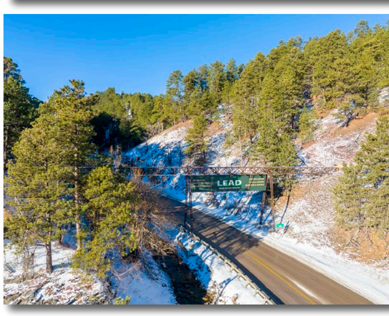
DAKOTA GOLD

S-K 1300 INITIAL ASSESSMENT AND TECHNICAL REPORT SUMMARY

RICHMOND HILL GOLD PROJECT, SOUTH DAKOTA, U.S.A.



PREPARED FOR:

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AKF MINING SERVICES INC.

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Acronyms, Abbreviations, and Units of Measure

Acronyms and Abbreviations

$	U.S. dollar
3D	three-dimensional
AAS	atomic absorption spectroscopy
Ag	silver
AKF	AKF Mining Services Inc.
AOI	Area of Interest
ARD	acid-rock drainage
ARSD	Administrative Rules of South Dakota
Au	gold
B.C.	British Columbia
Barrick	Barrick Gold Corporation
BaseMet	Base Metallurgical Laboratories
BLK	blank
BMA	bulk mineral analysis
BVMM	Bureau Veritas Metals and Minerals
BWi	Bond ball mill work index
CC	Cole Creek
CDP	crushed duplicate
COd	Cambro-Ordovician Deadwood Formation
COdcs	Deadwood Formation basal conglomerate-sandstone
Core	Central Crystalline Core
CRM	certified reference material
Cu	copper
CUP	Conditional Use Permit
CV	Cleveland
Dakota Gold	Dakota Gold Corp.
DO	dissolved oxygen
DTRC	Dakota Territory Resource Corp.

DUP	duplicate
ERM	Environmental Resources Management
EXNI	Exploration Notice of Intent
Fe	iron
Freeport	Freeport Exploration Company
GRG	gravity-recoverable gold
Homestake	Homestake Mining Company of California
ICP-ES	inductively coupled plasma-emission spectroscopy
ID^2	inverse distance squared
IP	induced polarization
IRR	internal rate of return
JV	joint venture
K-Met	K-Met Consultants Inc.
LAC	LAC Minerals
LDL	lower detection limit
Magee	Magee Geophysical Surveys LLC
MC	master composite
Mia	coarse ore index
MRE	mineral resource estimate
NaCN	sodium cyanide
NPV	net present value
NSR	net smelter return
NWS	National Weather Service
OK	ordinary kriging
P_{80}	80% passing
PAX	potassium amyl xanthate
pC	undivided Precambrian
PDP	pulp duplicate
PEA	preliminary economic assessment
POX	pressure oxidation
Property	Richmond Hill Gold Project
QA/QC	quality assurance and quality control
Q/C	quality control
QP	qualified person
RC	reverse circulation
RH	Richmond Hill
RHN	Richmond Hill North
RO	reverse osmosis
RQD	rock quality designation
S	sulfur
SAG	semi-autogenous grinding
SCSE	SAG circuit specific energy
SD	standard deviation
SDBME	South Dakota Board of Minerals & Environment
SDDANR	South Dakota Department of Agriculture & Natural Resources

SDDENR	South Dakota Department of Environment & Natural Resources
SDP	sample duplicate
SMC	SAG mill comminution
St. Joe	St. Joe Gold Corporation
SURF	Sanford Underground Research Facility
SWD	surface water discharge
SWPPP	Stormwater Pollution Prevention Plan
TA	Turn Around
Tbx	Tertiary hydrothermal breccia
Tbx RH	Richmond Hill Tertiary hydrothermal breccia
Tbx RHN-NN	Richmond Hill North No Name Tertiary hydrothermal breccia
Ti	Tertiary intrusive
TT	Twin Tunnels
U.S.	United States of America
Viable	Viable Resources Inc.
WOL	whole ore leach

Units of Measure

µm	micrometer (micron)
°	degrees azimuth
°F	degrees Fahrenheit
%	percent
$	United States dollar
ft	foot
g	gram
g/cm^3	grams per cubic meters
g/t	grams per tonne
Ga	giga-annum (billion years)
gal/min	U.S. gallons per minute
h	hour
kg	kilogram
kg/t	kilogram per tonne
km^2	kilometer squared
kV	kilovolt
kW	kilowatt
kWh/m^3	kilowatt hours per cubic meter
kWh/t	kilowatt hour per tonne
L	liter
m^3	cubic meter
m	meter
Ma	mega-annum (one million years)
mg	milligram
mg/L	milligram per liter
ml	milliliter
mm	millimeter

Moz	million ounces
ms	millisecond
Mton	megaton (one million tons)
oz	troy ounce
oz/t	ounces per tonne
oz/ton	ounces per short ton
ppm	parts per million
t	tonne
ton	short ton
ton/ft^3	tons per cubic foot
t/m^3	tonnes per cubic meter
wt%	weight percentage

1 EXECUTIVE SUMMARY

1.1 Introduction

Dakota Gold Corp. (Dakota Gold) is a Nevada-registered, South Dakota-based gold exploration and development company with a specific focus on revitalizing the Homestake District in Lead, South Dakota. Dakota Gold has 11 gold mineral properties covering over 46,000 acres surrounding the historic Homestake Mine.

Dakota Gold contracted AKF Mining Services Inc. (AKF) to complete a review of historical and current exploration programs to verify and validate the drilling data and produce an *S-K 1300 Initial Assessment and Technical Report Summary* (Report) on the Richmond Hill Gold Project (the Project or the Property). The Property is coextensive with the Richmond Hill Option Agreement described below; however, the resource described in this Initial Assessment lies within only a portion of the Property. Thus, discussion and analysis in this Initial Assessment will be limited to only that portion of the Property relevant to the resource. The current exploration programs mentioned above also included a metallurgical study to determine the potential recoveries for the various geological zones.

The Project hosts the former Richmond Hill gold mine, operated from 1988 to 1993 as an open pit mine with heap leach facilities.

Mineral resources and mineral reserves are reported using the definitions in the US Securities and Exchange Commission's Regulation S–K (Subpart 1300).

1.2 Project Setting

The Project is in the western portion of Lawrence County within the Black Hills of South Dakota, United States of America (US). The Project area is 4 miles northwest of the City of Lead, South Dakota.

The Project is accessed from Lead by travelling southwest on Highway 85/14A, west on State Highway 473, then west on the Wharf Mine Road, and finally north on the Richmond Hill Road. There are various spur roads leading to drill platforms and reclaimed drill pads.

The Black Hills climate in the Project vicinity is one of cool-to-cold snowy winters, and warm-to-hot dry summers, with four full seasons . Any future mining operations could be conducted year-round.

1.3 Mineral Tenure, Surface Rights, Royalties, and Agreements

The Richmond Hill property included in the option agreement comprises of 94 Lawrence Count, South Dakota, Land parcels and two unpatented mining claims. The 94 land parcels are composed of 246 mineral survey patented load claims and purchased government lots. Twenty-nine (29) of the parcels consisted only of the mineral rights with the surface belonging to various owners.

On October 14, 2021, Dakota Territory Resource Corp. (now Dakota Gold) entered into an option agreement (amended September 8, 2022) to acquire the Project from Barrick Gold Corporation's (Barrick) wholly owned subsidiaries LAC Minerals (USA) LLC (LAC) and Homestake Mining Company of California (Homestake). In early October 2023, LAC and Homestake merged, and the entire property is now owned by Homestake.

A summary of the Richmond Hill Option Agreement (as amended) is as follows:

- Option to purchase 2,748.67 acres of 100%-owned mineral rights and attendant facilities and patented properties.
- Issue an aggregate of 980,000 shares of Dakota Gold to Barrick through a combination of shares issued at signing, and upon exercise of the option (580,000 shares have been issued to date).
- Assume all property liabilities and bonds.
- Upon execution of the option to Barrick, issue a 1% net smelter return (NSR) from any gold production from the property.
- The term of the amended agreement is 54 months and expires on March 7, 2026.

At the Report date, Dakota Gold is current with all terms and conditions of the Option Agreement.

Surface rights to the Project area were included in the option agreement. There are five underlying agreements with original claim owners that burden portions of the Project area with 1% to 5% NSR (capped) royalties.

1.4 Geology and Mineralization

The Project is near the northwest end of the Black Hills which is an oval-shaped north-northwest-striking mountain range approximately 90 by 45 miles in size along the western side of South Dakota and extending into Wyoming. The Black Hills is a domal uplift where erosion has exposed a window of Precambrian igneous and metamorphic rocks flanked by a 6,500 to 7,000 ft deep sequence of Paleozoic to Mesozoic-aged sedimentary rocks dipping off in all directions on the margin of the uplift, all subjected to intrusive activity in the Tertiary.

The Project is on the northwestern portion of the Lead dome, a subsidiary dome north of the main Black Hills uplift. The Lead dome developed in response to a major Tertiary intrusive event that also led to development of the Tertiary-aged gold deposits. These Tertiary intrusive rocks have a wide range of compositions and occur as stocks, sills, dikes, laccoliths, and breccia pipes.

The mineral claims are underlain by two major terranes. Precambrian metamorphic rocks underlie the southern portions of the property and consist of metamorphosed volcanic and sedimentary rocks, including mafic metavolcanic rocks, phyllite, iron formation, and quartzite. Overlying the Precambrian rock on the north end of the property is a nearly complete Paleozoic sedimentary section, which includes the Cambrian–Ordovician Deadwood Formation; the Ordovician-to-Mississippian Englewood Formation and Whitewood and Winnipeg Formations; the Mississippian Pahasapa Formation; and the Pennsylvanian

Minnelusa Formation. Tertiary igneous rocks of varying composition have extensively intruded into both terranes.

Several gold–silver deposits and prospective areas exist on the Property. Within the Precambrian terrane, Tertiary-aged mineralization occurs within breccia pipes and altered Precambrian rocks, with minor mineralization in the Tertiary intrusive rocks. Examples include the Richmond Hill gold mine area, and the prospective areas—Twin Tunnels, Turnaround, Richmond Hill North, West Thumb, Huskie West, Cleveland, Calvin P, Cole Creek Heights, and Earle.

Within the Paleozoic terrane, mineralization occurs in the Deadwood Formation along two primary horizons containing the most consistent mineralization. Prospective-area examples within the Deadwood are MW-3 Main, MW-3 East, and Cole Creek.

The mineralization at the Project is dominantly replacement style within Tertiary aged breccias of host Precambrian metasedimentary and Cambrian-Ordovician sedimentary rocks. Gold bearing fluids possibly derived from Tertiary intrusions migrated along steeply dipping fractures called verticals, and gold was deposited in favorable structural or chemical traps as replacement deposits. Breccia pipes within Precambrian metasediments and the Cambro-Ordovician Deadwood Formation are the most common gold bearing host rocks. The historic Richmond Hill gold mine produced ore from Tertiary breccias dominantly hosted within Precambrian units that were processed as an open pit, heap leach operation.

