G&A = CAD 11.75; refining and selling costs = CAD 5.00; gold price = USD 1,800/oz; USD/CAD exchange rate = 1.3; and mill recovery = 90%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.).*
12. *Royalty NSR % in the MRE input parameters assumes First Mining exercises buy-back option*
13. *The number of metric tons was rounded to the nearest thousand, and ounces were rounded to the nearest hundred, following the recommendations in NI 43-101. Any discrepancies in the totals are due to rounding effects.*
14. *The qualified persons are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported herein, that could materially affect the Mineral Resource Estimate.*

25.1.4 Consolidated Duparquet Resources

Table 25.4 represents a combination of all resources from Duparquet, Duquesne and Pitt Gold.

Table 25.4: Duparquet Consolidated Resource Estimate

	Total Measured Resource			Total Indicated Resource			Total Inferred Resource		
(Potential mining method)	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces	Tonnage (t)	Au (g/t)	Ounces
Open Pit	163,700	1.37	7,200	59,410,600	1.52	2,909,600	34,633,000	1.16	1,286,400
UG Mining	-	-	-	5,506,900	2.26	399,300	16,189,000	2.6	1,354,100
Tailings	19,900	2.03	1,300	4,105,200	0.93	123,200	-	-	-
Total	183,600	1.43	8,500	69,022,700	1.55	3,432,100	50,822,000	1.62	2,640,500

Refer to individual MRE table footnotes for more information on Consolidated Mineral Resources Estimate

25.2 Mining

The Duparquet Project is planned as a mix of conventional open pit mine and a long hole (transversal – longitudinal – uppers) underground mine. The milling rate is planned at 5.5 Mtpa with a ramp-up period of 0.5 years during the open pit operational period. The mill will run for 11 years. The total stockpile will reach a maximum of 2 Mt to allow steady mill feed. The maximum stockpile is reached at Year 1.

The main conclusions on the mining and mineralized material estimation are as follows:

- The production schedule is based on mining a combined total of mineralized material to ensure a 5.5 Mtpa mill feed.
- While no additional geotechnical investigations have been conducted since the 2014 PFS, geotechnical data from the 2014 documents were considered as part of this preliminary study.
- The open pit mining method consists of conventional open pit mining with drilling, blasting, loading, and hauling activities, reaching a maximum of 27 Mtpa.
- Open pit mine design including ramps and in-pit waste disposal, block model dilution, time cycle study, and sequence optimization was done for all pits and phases.
- The mineralized material for the open pit comprises 43.6 Mt at an average diluted grade of 1.36 g/t Au.
- Mine equipment selection requires a separate fleet for ore and waste to achieve the planned production. Drilling will be done using diesel DTH production drills, loading will be done using 22 m³ diesel-hydraulic front shovel coupled with 200 tonnes trucks in the waste, and 12 m³ diesel-hydraulic shovel coupled with 65 tonnes high-capacity road trucks. This will help improve mining recovery and reduce external dilution.

- The underground mining method that consists of both transversal and longitudinal variants of mechanized long hole stoping is the most well suited to this type and geometry of ore body.
- To achieve the optimized mine to mill production target considered within this Technical Report, the mine plan requires ore development and production from multiple mining blocks, with multiple stopes available per block across the four zones.
- Underground mine design including CAPEX and OPEX development was optimized considering the stope design and infrastructure requirements.
- Mining and development sequence optimization was performed for all underground zones, considering the production targets, time cycle study, and productivity rates calculated for every development and production activity.
- The mineralized material for the underground comprises 12.02 Mt at an average diluted grade of 2.25 g/t Au.

25.3 Mineral Processing and Metallurgical Testing

25.3.1 Trade-off Study

A comprehensive techno-economic desktop trade-off study was completed to compare pre-cyanidation treatment technologies of refractory gold concentrate that would be produced from the Duparquet Project. Four flowsheet options at three different throughputs were evaluated. The goal of the trade-off study was to select the most attractive flowsheet in terms of project economics including NPV, capital and operating costs and lowest risk profile, and it provided the direction for the PEA.