Dakota Gold determined that several zones warranted further exploration. After optioning the Property in 2021, Dakota Gold started a property-wide exploration program including geology, geochemical, geophysical, and drilling surveys.

1.5 History

Gold was first recorded in the Black Hills in 1874 and in 1876 the Homestake lode was discovered; it was mined almost continuously until 2002. Numerous other gold deposits were subsequently discovered in the Black Hills in differing geologic environments, with several turning into significant mining camps.

Prior to Dakota Gold optioning the Richmond Hill Gold Project the area was explored by Viable Resources, Freeport Exploration Company, St. Joe Gold, Bond Gold, and Lac Minerals. Bond Gold received a mining permit for the Richmond Hill gold mine in 1988 and LAC continued to mine the deposit until closure in 1994. LAC was acquired by Barrick in 1994 and completed reclamation activities at the mine.

Dakota Gold optioned the Project area from Barrick in 2021 and carried out various exploration programs on the Project including diamond drilling 57 core holes. In 2023 AKF Mining Services was contracted to verify the drilling database and complete a maiden global resource estimate.

1.6 Exploration

Prior to Dakota Gold optioning the Project, the company flew a high-resolution helicopter-borne magnetic and gamma-ray spectrometric survey over the Homestake District o. The survey covered an area of

962.4 km^2 and included the current Project area, with the objective of mapping Precambrian lithologies and structure as well as Tertiary intrusive rocks and associated alteration in outcrop, subsurface, and beneath cover.

Since optioning the Project in October 2021, Dakota Gold has completed several exploration surveys including gravity, induced polarization, geological mapping, and drilling.

1.7 Drilling

The historical drill database includes 1,055 rotary, reverse-circulation (RC), and core holes. Drilling in 2022 and 2023 consisted of 57 diamond-drill holes representing 103,657 ft of core drilling.

1.8 Sample Preparation, Analyses, and Security

St. Joe, Bond Gold, LAC, Coeur Mining, and Dakota Gold completed multiple RC and core-drilling programs on the Project from 1981 to 1993, 2019 to 2020, and 2022 to 2023.

Programs completed from 1981 to 1993 and 2019 to 2020 followed standard industry procedures available at that time for sampling, sample shipping and security, sample preparation, and analyzing for gold and silver. RC drill cuttings were obtained from similar-length sample intervals and were reduced to a smaller volume and weight, whereas core was split lengthwise and a representative portion sampled. Samples from 1981 to 1993 programs were shipped to Bondar Clegg in Lakewood, Colorado, and those from 2019 to 2020 programs were shipped to Bureau Veritas Metals and Minerals in Vancouver, British Columbia (B.C.). The security procedures used for the shipments is not known.

Both laboratories processed samples through successive stages of reducing particle sizes and weights to obtain representative subsamples. The samples were assayed for gold by standard lead collector fire assay and either a gravimetric or atomic absorption spectroscopy (AAS) finish, and they were analyzed for silver using an aqua regia digestion and an AAS finish. Check assays were completed for 1981 to 1993 drilling programs using blind pulp samples; field splits were sent back to Bondar Clegg, and pulp samples were sent to Skyline Labs. For the 2019 to 2020 drilling programs, approximately 10% of samples were sent for checking to McClelland Laboratory. Analytical laboratory certificates for the data are available and were reviewed.

The 2022 to 2023 procedures that Dakota Gold followed for core drilling programs were reviewed at site. Core was split lengthwise and half was sampled using geological criteria. Initially a secure company truck shipped samples to ALS in Twin Falls, Idaho; later tracked shipments using secure transportation were done by FedEx to ALS in Winnipeg, Manitoba. The samples were put through successive stages of reducing particle sizes and weights to obtain representative subsamples. They were assayed for gold by standard lead collector fire assay using an AAS finish, and were analyzed for silver by four-acid digestion using an inductively coupled plasma-emission spectroscopy (ICP-ES) finish. Dakota Gold completed a comprehensive quality-control (QC) monitoring program. Analytical laboratory certificates are available and were reviewed.

1.9 Data Verification

All available historical and current data comprising collars, surveys, assays, and lithologies were entered into spreadsheets and compared to the historical database provided by Dakota Gold. Differences were reviewed, investigated, and revised where required. Final data sheets were included into the final database for geological and resource modeling.

The final database is of sufficient quality for geological and resource modeling, as the assay and geological data are acceptable based on procedures described in this Report. In addition, the drill-hole collars and traces are reasonably accurately located for three-dimensional (3D) plotting, and samples are properly assigned to locations along drill holes.

1.10 Metallurgy

In 2023 two test programs were completed at Base Metallurgical Laboratories (BaseMet)—BL1244 and BL1346 provided the basis from which to conceptualize a preliminary process flowsheet that would produce gold and silver doré, and to evaluate the mineralization's metallurgical performance. Intervals from 29 drill holes representing seven zones were collected for the metallurgical evaluation. The zones include Twin Tunnels, Turn Around, Monitoring Well 3, Richmond Hill, Cleveland, Cole Creek, and Richmond Hill North. In all, 23 master composites (MC) were constructed to represent the oxide, mixed, and sulfide layers within each zone.

The initial investigation into three flowsheets to recover metals from the oxide, mixed, and sulfide layers included whole-ore-leach (WOL), flotation to a rougher concentrate followed by leaching of the rougher concentrate and tailings (float/leach), and flotation with pressure oxidation of the rougher concentrate before leaching (float/pressure oxidation/leach). The oxide MCs responded well to WOL, with an average of 87% Au extraction and 69% Ag extraction after a 48-hour leach. Cyanide consumption was below 0.6 kg/t. WOL for the mixed and sulfide MCs did not achieve similar results.

Rougher flotation followed by rougher concentrate leach and tailings leach tests were completed on the mixed and sulfide MC. The rougher flotation concentrates were reground before leaching, and rougher tailings were leached at the primary grind size of 75 µm. MCs for the tested mixed material ranged from a low of 26.3% to a high of 82.0%, averaging 65.4%. MCs for the tested sulfide material ranged from 24.0% to 66.3%, averaging 42.2%. BL1244 samples were tested with an alternative flowsheet to improve overall extraction using a POX stage before the concentrate leach. The float/POX/leach flowsheet resulted in rougher concentrate gold extraction of approximately 91.6% and 95.9% for the mixed and sulfide MCs, respectively. Assuming 90% rougher gold extraction after oxidation, the BL1346 MCs overall gold extraction for the mixed and sulfide samples would be approximately 77% and 74%, respectively. Processing the mixed and sulfide material using alternative oxidation processes such as Albion, Ecobiome, and Bioleach may provide more economical alternatives. Alternative processing for oxide materials, such heap leaching, may provide a more economical alternative.

1.11 Mineral Resources Estimate

The mineral resource estimate is based on gold grades interpolated from five lithological domains; from youngest to oldest, these are Tertiary hydrothermal breccia, Tertiary intrusive Cambro-Ordovician Deadwood Formation, Deadwood Formation basal conglomerate-sandstone, and undivided Precambrian. These lithological domains were further partitioned into oxidized, mixed, and hypogene (sulfide) as the oxidation state was more significant for metal recovery than the host-rock type. The lithological domains were considered hard boundaries for resource estimation. A future opportunity for Dakota Gold to consider, following a review of the geological model, would be reviewing whether certain intersections of lithological domains could be treated as soft boundaries for interpolating gold grades.

The database used for estimation contained collar, survey, assay, and lithology data for 905 drill holes, including 69,401 assays. The estimate was carried out using ordinary kriging (OK) and blocks measuring 20 x 20 x 20 ft. The estimate was constrained by a conceptual pit to demonstrate reasonable prospects of eventual economic extraction.

Table 1-1 summarizes the mineral resource estimate based on degree of oxidation. The cutoff grade for the base case is 0.01 oz/short ton (ton) Au. Tons and ounces of gold have been rounded to the nearest 1,000.

Table 1-1: Richmond Hill Conceptual Pit-Constrained MRE at Variable Cutoff Grades

Cutoff Au oz/ton	Redox	Classification	Au oz/ton	Au g/t	Tons	Tonnes	Ounces Au
0.0062	Oxide	Indicated	0.0190	0.65	16,512,000	14,979,000	314,000
0.0085	Mixed	Indicated	0.0217	0.74	25,187,000	22,849,000	547,000
0.0128	Hypogene	Indicated	0.0304	1.04	15,434,000	14,001,000	469,000
Total Indicated			**0.0233**	**0.80**	**57,133,000**	**51,829,000**	**1,330,000**
0.0062	Oxide	Inferred	0.0142	0.49	30,244,000	27,437,000	429,000
0.0085	Mixed	Inferred	0.0185	0.63	21,999,000	19,957,000	407,000
0.0128	Hypogene	Inferred	0.0252	0.86	11,759,000	10,668,000	296,000
Total Inferred			**0.0177**	**0.61**	**64,002,000**	**58,062,000**	**1,132,000**

Notes: [1] Weighted mean of oxide, mixed, and hypogene totals.
Mineral resources are not mineral reserves and do not have demonstrated economic viability.
There is no certainty that all or any part of the estimated mineral resources will be converted into mineral reserves.
Pit-constrained resources are stated at a range of cutoff gold grades depending on oxide state.
Oxide recovery = 87%, mixed recovery = 65%, hypogene recovery = 42%.
Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
Mineral resource tonnage and grades are reported as undiluted.
MRE is current as of October 5, 2023.
Pit-Constrained at $1,900/oz; Royalty = 3.8%; Mill & G&A Cost = $8.00; Mine Cost = $1.80.

1.12 Environmental and Permitting

Richmond Hill is currently progressing (successfully) through post-closure management pursuant to approved plans and various permits held by Homestake. As of October 2023, the South Dakota

Department of Agriculture & Natural Resources (SDDANR) reports that Homestake complies with all reclamation and post-closure care requirements and with South Dakota's mining laws and regulations (SDDANR 2023a). Upon exercise of the Richmond Hill Option Agreement, Dakota Gold would assume those requirements and the post-closure financial assurance, which is $40,634,534 at the time of this filing, but subject to periodic SDDANR review and adjustment.

Several permits will be required to develop the Richmond Hill resource, potentially including:

- Conditional Use Permit(s) (CUP) from Lawrence County
- An amendment to the existing Richmond Hill Large Scale Mining Permit
- Air- and water-discharge permits
- Solid and hazardous waste permits.

The Dakota Gold management and consulting team has decades of site-specific technical, environmental, and permitting experience with the Richmond Hill property and permitting in the State of South Dakota. There is also considerable environmental baseline information collected to support historical mine permitting in the 1980s and 1990s and reclamation and closure activities. This information and new and additional or updated data will be used to support new future mine design, development, and permitting efforts.

1.13 Conclusions and Recommendations

Dakota Gold optioned the Property from Barrick and acquired additional surface and mineral rights to create an exploration project comprising 2,748.67 acres. The Property contains more than a dozen exploration prospective areas, many of which host gold-silver mineralization in Precambrian metavolcanic and metasedimentary rocks or early Paleozoic sedimentary rocks, all of which have been intruded by Tertiary igneous rocks of varying compositions. Up to this Report's date, Dakota Gold has tested several prospective areas with 103,657 ft of core drilling in 57 holes, revealing that the Property's gold deposits are formed by structurally controlled, Tertiary-aged mineralizing systems that introduce gold-bearing fluids into permissive rocks containing chemical or physical traps, which allows gold deposition. Drilling conducted during the 2023 program demonstrated major fluid-path structures to be prospective targets for higher-grade mineralization, particularly along the MW3 structural trend and as projected northward under cover in the Carbonate Area.

The Property has several areas to consider for the purpose of generating any future resource:

- Additional drilling where the deposit limits have not been defined or lacked sufficient drill-hole density
- Additional metallurgical testwork to understand the variability and attempt to improve recoveries
- Incorporating silver in the resource estimate
- Improve understanding of the geological model with the potential to improve metallurgical recoveries.

Drilling to date has not defined the limits of mineralization. Additional future drilling is recommended within the resource area to infill areas of significant mineral potential where insufficient drill-hole density precluded its inclusion in the maiden resource. Additional exposed, under-explored breccia pipes warrant further investigation, as well as additional breccias beneath the Paleozoic and Tertiary cover that remain undiscovered to the North. Shallow oxide mineralization in the Chism Gulch area is open to northward expansion, and the Carbonate Area of the property should be tested for Tertiary-aged replacement mineralization under the cover of the limestone that dominates the surface in that area.

The preliminary metallurgical testwork completed for the Maiden Resource was limited in scope using core from approximately 29 drill holes; the cores were composited into 23 samples for testing. There was a significant scatter in the results, with recoveries ranging from 74.9% to 92.6% for oxides, 18.7% to 82% for mixed oxide–sulfide, and 24% to 66.3% for sulfides. Significant opportunity exists in future resource compilations to run selective tests in specific zones of mineralization within the resource to determine what properties of the various zones of mineralization are affecting recoveries and to test alternative metallurgical treatments to push the lower recoveries toward higher recoveries recorded elsewhere within the resource area.

Silver is present at Richmond Hill; however, silver data sets from historical and current exploration programs have not been included in this *S-K 1300 Initial Assessment and Technical Report Summary*. Future work is recommended to verify and validate historical silver data, which could potentially add value to ore being processed for gold mineralization.

The Property is near a long-standing gold-mining center and within easy commuting distance of several communities where labor and supplies may be sourced. There is no reason to expect that a mine at the Richmond Hill Gold Project could not operate on a year-round schedule.

2 INTRODUCTION

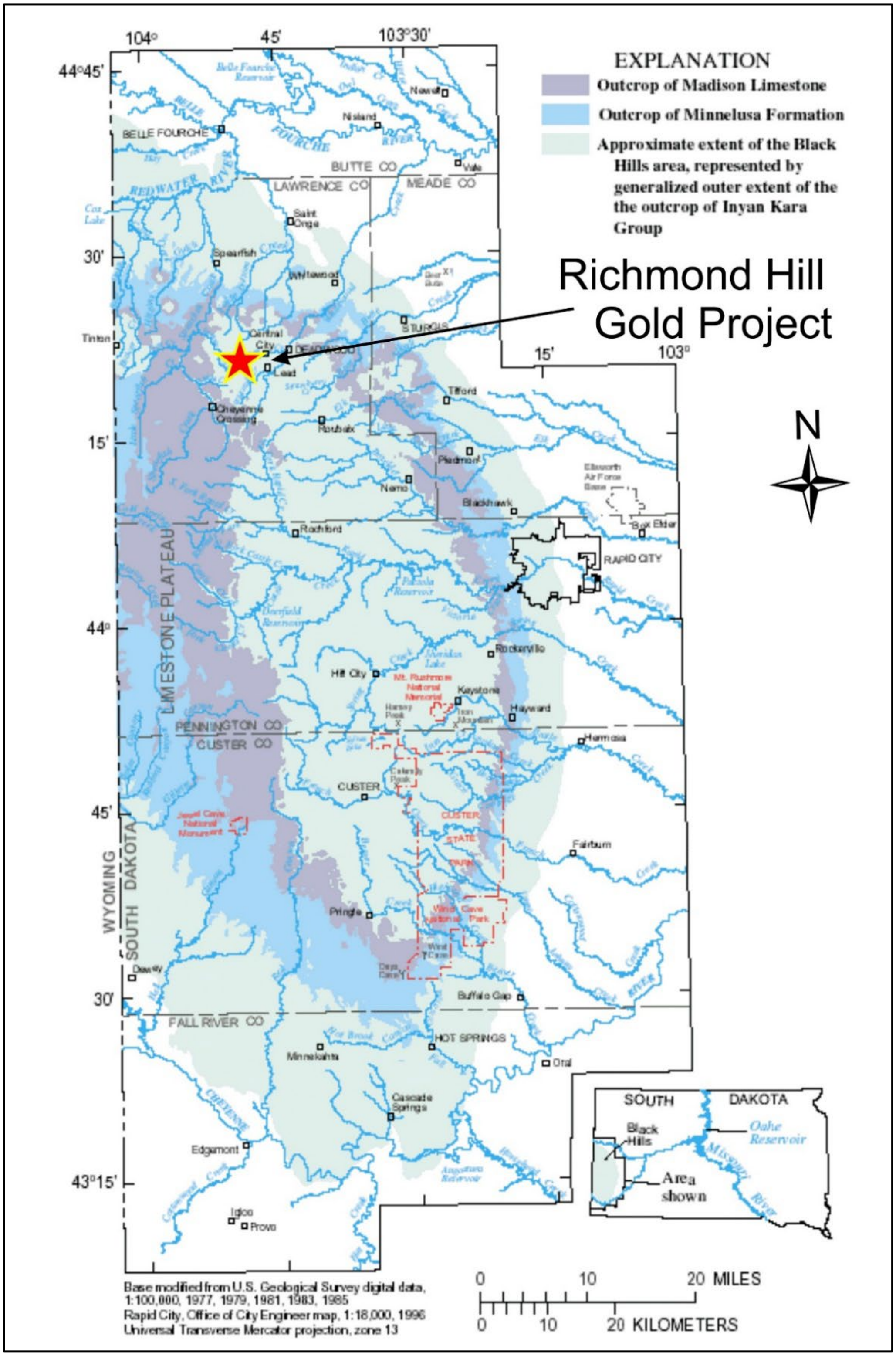
2.1 Registrant

Dakota Gold Corp. (Dakota Gold is a Nevada-incorporated company with a head office in Lead, South Dakota. Dakota Gold is a gold exploration and development company focused on revitalizing the Homestake District in South Dakota. Dakota Gold has multiple gold mineral projects surrounding the historic Homestake mine, including the Richmond Hill Gold Project, which is the subject of this technical report summary. In addition to several prospect areas, the Project hosts the former Richmond Hill gold mine that operated from 1988 to 1993 as an open pit mine with heap leach facilities. The Project location is shown in Figure 2-1.

2.2 Terms of Reference

Dakota Gold contracted AKF Mining Services Inc. (AKF) of Vancouver, British Columbia (B.C.), to prepare an *S-K 1300-compliant Initial Assessment and Technical Report* for the Richmond Hill Gold Project (the Project). Mineral resources are reported using the definitions in Regulation S–K 1300 under Item 1300. Unless otherwise noted, all measurement units used in this Report are United States (US) customary units, and currency is expressed in United States dollars ($) as identified in the text.

AKF completed a review of historical and current exploration programs to verify and validate the drilling data and produce a maiden global mineral resource estimate for the Project. AKF contracted qualified persons (QP) to perform a quality assurance and quality control (QA/QC) examination of drilling results and create a geological model from which the maiden global mineral resource could be calculated. Further, Dakota Gold initiated a metallurgical study to determine the potential recoveries that might be obtained from a best-fit processing plant. As the Registrant, Dakota Gold has not previously filed a technical report summary on the Project.



Source: Carter et al. (2002)

Figure 2-1: Property Location

2.3 Qualified Persons

This Report was prepared by the following Qualified Persons (QPs):

- Mr. Antonio Loschiavo, P.Eng., AKF Mining Services Inc.
- Ms. Kelly McLeod, P.Eng., K-Met Consultants Inc.
- Mr. Gregory Z. Mosher, P.Geo., Global Mineral Resource Services
- Mr. Dale A. Sketchley, P.Geo., Acuity Geoscience Ltd.
- Mr. Robert G. Wilson, P.Geo., RGW Geosciences.

The QPs are responsible or co-responsible for the report chapters given in Table 2-1.

Table 2-1: Qualified Person Responsibilities

Name	Company	Chapters Authored
Antonio Loschiavo	AKF Mining Services Inc.	Chapters 1.1, 1.2, 1.14, 1.15, 1.16, 3, 11.1 12, 13, 15, 16, 17, 18, 19, 20, 21, 24, & 25.6
Kelly McLeod	K-Met Consultants Inc.	Chapters 1.10, 10, 22.4, & 23.3
Gregory Z. Mosher	Global Mineral Resource Services	Chapters 1.4, 11 (except 11.1), 22.3, & 23.2
Dale A. Sketchley	Acuity Geoscience Ltd.	Chapters 1.10, 1.11, 7.5, 8, 9, 22.2, 23.1
Robert G. Wilson	RGW Geoscience	Chapters 1.1, 1.2, 1.4, 1.5, 1.6, 2, 4 to 6, 7.1, 7.2, 7.3, 74, 7.6, 21, 22.1, 22.2, & 25.1 to 25.5.

2.4 Personal Inspections

On October 3, 2023, QPs Mr. Loschiavo, Mr. Mosher, Mr. Sketchley, and Mr. Wilson conducted a site visit of the Project and observed two operating diamond drill rigs, including core handling procedures in the field as well as visiting the secure core storage building. On October 4 and 5, the QPs visited the core logging and processing facilities in Lead, South Dakota, and examined diamond drill core, the core logging and photographing procedures, and witnessed core cutting and sampling. The QPs also visited the secure storage locker where historical Project documents are kept.

Head QP Loschiavo has been working on the Project since 2021, with frequent field visits to the claims. Most of the field visits were to evaluate the existing infrastructure, i.e., dumps, water treatment system, historical leach pads, current drilling pads, and core logging facility. Most of the time, it was to facilitate the historical data collection. This consisted of Homestake Adams Research and Cultural Center (HARCC) facility, Barrick's archive storage warehouse in Central City, and storage lockers.

QP Ms. McLeod has not visited the Project but has coordinated metallurgical laboratory testing of composite drill-core samples for gold and silver recovery. A site visit is not generally undertaken for early-stage projects with no on-site process-related infrastructure.

2.5 Date

Information in this Report is current as of October 6, 2023.

2.6 Sources of Information

Reports and documents cited in Chapters 24 and 25 were used to support the preparation of this Report.