The following four pre-cyanidation treatment options were considered:

- No pre-cyanidation treatment (base case) and only produce saleable gold concentrate
- POX Option: pressure oxidation followed by a neutralization circuit
- BIOX Option: bio-hydrometallurgical circuit using bioleaching organisms followed by a neutralization circuit
- Albion Option: ultra fine grinding followed by oxidative leaching

Three throughput cases were included when sizing and costing the flowsheet options, i.e. 5 ktpd, 10 ktpd and 15 ktpd.

For the evaluation, the following unit options were considered common for the three pre-cyanidation treatment options:

- Comminution Circuit – primary crusher, SAG and Ball mill
- Flotation Circuit – two stage cleaning circuit for saleable concentrate option and one stage of cleaning to produce concentrate for the downstream oxidation circuits
- Concentrate Dewatering – concentrate thickener circuit
- Flotation Tailings Circuit – cyanidation of flotation tailings via conventional leach circuit
- Cyanidation Circuit to treat oxidized gold ore via a conventional leach circuit
- Gold Recovery Circuit – standard CIP circuit for gold adsorption, standard pressure Zadra circuit for gold desorption and gold room to produce doré

The capital costs were factored and processing and mining costs were calculated for each flowsheet option and plant throughput case.

The trade-off study concluded a 15ktpd (or 5.5Mtpa) processing plant that only produces saleable gold concentrate, i.e. no further downstream treatment of the concentrate had the best project economics and lowest risk profile.

25.3.2 PEA Basis

Numerous metallurgical test work programs were completed on the project with the most recent test work program completed in 2013 by SGS which involved flotation, pressure oxidation (POX), cyanidation, rheology, and environmental bench scale test work. Bench scale metallurgical test and pilot plant testing demonstrated that a saleable gold concentrate can be produced from samples from the Duparquet project via a conventional rougher and two stage cleaning flotation-regrind circuit. A conventional comminution and gold flotation flowsheet was selected as the appropriate treatment of mineralized material from the Duparquet deposit to produce a gold-bearing concentrate for sale.

The results of the pilot plant flotation test work conducted by SGS in 2013 were used as the basis for process plant design and gold recoveries for this PEA, i.e., 89.5% gold recovery to concentrate at 36 g/t Au grade.

25.4 Infrastructure

The Duparquet Project requires several infrastructure elements to support the mining and processing operations.

The infrastructure planned for the project includes the following:

- Roads (site roads, access roads and road relocation)
- Tailings storage and water reclaim facilities
- Waste rock stockpiles
- Pads and laydown areas
- Water management & treatment (fresh, sewage, domestic, fire protection)
- Site run-off and spillage control
- Fuel storage system
- Power supply and distribution
- Buildings (service buildings: mining and processing, operations building, administrative offices, explosive magazine)
- Security
- Site vehicles and mobile equipment
- Underground facilities
- Green wall
- Relocation and remediation

25.5 Recovery Methods

The preliminary process plant design for the Duparquet Project is based on a robust metallurgical flowsheet to treat gold-bearing material to produce gold concentrate. The flowsheet is based on previous metallurgical test work, industry standards, and conventional unit operations. The process plant is designed to nominally treat 15 ktpd of material and will consist of comminution and gold flotation circuits. Flotation tailings will be dewatered to produce a tailings slurry for storage onsite.

25.6 Capital Expenditures, Operating Expenditures and Economic Analysis

The total project CAPEX is estimated at CAD 706M, which includes CAD 503.3M for project construction, which includes all directs, indirects and general services support, 25% contingency of the total directs and indirects, as well as CAD20.3M for working capital and pre-production activities.

- Sustaining capital is required during operations for additional equipment purchases for the open pit mine and to develop the underground mine. Additional work is required for water management, for the tailing storage facilities and to build the maintenance shop. The sustaining capital is estimated at CAD 737.8M over the LOM.