2.7 Previous Technical Report Summaries

Dakota Gold has not previously filed a technical report summary on the Project.

2.8 Units of Measure and Metric Equivalents

All units of measure used in this Report are United States (US) customary units unless otherwise noted:

Currency

Currency is expressed in United States dollars ($).

Units of Measure and Metric Equivalents

All units of measure used in this Report are United States (US) customary units unless otherwise noted:

Linear Measure

1 centimeter	= 0.3937 inches	
1 meter	= 3.2808 feet	= 1.0936 yards
1 kilometer	= 0.6214 miles	

Area Measure

1 hectare	= 2.471 acres	= 0.0039 square miles

Capacity Measure (liquid)

1 liter	= 0.2642 United States (US) gallons

Weight

1 tonne	= 1.1023 tons	= 2,205 pounds
1 kilogram	= 2.205 pounds	
1 troy ounce (oz)	= 31.1034768 grams	

3 PROPERTY DESCRIPTION

Dakota Gold's Richmond Hill Gold Project comprises 2,746.67 acres of surface and mineral rights with attendant facilities. The Project includes the past-producing Richmond Hill mine and the historic mines of the Carbonate District, as well as multiple prospective areas where gold has been drill-intersected.

3.1 Project Location

The Project is in the western portion of Lawrence County, South Dakota (Figure 2-1), approximately 2.2 miles northwest of Lead, South Dakota.

The center of the main claim block for the Project is at approximately 44° 23' N latitude and 103° 51' W longitude. The former Richmond Hill mine is approximately 44° 22' 45" N latitude and 103° 51' 30" W longitude.

3.2 Ownership

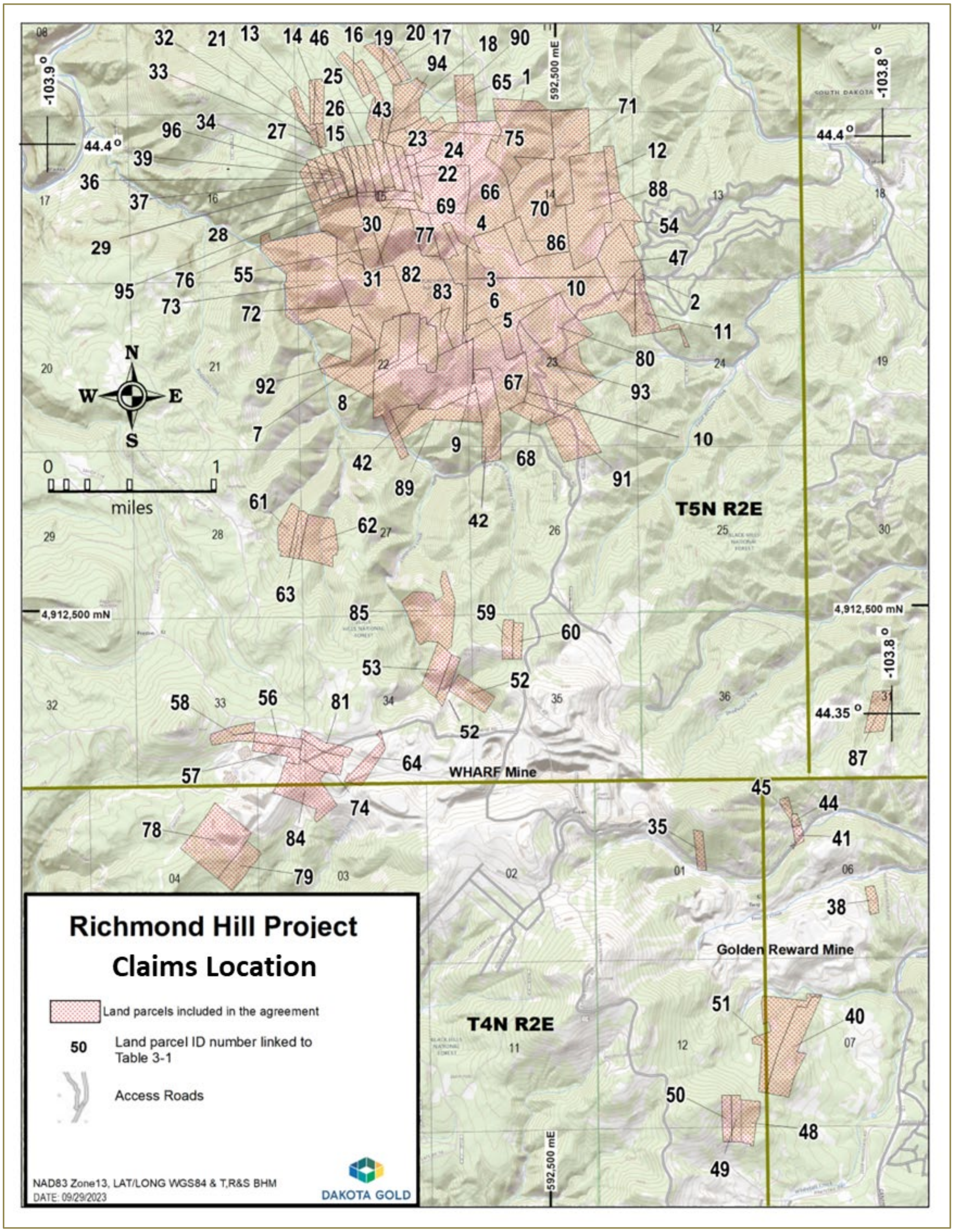
St. Joe Gold Corporation (St. Joe) developed the former Richmond Hill gold mine in 1987. Bond Gold Corporation (Bond Gold) acquired the St. Joe Gold Corporation gold division in 1988. The mine was permitted, and construction of the mine facilities began in April 1988 under the ownership of Bond Gold. In 1989, LAC Minerals (USA) LLC (LAC) acquired Bond Gold. Barrick Gold Corporation (Barrick) acquired LAC Minerals in November 1994. The Homestake Mining (Homestake) merged with Barrick in 2001. LAC and Homestake merged in October 2023, and St. Joe, Bond Gold, LAC, and Homestake remain Barrick's wholly owned subsidiary companies. All other third party property owners (James E. Peterson) forming the Richmond Hill Gold Project area are held by Barrick under agreement through one or more of Barrick's subsidiaries.

Dakota Gold entered into a three-year option agreement with Barrick in 2021 to acquire the Richmond Hill Project, with the mineral tenure primarily held in the names of LAC and Homestake (see discussion in 3.3 and 3.4). In 2022, the option was amended to extend the option period until March 7, 2026.

3.3 Mineral Tenure Holdings

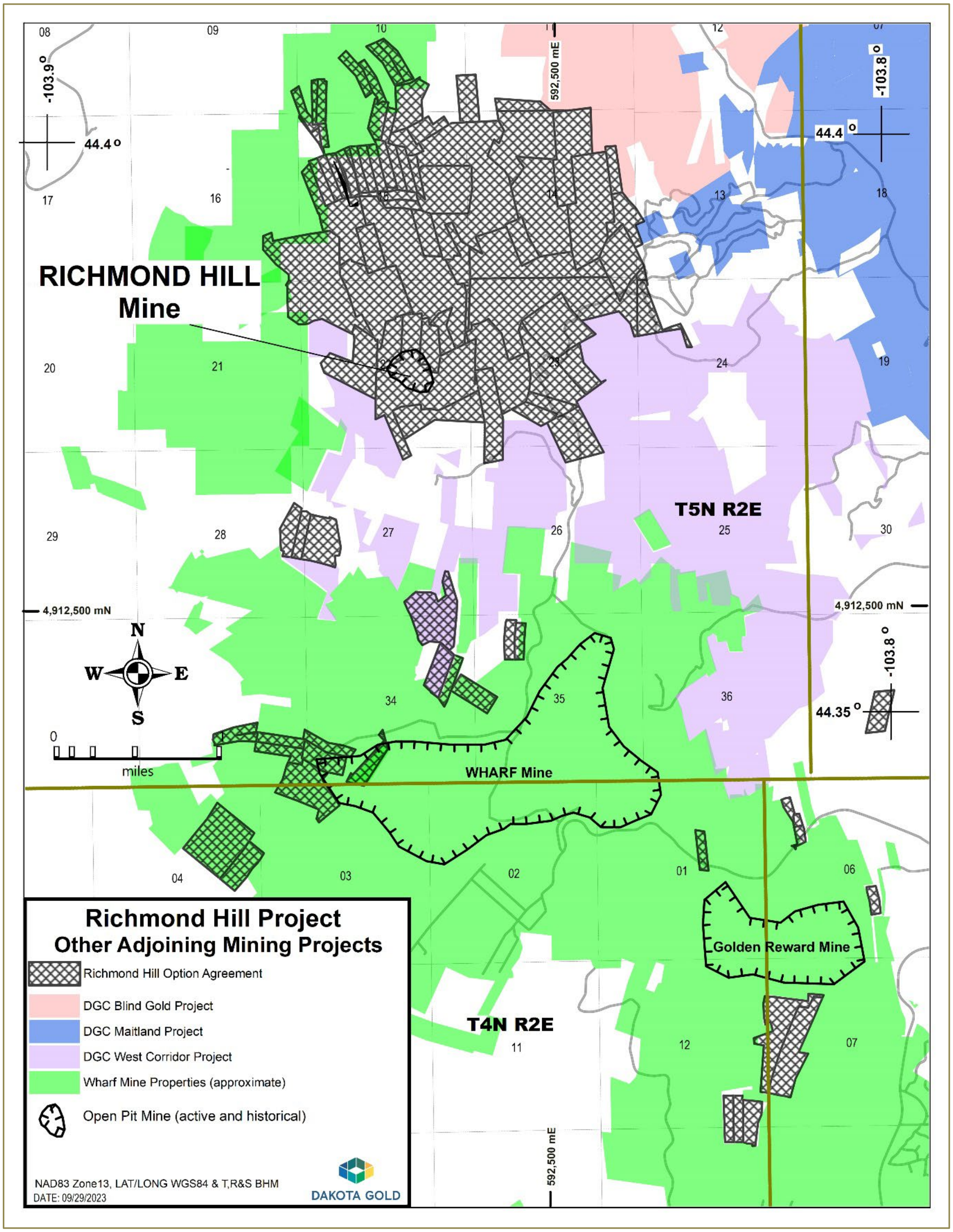
Within the western portion of Lawrence County, South Dakota the Property covers portions of Sections 9 to 11, 13 to 16, 21 to 24, 26 to 28, 33, and 34, Township 5 North, Range 2 East, Black Hills Meridian, plus portions of Sections 1, 3, 4, 12, and 13, Township 4 North, Range 2 East, Black Hills Meridian, and a portion of Section 31, Township 5 North, Range 3 East, Black Hills Meridian, plus portions of Sections 6 and 7, Township 4 North, Range 3 East, Black Hills Meridian (Dakota Gold n.d. c 2023) (Figure 3-1). The Property is contiguous with Dakota Gold's West Corridor and Blind Gold Properties and is approximately half a mile north of the producing Wharf Gold mine owned by Coeur Mining (Figure 3-2).

The Richmond Hill property in the option agreement comprises 94 Lawrence Count, South Dakota, Land parcels and two unpatented mining claims. The 94 land parcels comprise 246 mineral survey patented load claims and purchased government lots. Twenty-nine (29) parcels consisted only of the mineral rights, with the surface belonging to various owners (Figure 3-3).Table 3-1 contains a claims listing.



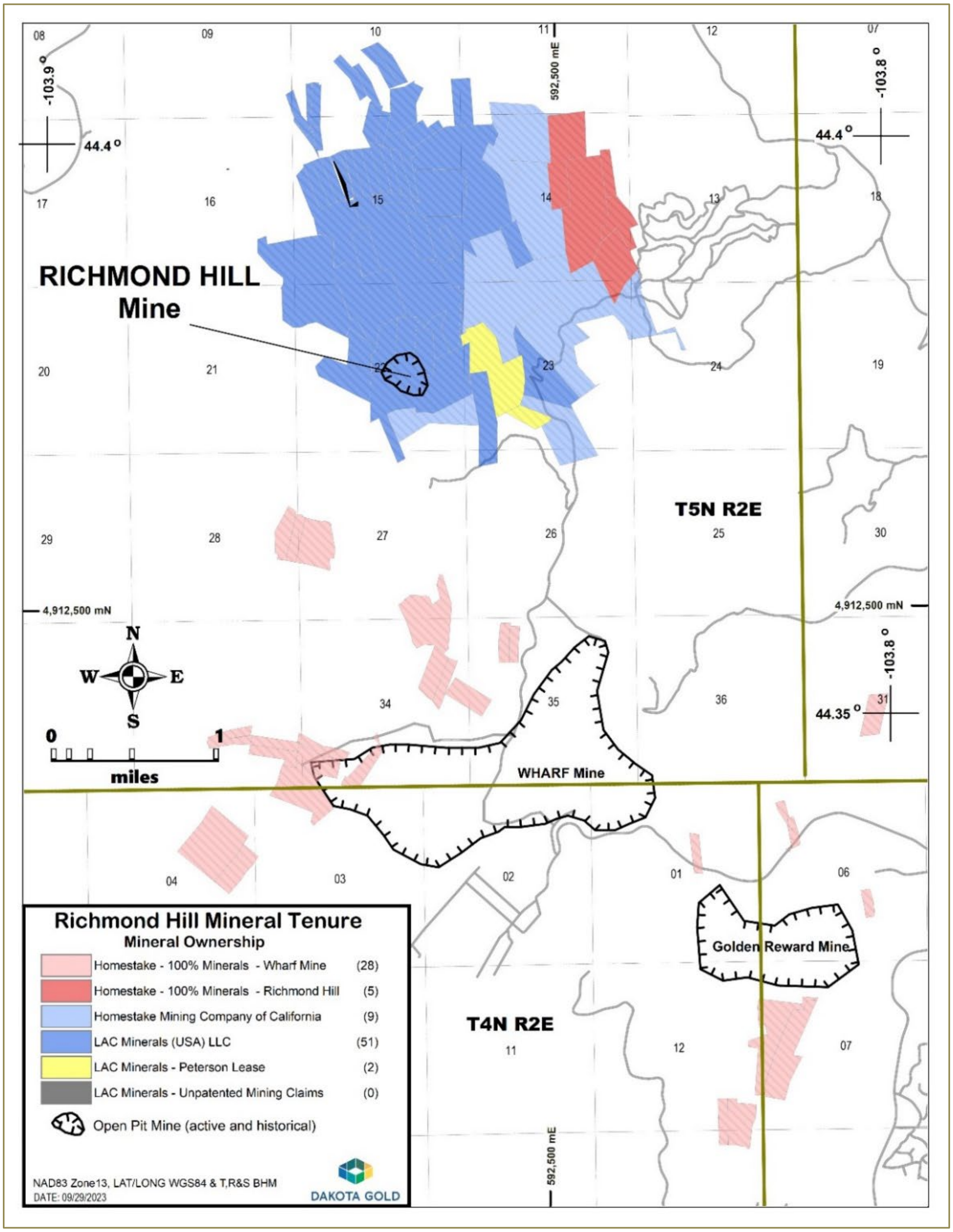
Source: Dakota Gold (2024)

Figure 3-1: Claims Location



Source: Dakota Gold (2024)

Figure 3-2: Nearby Properties



Source: Dakota Gold (2024)

Figure 3-3: Richmond Hill Gold Claims with Mineral Ownership

Table 3-1: Richmond Hill Gold Property Claims

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
1	16000-00502-110-10	Patented Mineral Properties		Govt. Lot 10	Homestake Mining Company of California
2	16000-00502-130-12	Patented Mineral Properties		Govt. Lot 12	Homestake Mining Company of California
3	16000-00502-140-02	Patented Mineral Properties		Govt. Lot 2	Homestake Mining Company of California
				Govt. Lot 3	
				Govt. Lot 4	
				Govt. Lot 7	
				Govt. Lot 8	
				Govt. Lot 9	
				Govt. Lot 10	
4	16000-00502-150-00	Patented Mineral Properties		Govt. Lot 3	LAC Minerals (USA) LLC
				Govt. Lot 9	
				Govt. Lot 10	
				Govt. Lot 12	
				Govt. Lot 13	
5	16000-00502-150-10	Patented Mineral Properties		Tract 0102-A	LAC Minerals (USA) LLC
				Tract 0102-B	
				Tract 0103-B	
				Tract 0103-A	
6	16000-00502-220-01	Patented Mineral Properties		Govt. Lot 1	LAC Minerals (USA) LLC
7	16000-00502-220-04	Patented Mineral Properties		Govt. Lot 2	LAC Minerals (USA) LLC
				Govt. Lot 4	
8	16000-00502-220-10	Patented Mineral Properties		Govt. Lot 5	LAC Minerals (USA) LLC
9	16000-00502-230-00	Patented Mineral Properties		Govt. Lot 9	LAC Minerals (USA) LLC
				Govt. Lot 10	
10	16000-00502-230-01	Patented Mineral Properties		Govt. Lot 1	Homestake Mining Company of California
				Govt. Lot 2	
				Govt. Lot 3	
				Govt. Lot 4	
				Govt. Lot 5	
				Govt. Lot 6	
				Govt. Lot 7	
				Govt. Lot 8	
11	16000-00502-240-12	Patented Mineral Properties		Govt. Lot 12	Homestake Mining Company of California
				Govt. Lot 13	
				Govt. Lot 14	
12	26280-00348-000-00	Minerals Only	348	Old Reliable	Homestake Mining Company of California
13	26280-00407-000-00	Patented Mineral Properties	407	Enterprise	LAC Minerals (USA) LLC
14	26280-00408-000-10	Patented Mineral Properties	408	Surprise	LAC Minerals (USA) LLC
15	26280-00417-000-00	Patented Mineral Properties	417	Carbonate	LAC Minerals (USA) LLC
16	26280-00425-000-00	Patented Mineral Properties	425	Jay Gould	LAC Minerals (USA) LLC
17	26280-00426-000-00	Patented Mineral Properties	426	Garfield	LAC Minerals (USA) LLC
18	26280-00428-000-00	Patented Mineral Properties	428	Far West	LAC Minerals (USA) LLC
19	26280-00437-000-00	Patented Mineral Properties	437	Katie	LAC Minerals (USA) LLC
20	26280-00438-000-00	Patented Mineral Properties	438	Arthur	LAC Minerals (USA) LLC
21	26280-00440-000-00	Patented Mineral Properties	440	Hartshorn	LAC Minerals (USA) LLC
22	26280-00441-000-00	Patented Mineral Properties	441	Minnie	LAC Minerals (USA) LLC
23	26280-00442-000-00	Patented Mineral Properties	442A	Ultimo	LAC Minerals (USA) LLC

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
24	26280-00443-000-00	Patented Mineral Properties	443	Tidiout	LAC Minerals (USA) LLC
25	26280-00447-000-00	Patented Mineral Properties	447A	Utica	LAC Minerals (USA) LLC
26	26280-00448-000-00	Patented Mineral Properties	448A	Antietam	LAC Minerals (USA) LLC
27	26280-00449-000-10	Patented Mineral Properties	449	Blue Bird	LAC Minerals (USA) LLC
28	26280-00450-000-00	Patented Mineral Properties	450	Carbonate Fraction #1	LAC Minerals (USA) LLC
29	26280-00451-000-00	Patented Mineral Properties	451	Carbonate Fraction #2	LAC Minerals (USA) LLC
30	26280-00465-000-00	Patented Mineral Properties	465	Mutual	LAC Minerals (USA) LLC
31	26280-00466-000-00	Patented Mineral Properties	466	Washington	LAC Minerals (USA) LLC
32	26280-00473-000-00	Patented Mineral Properties	473	May Queen	LAC Minerals (USA) LLC
33	26280-00474-000-00	Patented Mineral Properties	474	Hercules	LAC Minerals (USA) LLC
34	26280-00489-000-00	Patented Mineral Properties	489	Adelphi	LAC Minerals (USA) LLC
35	26280-00675-000-00	Minerals Only	675	General Grant	Homestake Mining Company of California
36	26280-00679-000-00	Patented Mineral Properties	679	Spanish	LAC Minerals (USA) LLC
37	26280-00680-000-00	Patented Mineral Properties	680	Richmond	LAC Minerals (USA) LLC
38	26340-00839-000-00	Minerals Only	839	Boss	Homestake Mining Company of California
39	26340-00874-000-00	Patented Mineral Properties	874	Brooklyn	LAC Minerals (USA) LLC
40	26340-00930-000-00	Minerals Only	930	Big Sam	Homestake Mining Company of California
			930	Francis	
			930	Marseillase	
			930	Minnie	
			930	Ruby Hill	
			930	Glenwood	
41	26340-00935-000-20	Minerals Only	935	South Lyon	Homestake Mining Company of California
44	26342-00935-010-00				
45	26342-00935-020-00				
42	26340-00977-000-00	Patented Mineral Properties	977	J.M.	LAC Minerals (USA) LLC
			977	Todd	
			977	Earle	
			977	Minnie C	
			977	Lyda B	
			977	Sister	
			977	Arthur L	
			977	Cass	
			977	Newell	
			977	Calvin P	
			977	Emma	
			977	Virginia	
			977	Juliett	
			977	Donald W	
			977	Helen	
			977	Atwood	
			977	Little Bonanze	
			977	Ella	
			977	Ralph K	