- The average annual gold production over the 11-year mine life is 224 Koz, with a total gold production of 2.5 Moz and an average payable gold rate of 96%.
- Total Net Smelter Revenues (NSR) for the project throughout operations are estimated to be \$5,538.7M, excluding \$58.1M of revenue generated during pre-production and treated as pre-production revenue.
- The average OPEX over the LOM is USD 37.35/t of ore or \$2,202.5M with mining representing 64% of the total OPEX or USD 23.82/t of ore.
- The undiscounted before-tax cash flow is estimated at \$1,877.9M for the Duparquet Project. The pre-tax net present value at 5% ("$NPV_{5\%}$") is estimated at \$1,073.0M with an 24.9% internal rate of return ("IRR") and 3.8 y Initial capital period. Similarly, the after-tax $NPV_{5\%}$ is estimated at \$588.2M with an 18.0% IRR and 4.9-year payback period.

25.7 Environment and Permitting

Existing environmental conditions at the Duparquet Project site can be used to interpret mine water quality based on water quality in the historical mine pit known as the Glory Hole, a historical mine opening to surface, as well as water quality in aggregate pits throughout the project area. Water quality monitoring confirms geochemical interpretations to date regarding the potential for acid rock drainage and metal leaching. Furthermore, the existence of tailings on the surface, not withstanding plans for reprocessing, present opportunities to examine and interpret the tailings composition, chemistry and longer term oxidation and reduction potential, and water quality effects. Large-scale features such as the Glory Hole and dewatering activities in local aggregate pits allow bulk-scale interpretation of local hydrogeological conditions, flow directions and patterns.

Preliminary environmental reviews conclude that mine water quality is expected to require treatment to meet provincial and federal discharge criteria and that water quality prediction confidence based on further geochemical testing will be increased by reference to existing tailings run-off and groundwater discharge conditions. As no large watercourses flow through, or adjacent to, the Duparquet project site, an important conclusion emerges that local water quality assimilative capacity is limited. To increase assimilative capacity, effluent may require discharge to larger water bodies such as Lake Duparquet. Furthermore, field survey is required to inventory vegetation and wildlife populations, aquatic communities and identify members, populations, and habitat for species at risk. Further engagement is anticipated with Indigenous, communities and regulatory stakeholders not just to solicit input and feedback and address comments and concerns, but to enhance and shape the Project as it advances into the future.

Environmental risks include requirements to characterize and ultimately remediate groundwater contamination from arsenic trioxide storage. First Mining is working with regulators to improve and secure As (III) storage on site and is seeking opportunities for material disposal and potential commercial/industrial reuse, however, remediation of contaminated ground is a risk. Remediation is an ongoing activity committed to by First Mining, which is driven by regulation and thus separate from the PEA or mine development. Other project environmental risks include the dismantling and removal of the former mill building and associated site infrastructure, the presence of uncontained historical tailings deposited on the landscape, potential unidentified mine openings to surface, and stakeholder opinion and attitudes toward the Project. The mine will have to undergo environmental assessment and subsequent permitting which is anticipated to extend over several years and incurs risk associated with agreement on avoidance, reduction, and mitigation of environmental concerns.

Despite the risks, the Project provides important opportunities, including economic development for Duparquet and the local provincial economy, and opportunities for jobs, training, education and prosperity in a community and region where mining is so important historically, as well in the present and future. The open pit mining approach means that over the period of early pit development, local groundwater patterns will adjust such that groundwater will drain towards the open pit. The pit will be actively dewatered and treated prior to discharge, which in turn creates opportunity regarding existing groundwater that is, or potentially is impaired by historical mining activities, to drain that water to a collection point, and treat it to discharge criteria prior to release to the environment. The open pit mining approach will include the excavation of overburden and bedrock in the area of the As (III) storage bunker and associated contaminated ground, and will manage that contaminated material appropriately and be aligned with regulatory direction. The open pit will also encompass and remove the Glory Hole, an unsecured and large-scale mine opening to surface. The plan to reprocess an accessible and significant portion of historical tailings also presents an important environmental opportunity to remediate and manage the legacy risk from historical mining at the Project site, and the subsequent placement of those reprocessed tailings in a modern, engineered tailings impoundment secures the future of reprocessed tailings at the Project site.

25.7.1 Risks and Opportunities

The identification and assessment process of risks and opportunities is iterative and has been applied throughout the PEA Study.

Like all projects, there remain risks and opportunities that could affect the economic results of the Project. Many of the risks and opportunities are typical to mining projects; those specific to the Project will require additional information, testing, or engineering to confirm assumptions and parameters.