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
43	26340-01022-000-00	Patented Mineral Properties	1022	Chloride Fr.	LAC Minerals (USA) LLC
			1022	Calkins	
			1022	Logan	
			1022	Anis	
46	26380-01043-000-00	Patented Mineral Properties	1043	Rattler	LAC Minerals (USA) LLC
			1043	Gilroy	
47	26380-01092-000-00	Minerals Only	1092	Dakota	Homestake Mining Company of California
			1092	Granite	
			1092	Columbia	
			1092	Union	
48	26380-01109-000-00	Minerals Only	1109	Argenta	Homestake Mining Company of California
			1109	Oro	
			1109	Oro Fraction	
49	26380-01109-000-05	Minerals Only	1109	Glyn	Homestake Mining Company of California
50	26380-01109-000-10	Minerals Only	1109	Lemans	Homestake Mining Company of California
51	26380-01114-000-00	Minerals Only	1114	West Wedge Fraction	Homestake Mining Company of California
			1114	West End	
			1114	Jackson	
			1114	Moonlight	
			1114	Sunrise	
			1114	Sunset Fraction	
			1114	Lizzie	
52	26420-01141-000-20	Minerals Only	1141	Camden	Homestake Mining Company of California
			1141	Ford	
			1141	Georgia	
53	26460-01168-000-00	DGC Surface/HMC Minerals	1168	Blue	Homestake Mining Company of California
			1168	Rocklyn	
54	26540-01247-000-00	Minerals Only	1247	White House	Homestake Mining Company of California
			1247	Congress	
			1247	China Fraction	
			1247	Japan Fraction	
55	26540-01278-000-00	Patented Mineral Properties	1278	Nanki-Poo	LAC Minerals (USA) LLC
			1278	Dalaunay	
56	26540-01283-000-10	Minerals Only	1283	May	Homestake Mining Company of California
57	26540-01283-000-20	Minerals Only	1283	Deadwood	Homestake Mining Company of California
58	26540-01283-000-30	Minerals Only	1283	Buffalo	Homestake Mining Company of California
			1283	Link Fraction	
59	26540-01288-000-10	Minerals Only	1288	Longpoint	Homestake Mining Company of California
60	26540-01288-000-20	Minerals Only	1288	Cardinal	Homestake Mining Company of California
61	26540-01289-000-05	Minerals Only	1289	Ames	Homestake Mining Company of California
			1289	Ames Fraction	
62	26540-01289-000-10	Minerals Only	1289	Cloud	Homestake Mining Company of California
			1289	Dick	
			1289	Lightning	
			1289	Thunder	
63	26540-01289-000-15	Minerals Only	1289	Ester	Homestake Mining Company of California
64	26580-01349-000-00	Minerals Only	1349	James G. Blaine	Homestake Mining Company of California
65	26580-01376-000-88	Patented Mineral Properties	1376	Porto Rico No. 2	LAC Minerals (USA) LLC

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
66	26580-01376-000-90	Patented Mineral Properties	1376	Aliance	LAC Minerals (USA) LLC
			1376	Sucker	
			1376	Little Ellen	
			1376	Black Bird	
			1376	Golden Eagle No. 2	
			1376	Rubicon	
			1376	Rubicon No. 2	
			1376	Rubicon No. 4	
			1376	Dakota	
			1376	Darboy	
			1376	Havana No. 1	
			1376	Havana No. 3	
67	26580-01382-000-00	Leased Mineral Rights	1382	Rubicon	PETERSON, JAMES E
			1382	Cleveland	
			1382	Lizzie Johnson	
			1382	Standard	
68	26580-01382-000-10	Leased Mineral Rights	1382	Grayback	PETERSON, JAMES E
69	26580-01398-000-00	Patented Mineral Properties	1398	Independent	LAC Minerals (USA) LLC
			1398	Independent No. 1	
			1398	Republik	
70	26620-01406-000-00	Patented Mineral Properties	1406	Yankee Boy	Homestake Mining Company of California
			1406	Yankee Boy No. 3	
			1406	Yankee Boy No. 4	
			1406	Alliance No 2	
			1406	Little Bonanza No. 2	
			1406	Magna Charta	
			1406	General Joe Hooker	
71	26620-01406-000-10	Minerals Only	1406	Arthur No. 1	Homestake Mining Company of California
			1406	Little Hill	
			1406	Little Hill No. 2	
72	26620-01436-000-00	Patented Mineral Properties	1436	Joplin No. 1	LAC Minerals (USA) LLC
			1436	Joplin No. 2	
			1436	Joplin No. 3	
			1436	Julia-Etta	
			1436	Magnetic	
73	26620-01440-000-00	Patented Mineral Properties	1440	Crest	LAC Minerals (USA) LLC
			1440	Samoa	
			1440	Co-moa	
			1440	Sylvanite No. 1	
			1440	Sylvanite No. 2	
			1440	Grove	
			1440	Volt	
			1440	Seven-B	
			1440	Storm King	
			1440	Vigor	
74	26620-01468-000-00	Minerals Only	1468	Loyd	Homestake Mining Company of California
75	26620-01469-000-00	Patented Mineral Properties	1469	Cashier	LAC Minerals (USA) LLC
			1469	LaPlata	

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
76	26620-01529-000-00	Patented Mineral Properties	1529	Maryland	LAC Minerals (USA) LLC
			1529	Baltimore	
			1529	Maverick	
			1529	Badger	
			1529	North Side Fraction	
77	26680-01569-000-00	Patented Mineral Properties	1569	Lola	LAC Minerals (USA) LLC
78	26680-01616-000-60	Minerals Only	1616	Genessee	Homestake Mining Company of California
			1616	Grenada	
			1616	Peerless	
79	26680-01616-000-70	Minerals Only	1616	Trenton	Homestake Mining Company of California
80	26680-01617-000-00	Patented Mineral Properties	1617	Los Angeles No. 1	Homestake Mining Company of California
			1617	Los Angeles No. 2	
			1617	Los Angeles No. 3	
81	26680-01643-000-00	Minerals Only	1643	Snorter	Homestake Mining Company of California
			1643	Snorter Fraction	
82	26680-01655-000-10	Patented Mineral Properties	1655	Zelpha Mable	LAC Minerals (USA) LLC
			1655	Josephine	
			1655	St. Cloud No. 1	
			1655	St. Cloud No. 3	
			1655	Comstock	
			1655	Victor Fraction #3	
			1655	Grand Deposit No. 2	
			1655	Tartar	
			1655	Red Cloud	
			1655	Red Cloud Frac.	
			1655	Valley Frac.	
83	26680-01655-000-20	Patented Mineral Properties	1655	St. Cloud No. 5	LAC Minerals (USA) LLC
84	26680-01659-000-20	Minerals Only	1659	Maid of Erin	Homestake Mining Company of California
			1659	Telegram	
			1659	Gannon	
			1659	B&M Fraction	
85	26680-01673-000-00	DGC Surface/HMC Minerals	1673	Belligerent	Homestake Mining Company of California
			1673	Belligerent Fraction	
			1673	Belligerent No. 3	
			1673	Belligerent No. 4	
			1673	Bull Hill	
86	26760-01769-000-00	Patented Mineral Properties	1769	Edmonia	LAC Minerals (USA) LLC
87	26760-01792-000-00	Minerals Only	1792	Marconi	Homestake Mining Company of California
88	26760-01822-000-00	Minerals Only	1822	Bessie	Homestake Mining Company of California
			1822	Cross No. 1	
			1822	Dixie	
			1822	Geneva	
			1822	Hattie	
			1822	Tan	
89	26760-01829-000-10	Patented Mineral Properties	1829	Tract 1	Homestake Mining Company of California
90	26760-01851-000-00	Patented Mineral Properties	1851	Mars No. 1	LAC Minerals (USA) LLC
91	26760-01862-000-00	Patented Mineral Properties	1862	Stella No. 3	Homestake Mining Company of California
			1862	Stella No. 5	

MAP ID	County Tax Parcel ID	Mineral Property Type	Mineral Survey #	Patented Lode or Government Lot	Property Owner
			1862	Margarite No. 6	
			1862	Margarite No. 7	
92	26760-01872-000-00	Patented Mineral Properties	1872	Legal Tender	LAC Minerals (USA) LLC
			1872	Diamond Point	
			1872	Joe Craig	
			1872	Gremmel No. 1	
			1872	Cotton Tail Frac.	
93	26800-01910-000-00	Patented Mineral Properties	1910	Dante	LAC Minerals (USA) LLC
			1910	Creston	
			1910	Morning Glory	
			1910	Vindicator	
94	26880-02033-000-00	Patented Mineral Properties	2033	Bison	LAC Minerals (USA) LLC
			2033	Trent	
95	N/A	Unpatented Mining Lodes	N/A	L&O No. 1	St. Joe Minerals
96	N/A	Unpatented Mining Lodes	N/A	NJB 7	Bond Gold Richmond

Notes: DGC = Dakota Gold Corp.; LAC = Homestake; as of early October 2023, LAC Minerals (USA) LLC and Homestake merged, and Homestake now owns the entire property.

3.4 Richmond Hill Option Agreement

On October 14, 2021, Dakota Territory Resource Corp. (DTRC) (now Dakota Gold) entered into an option agreement with Barrick to acquire the Richmond Hill Gold Project jointly held in the names of Barrick's wholly owned subsidiaries, LAC and Homestake. In October 2023, LAC and Homestake merged, and Homestake now owns the entire property. At the Report date, Homestake and LAC remain listed in the agreement as owning their respective claims.

Under the terms of the option agreement, Dakota Gold has a three-year option to acquire the 2,748.67 acres of surface and mineral rights with attendant facilities comprising the Richmond Hill Project.

On signing, Dakota Gold issued 400,000 shares to Barrick and agreed to make a $100,000 option payment annually (all paid) during the option period. The option could be exercised at any time before September 7, 2024, by assuming all the liabilities and bonds currently held by LAC and Homestake for the Richmond Hill Gold Project. In addition, upon exercise of the option, Dakota Gold would issue Barrick an additional 400,000 shares and grant Barrick a 1% net smelter return (NSR) concerning any gold recovered from the Project.

On September 8, 2022, Dakota Gold announced an amendment to the original Richmond Hill option agreement whereby the option period was extended by 18 months to March 7, 2026. In addition, 600 acres of 100% mineral rights owned by Homestake were added to the properties subject to the option, and Dakota Gold issued an additional 180,000 shares to Barrick. All other terms and obligations under the original option agreement remained unchanged.

The current Richmond Hill option agreement is summarized as follows:

- Option to purchase 2,748.67 acres of 100%-owned mineral rights, attendant facilities, and patented properties.
- Issue an aggregate of 980,000 Dakota Gold shares to Barrick through a combination of shares issued at signing and upon exercise of the option (580,000 shares have been issued to date).
- Assume all property liabilities and bonds.
- Issue a 1% NSR upon executing the option to Barrick from any gold production from the property.
- The amended agreement is for 54 months and expires on March 7, 2026.

Dakota Gold was current with all option agreement terms and conditions as of the report date.

3.5 Surface Rights

Surface rights to the Project area were included in the option agreement.

3.6 Water Rights

Dakota Gold does not own any water rights in the Project area. Water for exploration drilling programs has been sourced locally and either pumped or trucked to the drills. One of three wells that supplied water to the Richmond Hill mine is still active, and Homestake maintains the water right.