Table 25.5 identifies the significant internal risks, potential impacts and possible risk mitigation measures that could affect the future economic outcome of the Project. The list does not include the external risks that apply to all mining projects (e.g., changes in metal prices, exchange rates, availability of investment capital, government regulations, etc.).

Significant opportunities that could improve the economics, timing and permitting are identified in Table 25.6. Additional information and studies are required before these opportunities can be included in the Project economics.

Table 25.5: Risks, Impacts, and Mitigations

Risk	Potential Impact	Possible Risk Mitigation
Difficulty attracting experienced professionals.	Increased OPEX.	The early search for professionals will help identify and attract critical people.
Downsizing the optimized Duparquet resource shell due to its proximity to the municipality of Duparquet and private lands.	Increased CAPEX and OPEX.	Relocation of houses away from the buffer zone of the pit.
Recovery of existing tailings from government-owned land.	Loss of resources and/or increased CAPEX and OPEX.	Proactive discussion with Québec regulators centred on ground reclamation.
Québec Ministry of Transportation will not allow bypass of provincial road 393.	Loss of resources inside a potential permanent pillar within the pit.	Proactive discussion with Québec regulators.
Increased costs of relocating provincial road 393 due to restricted road path selection because of social acceptability.	Increased CAPEX and OPEX.	Better investigation of the possible options.
Cannot relocate provincial road 393 in Year 2 of operation due to hauling traffic and blasting.	Road 393 relocation included in Initial Capex instead of Sustaining.	Investigations of proximity to blasting and potential impact on operations of road presence during construction and first year of operation
Process affected by the arsenic concentration.	Environmental consideration. Concentrate may be subject to penalties.	Additional test work. Evaluate treatment options. Evaluate concentrate options with smelters and roasters.
Processing of arsenic trioxide not	Cost consideration of offsite waste	Perform testing to validate the

Risk	Potential Impact	Possible Risk Mitigation
handled by process plant.	treatment.	selected process can handle it and investigate further treatment options.
Low recovery from historical tailings, not economically advantageous.	Increased CAPEX and OPEX.	Additional testing. Reconsider the treatment of the historical tailings.
Classification stays Inferred in Duquesne.	Not enough confidence in the classification (DDH and underground openings locations) to improve the category to reserves.	Do a survey campaign to precisely locate the DDH collars where available, twin holes.
Not enough power available at Reneault Hydro-Québec substation.	Increased CAPEX and OPEX.	Early discussions with Hydro-Québec.
Use of Beattie mine water via water wells at the process plant is not feasible.	Increased CAPEX and OPEX.	Early testing of wells, investigation of alternative sources and inclusion of additional water wells
Use of existing buildings in or near Duparquet becomes unfeasible.	Increased capital and operating cost.	Early investigation of all options.
Footprint of required green wall and buffer zone bigger than anticipated.	Increased capital cost and reduction of the pit size.	Higher CAPEX for the green wall construction and less resources available by open pit mining.
Geochemical analysis results from the waste and overburden indicates greater than anticipated mitigation and/or control requirements.	Increased capital cost.	Complete early characterization to allow full consideration of control and mitigation options.
Change to hydrogeology or mine dewatering assumptions.	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX.	Conduct hydrogeological and rainfall investigations and studies. 3D numerical modelling to reduce uncertainty around water management of the seven pits.
Changes to current geotechnical parameters.	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX.	Conduct additional geotechnical investigations.

Risk	Potential Impact	Possible Risk Mitigation
Equipment selection and availability.	Higher CAPEX and OPEX.	Complete thorough investigation of the options.
Old underground excavation localization and condition.	Negative impact to overall mine design and production resulting in higher CAPEX and OPEX.	Complete thorough investigation and localization of older excavation.

Table 25.6: Opportunities

Opportunities	Explanation	Potential Benefit
Experienced workforce.	An experienced workforce already present in the Abitibi region.	Creation of a team-building environment.
Exploration at depth.	Zones are still open at depth.	Increase in underground mineral resources.
Pursue other metallurgical recovery processes.	BIOX and ALBION processes were tested and evaluated in the past, but recent advancements in these technologies make them more attractive now.	Replacement of acid leaching with a bacteria solution or higher oxidation following a finer grinding.
Ore sorting	Reduce the amount of waste going to the mill	Limit dilution and provide a higher grade material to the mill.
Locate and survey Mine openings (Duquesne).	Because the location of the opening is not well defined, a large area has been artificially depleted to be sure not to include mined out area on the MRE.	Some interpreted mineralized zones artificially depleted could be considered in the resources and improve the result.
Collar survey campaign (Pitt Gold).	Surveyed collars will bring confidence in drill hole location.	The general classification could be improved.
Drill deep mineralized zones toward surface (Pitt Gold).	Some mineralized zones do not extend up to the surface.	By expanding them up to the surface, an open pit could possibly be optimized.
Electrical and BEV mine equipment.	Convert some equipment to electrical equipment or battery equipment.	Reduce the OPEX cost.
Autonomous equipment.	Convert some mining equipment to automated equipment.	Reduce the OPEX cost.
Usage of a mix of contractor and	Use of contractor to reduce the	Potential reduction in CAPEX.

Opportunities	Explanation	Potential Benefit
owner fleet.	purchase of mine equipment.	
Mine schedule.	Schedule optimization to reduce distance to waste storage facility.	Potential reduction in OPEX.
Used equipment.	Purchase of used equipment or use of contractors during peak years.	Potential reduction in sustaining CAPEX.
Ore loss reduction.	Reduction of ore loss in old stopes through mining methods.	Increase in mineralized material.
Mine ventilation.	Optimization of primary ventilation network with a detailed and staged ventilation design.	Potential reduction in CAPEX development and/or in OPEX (power consumption).
Stope design.	Increase stope dimensions with new information from geotechnical drilling campaign.	Potential reduction in CAPEX development and OPEX.
Mining method.	Convert underground mine longitudinal horizons from typical longitudinal long hole mining to Avoca or modified Avoca method.	Potential reduction in OPEX (backfill cost).
Optimize tailings design.	With a better survey and further detailed geotechnical investigation, it may be possible to optimize the design.	Reduce the CAPEX cost.
Decontaminate the site from historical arsenic trioxide through processing.	Arsenic trioxide from former mine operation can potentially be cleaned up through processing. Contaminated soil and groundwater collected and managed in accordance with regulatory criteria	Site remediation and cleaning up of former mine site. Excavation of arsenic trioxide contamination zone within footprint of open pits. Open pit dewatering and treatment of contaminated groundwater
Decontaminate the site from the former mine tailings.	Old uncontained tailings from former mine operation deposited on land surface could be passed through the process.	Decontaminate the site and avoid long time storage. Recover the gold included in the tailings.

26 RECOMMENDATIONS

This Preliminary Economic Assessment ("PEA") report, which is compliant with NI 43-101 disclosure requirements, was prepared by experienced consultants and qualified persons ("QPs"), following recognized engineering standards. Upon completion of this PEA, the authors and the QPs recommend proceeding with the necessary work to advance to the next phase of project development, specifically by initiating a pre-feasibility study ("PFS"). Several exploration and engineering tasks will be required. Field programs should be planned to gather data for geotechnical and hydrogeological studies, as well as to conduct sampling for metallurgical test work and environmental characterizations. This will provide refined design data to support future pre-feasibility studies.

The following subsections present the QP recommendations regarding the next steps for the Duparquet Project.

26.1 Geology

For Duparquet, the QPs recommend further exploration on the Project including surface work (trenches, channel sampling, mapping, etc.), and diamond drilling to potentially increase mineral resources and the confidence level of the geological and mineralization models. More specifically, the NE-SW striking secondary zones should be drilled to test their lateral and depth extensions. Additional detailed surface mapping and channel sampling would enhance the structural model. A compilation of historical diamond drill holes on the Central Duparquet Property is recommended, particularly those drilled during the 1980s to cover the current mineralized zones in that area. Further definition drilling is recommended along strike and at depth to potentially upgrade the Inferred resources to the Indicated category and address the underground potential of the mineralized zones.