3.7 Royalties

In addition to the 1% NSR that Dakota Gold must grant to Barrick, several claims have underlying royalties. Table 3-2 lists the claims and any extra royalties payable to underlying claim owners. Figure 3-4 identifies claims with underlying royalties.

The document numbers for deeds, warranty deeds, agreements, and others refer to documents recorded at the Lawrence County Court House in Deadwood, South Dakota. The following information regarding royalties is quoted verbatim (Dakota Gold, pers. comm.):

> ***Aye/Gali Royalty***
>
> The original Aye/Gali royalty is defined in Warranty Deed, 82-05846, dated June 2, 1976, between Iwalana L. Gali (Grantor, formally Aye, a married woman) and Homestake Mining (Grantee). The 5% Gross Royalty on all minerals produced is calculated less sales, severance and other similar taxes, charges for transportation from mine to treatment, smelting and/or refining, as well as cost for treatment, smelting and/or refining. In the event royalties are paid, the aggregate paid to the Grantor shall not exceed the sum of $200.00 per acre times the total number of acres conveyed by the Grantor to the Grantee. Dakota Gold calculated a total 416.8 acres are under the Aye (Gali)

royalty agreement in 7 land parcels. At $200.00 cap per acre, that would mean the maximum royalty would be $83,360.00 if all parcels were impacted.

Bohlen/Hoffman Royalty

The Bohlen/Hoffman royalty is defined in a Grant, Bargain and Sale Deed, 2014-01458, dated April 11, 2014, between Sharlene J. Hoffman and Earl D. and Helen L. Bohlen (Grantor) and Homestake Mining (Grantee). The 4% Net Smelter Returns Royalty on all minerals produced is calculated less refining and delivery costs and taxes but does not allow for deduction of costs related to trading activities or mining, milling, leaching, or any other on-site processing costs.

Fillmore Royalty

The Filmore royalty is defined in a Mining Deed, 84-01176, dated May 24, 1968, between W. O. and Lillian G. Filmore (Grantor) and Congo Uranium Company (Grantee). The Filmore Royalty is a 5% Net Smelter Returns Royalty on all minerals produced. Under earlier agreements, the royalty was initially established at 10% but was bought down to 5% in 1974.

Peterson Royalty

The Peterson royalty is defined in a First Amendment to Lease Agreement, dated November 15, 1984, between James E. and Arlene Peterson (Grantor) and St. Joe American Corporation (Grantee). The 5% Net Smelter Returns Royalty on all minerals produced is due within 30 days of each calendar quarter end, and is calculated less any weighing, sampling, penalty, processing, or other charges assessed by purchaser, selling charges, any sales, severance, gross production, privilege or similar taxes assessed or in connection with the ore measured by the value thereof, and less cost of transportation. The cost of leaching or other solution techniques shall be also deducted from selling price.

Whitehouse Royalty

The Whitehouse royalties are defined by two agreements, Mining Deed, 76-01230, dated June 1, 1976, and Warranty Deed, 76-01231, dated June 1, 1976, between White House Congress, Inc. (Grantor) and Homestake Mining (Grantee). The 5% Gross Royalty on all minerals produced is calculated less sales, severance and other similar taxes, charges for transportation from mine to treatment, smelting and/or refining, as well as cost for treatment, smelting and/or refining. In the event royalties are paid, the aggregate paid to the Grantor shall not exceed the sum of $200 per acre times the total number of acres conveyed by the Grantor to the Grantee. The property subject to the Whitehouse Royalty currently sits outside of the resource evaluated in this Initial Assessment. The claims under the Whitehouse Royalty are scattered and mostly not contiguous. There are approximately 27 parcels for a total of 486.26 acres at $200 cap per acre, the maximum royalty would be $97,252 if all parcels were impacted.

Table 3-2: Richmond Hill Gold Claims with Holding Costs and Royalties

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
						8,926.90	8,330.00						
1	16000-00502-110-10	Patented Mineral Properties	Lot 10 11-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1			1	
2	16000-00502-130-12	Patented Mineral Properties	Lot 12 13-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1			1	
3	16000-00502-140-02	Patented Mineral Properties	Lots 2, 3, 4, 7, 8, 9 & 10 14-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1			1	
4	16000-00502-150-00	Patented Mineral Properties	Govt Lots 3, 9, 10, 12 & 13 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$22.20		HMC	1			1	
5	16000-00502-150-10	Patented Mineral Properties	Tracts 0102-A & 0102-B of NE1/4, Tract 0103-B of NW1/4 & Tract 103A of NW1/4 15-	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$12.38		HMC	1			1	
6	16000-00502-220-01	Patented Mineral Properties	Govt Lot 1 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$4.32		HMC	1	Filmore	5	6	
7	16000-00502-220-04	Patented Mineral Properties	Govt Lots 2 & 4 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$28.06		HMC	1			1	
8	16000-00502-220-10	Patented Mineral Properties	Govt Lot 5 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$19.60		HMC	1			1	
9	16000-00502-230-00	Patented Mineral Properties	Govt Lots 9 & 10 23-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$0.46		HMC	1			1	
10	16000-00502-230-01	Patented Mineral Properties	Lots 1, 2, 3, 4, 5, 6, 7 & 8 23-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1			1	
11	16000-00502-240-12	Patented Mineral Properties	Lots 12, 13 & 14 24-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1			1	
12	26280-00348-000-00	Minerals Only	M.S. 348 Old Reliable Lode 14-005-02	Homestake Mining Company of California				HMC	1	Aye/Gali	5	6	Capped Royalty
13	26280-00407-000-00	Patented Mineral Properties	M.S. 407 Enterprise Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$7.62		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
14	26280-00408-000-10	Patented Mineral Properties	M.S. 408 pt Surprise Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$11.74		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
15	26280-00417-000-00	Patented Mineral Properties	M.S. 417 Carbonate Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$11.60		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
16	26280-00425-000-00	Patented Mineral Properties	M.S. 425 Jay Gould Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$12.36		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
17	26280-00426-000-00	Patented Mineral Properties	M.S. 426 Garfield Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$10.68		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
18	26280-00428-000-00	Patented Mineral Properties	M.S. 428 Far West Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$8.84		HMC	1			1	Subject to reversion of property if not used for mining purposes
19	26280-00437-000-00	Patented Mineral Properties	M.S. 437 Katie Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$12.36		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
20	26280-00438-000-00	Patented Mineral Properties	M.S. 438 Arthur Lode 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$12.36		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
21	26280-00440-000-00	Patented Mineral Properties	M.S. 440 Hartshorn Lode 09-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$10.60		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
22	26280-00441-000-00	Patented Mineral Properties	M.S. 441 Minnie Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$8.84		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
23	26280-00442-000-00	Patented Mineral Properties	M.S. 442A Ultimo Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$12.70		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
24	26280-00443-000-00	Patented Mineral Properties	M.S. 443 Tidiout Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$11.90		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
25	26280-00447-000-00	Patented Mineral Properties	M.S. 447A Utica Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$13.72		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
26	26280-00448-000-00	Patented Mineral Properties	M.S. 448A Antietam Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$13.44		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
27	26280-00449-000-10	Patented Mineral Properties	M.S. 449 Blue Bird Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$2.48		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
28	26280-00450-000-00	Patented Mineral Properties	M.S. 450 Carbonate Fraction #1 Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$1.94		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
29	26280-00451-000-00	Patented Mineral Properties	M.S. 451 Carbonate Fraction #2 Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$0.64		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
30	26280-00465-000-00	Patented Mineral Properties	M.S. 465 Mutual Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$10.04		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
31	26280-00466-000-00	Patented Mineral Properties	M.S. 466 Washington Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$8.46		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
32	26280-00473-000-00	Patented Mineral Properties	M.S. 473 May Queen Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$6.22		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
33	26280-00474-000-00	Patented Mineral Properties	M.S. 474 Hercules Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$3.84		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
34	26280-00489-000-00	Patented Mineral Properties	M.S. 489 Adelphi Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$13.18		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
35	26280-00675-000-00	Minerals Only	M.S. 675 General Grant Lode 01-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
36	26280-00679-000-00	Patented Mineral Properties	M.S. 679 Spanish Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$10.26		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
37	26280-00680-000-00	Patented Mineral Properties	M.S. 680 Richmond Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$11.14		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
38	26340-00839-000-00	Minerals Only	M.S. 839 Boss Lode 06-004-03	Homestake Mining Company of California				HMC	1			1	
39	26340-00874-000-00	Patented Mineral Properties	M.S. 874 Brooklyn Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$11.20		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
40	26340-00930-000-00	Minerals Only	M.S. 930 Big Sam Lode etc. 07-004-03	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
41	26340-00935-000-20	Minerals Only	M.S. 935 Tract 1 pt of South Lyon Lode	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
42	26340-00977-000-00	Patented Mineral Properties	M.S. 977 Donald W, Ella & Virginia Lodes Etal 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$233.62		HMC	1			1	
43	26340-01022-000-00	Patented Mineral Properties	M.S. 1022 Chloride Fraction Lode Etal 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$14.36		HMC	1			1	Subject to reversion of property if not used for mining purposes
44	26342-00935-010-00	Minerals Only	M.S. 935 Lost Irishman Lot 1	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
45	26342-00935-020-00	Minerals Only	M.S. 935 Lost Irishman Lot 2	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
46	26380-01043-000-00	Patented Mineral Properties	M.S. 1043 Rattler & Gilroy Lodes 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$14.80		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
47	26380-01092-000-00	Minerals Only	M.S. 1092 Union Lode Etal 14-005-02	Homestake Mining Company of California				HMC	1	Aye/Gali	5	6	Capped Royalty
48	26380-01109-000-00	Minerals Only	M.S. 1109 Oro, Oro Frac. & Argenta Lodes 12-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
49	26380-01109-000-05	Minerals Only	M.S. 1109 Glyn Lode 12-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
50	26380-01109-000-10	Minerals Only	M.S. 1109 Lemars Lode 12-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
51	26380-01114-000-00	Minerals Only	M.S. 1114 Jackson Lode etc. 12-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
52	26420-01141-000-20	Minerals Only	M.S. 1141 Camden, Ford & Georgie, etc	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
53	26460-01168-000-00	DGC Surface/HMC Minerals	M.S. 1168 Rocklyn & Blue Lodes 34-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Whitehouse	5	6	
54	26540-01247-000-00	Minerals Only	M.S. 1247 Whitehouse & Congress Lodes Etal 14-005-02	Homestake Mining Company of California				HMC	1	Aye/Gali	5	6	Capped Royalty
55	26540-01278-000-00	Patented Mineral Properties	M.S. 1278 Delaunay & Nanki-Poo Lodes 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$23.90		HMC	1			1	Subject to reversion of property if not used for mining purposes
56	26540-01283-000-10	Minerals Only	M.S. 1283 May Lode 33-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
57	26540-01283-000-20	Minerals Only	M.S. 1283 Deadwood Lode 33-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
58	26540-01283-000-30	Minerals Only	M.S. 1283 Buffalo & Kink Frc. Lodes 33-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
59	26540-01288-000-10	Minerals Only	M.S. 1288 Long Point Frac Lode 35-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
60	26540-01288-000-20	Minerals Only	M.S. 1288 Cardinal Lode 35-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
61	26540-01289-000-01	Minerals Only	M.S. 1289 Cloud, Thunder, Lighting & Dick Lodes	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
62	26540-01289-000-05	Minerals Only	M.S. 1289	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
63	26540-01289-000-15	Minerals Only	M.S. 1289 Ester Lode 27-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
64	26580-01349-000-00	Minerals Only	M.S. 1349 James g. Blain Lode 34-005-02	Homestake Mining Company of California				HMC	1			1	
65	26580-01376-000-88	Patented Mineral Properties	M.S. 1376 Porto Rico #2 Lode 11-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$21.42		HMC	1			1	Subject to reversion of property if not used for mining purposes
66	26580-01376-000-90	Patented Mineral Properties	M.S. 1376 Darboy, Rubicon & Dakota Lodes Etal 14-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$5,431.08		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
67	26580-01382-000-00	Leased Mineral Rights	M.S. 1382 Cleveland & Rubicon Lodes Etal 23-005-02	PETERSON, JAMES E		$1,812.28	$4,000.00	HMC	1	Peterson	5	6	Lease Term 10 years (1984) $4000 annual extended by payment
68	26580-01382-000-10	Leased Mineral Rights	M.S. 1382 Grayback Lode 23-005-02	PETERSON, JAMES E		$329.70	$4,000.00	HMC	1	Peterson	5	6	Lease Term 10 years (1984) $4000 annual extended by payment
69	26580-01398-000-00	Patented Mineral Properties	M.S. 1398 Independent Lode Etal 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$67.08		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
70	26620-01406-000-00	Patented Mineral Properties	M.S. 1406 Yankee Boy, Yankee Boy #3 & #4, Manga Charta, Alliance #2, Little Bonanza #2 & General Joe Hooker Lodes 14-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Aye/Gali	5	6	Capped Royalty
71	26620-01406-000-10	Minerals Only	M.S. 1406 Little Hill, Little Hill #2 & Arthur #1 Lodes 14-005-02	Homestake Mining Company of California				HMC	1	Aye/Gali	5	6	Capped Royalty