The results of the 2023 MRE for Pitt Gold and Duquesne illustrate that both projects have reasonable prospects for eventual economic extraction (RPEEE) and merit further exploration work and engineering studies.

Some areas in the Duquesne deposit are limited in the necessary information required to expand the mineralized zones. Those areas may potentially carry elevated gold grades as they are positioned near the margins of interpreted mineralized zones or between two known mineralized zones. In those cases, interpreted mineralized zones could be expanded, potentially increasing the number of ounces in the mineral resource.

For Pitt Gold, emphasis should be put on collar location validation, as the current level of confidence in this data contributes to the mineral resource being classified in the Inferred category. It is also recommended that the downhole survey data from pre-2005 drilling programs is sourced and compiled, and copies of the original certificates of analysis and historical drilling logs are obtained.

The recommended exploration drilling program should be guided by the current geological reinterpretation for both the Duquesne and Pitt Gold deposits.

For Duquesne, emphasis should also be put on collar location validation and on better defining the location of the underground openings. The current level of confidence in this data contributes to the mineral resource being classified in the Inferred category. It is also recommended that the downhole survey data from pre-2004 drilling programs is sourced and compiled, and copies of the original certificates of analysis and historical drilling logs are obtained, and duplicate drilling is completed in order to validate the Mineral Resource Estimate. Core boxes should be stacked by DDH or placed in racks.

The recommended work on a regional scale to cover the entire Duparquet Project would include geological, structural, geochemical, and geophysical programs.

The QPs believe that the recommended work program and proposed expenditures are appropriate, well-considered, and that the proposed budget reasonably reflects the type and number of contemplated activities.

26.2 Mine

Further studies need to be done to validate the assumptions used for the project, such as:

- Hydrogeological study for groundwater and rainfall quantities and area of effect, from which a 3D numerical hydrogeological model should be developed
- Geotechnical drilling campaign and studies to confirm the open pit geotechnical parameters such as bench face angle, berm width, and geotechnical berms
- Geotechnical studies to confirm the underground geotechnical parameters for the stope size, ground support requirements, dilution
- Local-specific mining salary study to confirm the wages used for the cost estimation of labour

26.3 Mineral Processing and Metallurgical Testing

The QP recommends completing further metallurgical test work to optimize the flowsheet to improve gold recoveries and optimize the reagent scheme, i.e. completing metallurgical test work on representative samples from the Duparquet deposit to support the current flowsheet as follows:

- Comminution Tests
- Flotation Tests (individual domains):
  - Head assays (ICP & multi-element scan)
  - Mineralogy (PMA)
  - Bench scale tests (rougher/cleaner tests)
  - Lock cycle tests
  - Concentrate assays
- Flotation Tests (variability composites):
  - Head assays (ICP & multi-element scan)
  - Grind calcs
  - Bench scale tests (rougher/cleaner tests)
- Flotation Tests (blends):
  - Head assays (ICP & multi-element scan)
  - Mineralogy (PMA)
  - Bench scale tests (rougher/cleaner tests)
  - Lock cycle tests
  - Regrind signature plots
  - Concentrate assays
- Dewatering tests (concentrate and tailings):
  - Flocculant scoping
  - Static settling tests.

26.4 Infrastructure

The QP responsible for infrastructure recommends completing the following work in advance of a PFS or FS:

- Geotechnical evaluation and lab testing of the site, early test pits and a drilling program to better define the subsurface, foundation requirements, and stability analysis in the TSF.
- Additional geochemical analysis of the waste rock and overburden to determine liner requirement in different facilities.
- Site-wide surveying to optimize road alignments, and avoid any steep gradient along the road.
- Further testing for the required water treatment.
- Condemnation drilling to confirm infrastructure is not to be located in potential mineralized zones.

The QP responsible for infrastructure recommends completing the following work during a PFS or FS:

- Study the infrastructure and process plant position considering the blast radius from the pit.
- Confirm availability of on-site and off-site earthworks material to ensure the mass balance is respected.
- Adopt a strategy and plan for provincial road 393 that assesses relocation versus intersecting with the main haul road in a manner that is protective of human health and safety and the environment.
- Align pre-production schedule with tailings dam construction to ensure sufficient waste rock is available for building the dam.
- Evaluate the feasibility of the haul road crossing the relocated road 393, specifically for the tailings dam raise, or the construction of cell #2 if the road is relocated on the east side of the pits, but on the west side of the tailings.
- Confirm availability of office building and warehouse building in the town of Duparquet or nearby.
- Evaluate opportunity to optimize town infrastructure in project design.
- Confirm location of explosive magazine.
- Confirm availability of camp installations or accommodations for workers.
- The timing of demolition costs for existing infrastructure should be assessed within the context of planned development and the permitting thereof.

- Evaluate requirements and cost of the green wall and determine when it would be required in relation to the open pit sequence.
- Confirm location and feasibility of the water wells.
- Confirm water management assumptions.
- Define water treatment requirements with further testing.
- Define water discharge point.
- Initiate discussions with Hydro-Québec to confirm power availability and secure point of connection.
  - From the interconnecting substation identified, confirm transmission line routing to site for permits.
- Confirm onsite emergency power requirements and sizing.

26.5 Recovery Methods

The QP recommendations include further optimization of the plant design following the completion of additional metallurgical test work, and completion of the following key trade-off studies:

- Evaluate ore sorting amenability and complete the associated trade-off study.
- Comminution circuit trade-off study to evaluate alternative circuits to confirm the selected flowsheet or select an alternative capital and energy efficient circuit.
- Flotation circuit configuration trade-off study to evaluate the two-stage cleaner circuit and optimal location of concentrate regrind stage within the flowsheet.
- Tailings dewatering and handling trade-off study.
- Investigate options to treat arsenic trioxide mining residue.
- Investigate retreatment of historical tailings.

26.6 Environment and Permitting

The QP responsible for environmental and permitting recommends the following environmental and permitting work during a PFS:

- Keeping up to date with latest regulatory requirements and collaborating with regulators regarding the existing Duparquet site.

- Maintain minimum environmental setbacks/buffers from waterbodies/watercourses.
- Confirm the fish habitat status of onsite waterbodies and, where feasible, avoid deposition of mine waste in waters frequented by fish.
- Conduct wildlife and terrestrial vegetation surveys throughout the Project site.
- Continue surface and groundwater monitoring investigations throughout the Project site.
- Continue geochemical characterization of mineralized material, waste rock, and overburden.
- Continue engaging with Indigenous stakeholders and the local communities.
- Initiate regulatory engagement for mine re-opening.

26.7 Market Studies and Contract

Initiating a market study for the next phase of the Project will facilitate alignment with future market conditions. The study should align with the updated metallurgical information available in the pre-feasibility stage. Additionally, estimating transportation costs based on concentrate destination would provide multiple transportation options for the concentrate.

26.8 Proposed Work Budget

The various proposed works amount to a total of 33,695 million dollars. Table 26.1 represents a summary of the various proposed works to advance the project to the next phase. Costs are based on similar past projects and experience of QPs and are detailed in Table 26.2 to Table 26.10.

Table 26.1: Proposed Work Budget

Work Program	Budget Cost
Recommended Geology Work Program on Duparquet	$13,570,000
Recommended Geology Work Program on Duquesne	$3,766,250
Recommended Geology Work Program on Pitt Gold	$3,766,250
Costs for Regional Survey	$2,185,000
Recommended Work Program Covering the Duparquet Infrastructure	$862,500
Work Program Related to Processing, Metallurgical Testing Recovery Methods	$1,150,000
Work Program Related to Duparquet Environment	$3,076,250
Work Program Related to Duparquet Mining	$3,191,250
Pre-feasibility Study	$2,127,500
TOTAL	**$33,695.000**

Table 26.2: Estimated Costs for the Recommended Geology Work Program on Duparquet (Beattie, Donchester, Central Duparquet, Dumico) and Pitt Gold

Work Program	Budget Cost
Exploration Drilling (approx. 30,000 m at $185/m)	$5,550,000
Definition Drilling (approx. 30,000 m at $185/m)	$5,550,000
Collar Survey Campaign	$100,000
Surface Exploration, Surface Sampling, Trenches	$300,000
Adjust 3D Model and Interpolation	$200,000
Compile Central Duparquet Underground Data	$100,000
Contingencies (+15%)	$1,770,000
Total	**$13,570,000**

Table 26.3: Estimated Costs for the Recommended Geology Work Program on Duquesne

Work Program	Budget Cost
Exploration Drilling (approx. 5,000 m at $185/m)	$925,000
Definition Drilling (approx. 10,000 m at $185/m)	$1,850,000
Appropriately Locate (Survey) Underground Openings	$100,000
Surface Exploration, Surface Sampling, Trenches	$200,000
Determine the Density of Waste and Mineralized Material	$100,000
Adjust 3D Model and Interpolation to the Proper Collar Location	$100,000
Contingencies (+15%)	$491,250
Total	**$3,766,250**

Table 26.4: Estimated Costs for the Recommended Geology Work Program on Pitt Gold

Work Program	Budget Cost
Exploration Drilling (approx. 5,000 m at $185/m)	$925,000
Definition Drilling (approx. 10,000 m at $185/m)	$1,850,000
Collar Survey Campaign	$100,000
Sort and Store Core in Racks	$100,000
Surface Exploration, Surface Sampling, Trenches	$200,000
Adjust 3D Model and Interpolation	$100,000
Contingencies (+15%)	$491,250
Total	**$3,766,250**

Table 26.5: Estimated Costs for Regional Exploration

Work Program	Budget Cost
Regional Structural Review (Surface and DDH)	$250,000
Review and Integrate Historical IP Surveys	$200,000
New IP Surveys Over Key Areas	$300,000
Regional Rock and Core Geochem Program	$300,000
Update Regional 3D Geological Model	$100,000
LiDAR Survey	$300,000
Complete Regional Mag Survey (Pitt Gold)	$250,000
Regional Mapping and Prospecting	$200,000
Contingencies (+15%)	$285,000
Total	**$2,185,000**

Table 26.6: Estimated Costs for the Recommended Work Program Related to Duparquet Infrastructure

Work Program	Budget Cost
Geotechnical and Lab Testing	$500,000
Geochemical Analysis of the Waste Rock and Overburden	$100,000
Site-Wide Survey	$100,000
Water Testing to Establish Required Water Treatment	$50,000
Contingencies (+15%)	$112,500
Total	**$862,500**

**Preliminary budgetary price to validate with official quotes*

Table 26.7: Estimated Costs for the Recommended Work Program Related to Processing and Metallurgical Testing

Work Program	Budget Cost
Metallurgical Testing (Duparquet)	$300,000
Preliminary Metallurgical Testing (Pitt Gold)	$100,000
Preliminary Metallurgical Testing (Duquesne)	$100,000
Contingencies (+15%)	$75,000
Total	**$575,000**

Table 26.8: Estimated Costs for the Recommended Work Program Related to Duparquet Environment

Work Program	Budget Cost
Confirm the fish habitat status of on-site waterbodies and where feasible avoid deposition of mine waste in waters frequented by fish.	$350,000
Wildlife and Terrestrial Vegetation Surveys	$500,000
Surface Investigation	$350,000
Groundwater Monitoring Investigations	$700,000
Geochemical Characterization of Mineralized Material, Waste Rock, and Overburden	$350,000
Soil Contamination Studies	$350,000
Engagement with Indigenous Stakeholders and Local Communities	$75,000
Contingencies (+15%)	$401,250
Total	**$3,076,250**

Table 26.9: Estimated Costs for the Recommended Work Program Related to Duparquet Mining

Work Program	Budget Cost
Surface Mining Geotechnical Investigation and Study	$500,000
Underground Mining Geotechnical Investigation and Study	$500,000
Hydrogeological Investigation and Study	$1,000,000
3D Numerical Hydrogeology Model	$750,000
Salary Survey	$25,000
Contingencies (+15%)	$416,250
Total	**$3,191,250**

Table 26.10: Estimated Costs for the Recommended Pre-feasibility Study Work Program Related to Duparquet

Work Program	Budget Cost
Pre-feasibility Study	$1,850,000
Contingencies (+15%)	$277,500
Total	$2,127,500

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