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
72	26620-01436-000-00	Patented Mineral Properties	M.S. 1436 Julie Ette Lode Etal 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$72.98		HMC	1			1	Subject to reversion of property if not used for mining purposes
73	26620-01440-000-00	Patented Mineral Properties	M.S. 1440 Vigor Lode Etal 21-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$132.08		HMC	1			1	Subject to reversion of property if not used for mining purposes
74	26620-01468-000-00	Minerals Only	M.S. 1468 Lioyd Lode 33-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
75	26620-01469-000-00	Patented Mineral Properties	M.S. 1469 Cashier & La Plata Lodes 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$16.02		HMC	1			1	
76	26620-01529-000-00	Patented Mineral Properties	M.S. 1529 Badger Lode Etal 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$62.32		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
77	26680-01569-000-00	Patented Mineral Properties	M.S. 1569 Lola Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$23.38		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
78	26680-01616-000-60	Minerals Only	M.S. 1616 Grenadda, Genesee & peerless Lodes 03-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
79	26680-01616-000-70	Minerals Only	M.S. 1616 Phonolite & Trenton Lodes 03-004-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
80	26680-01617-000-00	Patented Mineral Properties	M.S. 1617 Los Angeles #1, #2 & #3 Lodes 23-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Aye/Gali	5	6	Capped Royalty
81	26680-01643-000-00	Minerals Only	M.S. 1543 Snorter & Snorter Frc Lodes 33-005-02	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
82	26680-01655-000-10	Patented Mineral Properties	M.S. 1655 Victor #3 Lode Etal 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$157.10		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes
83	26680-01655-000-20	Patented Mineral Properties	M.S. 1655 pt St. Cloud #5 Lode 22-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$16.44		HMC	1	Filmore	5	6	Subject to reversion of property if not used for mining purposes

Map ID	County Parcel ID Number	Mineral Property Type	Legal Description	Property Owner	Annual Property Maintenance	2022 Taxes Paid	Other Cost	First Royalty Owner	Royalty %	Second Royalty Owner	Royalty %	Royalty Total	Comments
84	26680-01659-000-20	Minerals Only	M.S. 1659 Telegram, Maid of Erin, Gannon etc	Homestake Mining Company of California				HMC	1	Whitehouse	5	6	
85	26680-01673-000-00	DGC Surface/HMC Minerals	M.S. 1673 Blue Hill Frac, Belligerent, etc.	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Whitehouse	5	6	
86	26760-01769-000-00	Patented Mineral Properties	M.S. 1769 Edmonia Lode 14-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$20.46		HMC	1			1	
87	26760-01792-000-00	Minerals Only	M.S. 1792 Marconi #2 Lode 31-005-03	Homestake Mining Company of California				HMC	1			1	
88	26760-01822-000-00	Minerals Only	M.S. 1822 Hattie Lode Etal 14-005-02	Homestake Mining Company of California				HMC	1	Aye/Gali	5	6	Capped Royalty
89	26760-01829-000-10	Patented Mineral Properties	M.S. 1829 Tract 1 27-005-02 Plat 2014-01022	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Bohlen/ Hoffman	4	5	
90	26760-01851-000-00	Patented Mineral Properties	M.S. 1851 Mars #1 Lode 15-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$13.64		HMC	1			1	Subject to reversion of property if not used for mining purposes
91	26760-01862-000-00	Patented Mineral Properties	M.S. 1862 Stella #3 & #5 & Margarite #6 & #7 Lodes 26-005-02	Homestake Mining Company of California	Annual Lawrence Co. property tax	?		HMC	1	Bohlen/ Hoffman	4	5	
92	26760-01872-000-00	Patented Mineral Properties	M.S. 1872 Cotton Tail Fraction Lode Etal 22-05-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$51.06		HMC	1			1	Subject to reversion of property if not used for mining purposes
93	26800-01910-000-00	Patented Mineral Properties	M.S. 1910 Dante, Creston, Morning Glory & Vindicator Lodes 23-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$54.06		HMC	1			1	Subject to reversion of property if not used for mining purposes
94	26880-02033-000-00	Patented Mineral Properties	M.S. 2033 Bison & Trent Lodes 10-005-02	LAC Minerals (USA) LLC	Annual Lawrence Co. property tax	$33.94		HMC	1			1	Subject to reversion of property if not used for mining purposes
95	N/A	Unpatented Mining Lodes	L&O No. 1 - BLM SN MMC74914 sec. 15	St. Joe Minerals	Annual BLM maintenance fee		$165.00	HMC	1			1	
96	N/A	Unpatented Mining Lodes	NJB 7 - BLM SN MMC165019 sec 15	Bond Gold Richmond	Annual BLM maintenance fee		$165.00	HMC	1			1	

Notes: DGC = Dakota Gold Corp.; St. Joe Minerals and Bold Gold Richmond were both acquired by LAC Minerals

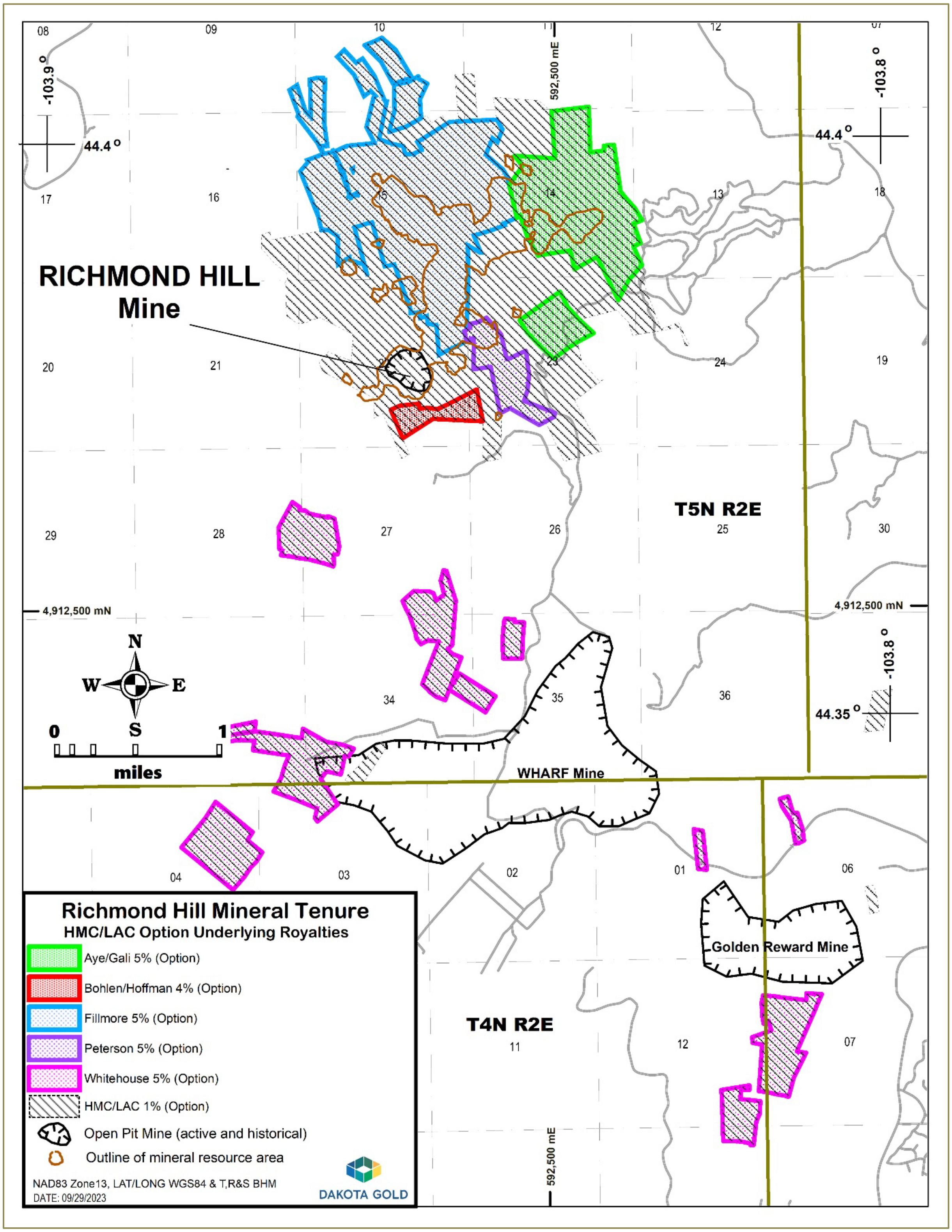


Figure 3-4: Claims with Underlying Royalties

3.8 Permitting

3.8.1 Existing Permitting

Table 3-3 includes all currently active permits required by the South Dakota Department of Agriculture and Natural Resources (SDDANR) for conducting current exploration activities being conducted at the Richmond Hill site under current approved Exploration Notice(s) of Intent(s) (EXNI) permits.

Table 3-3: Current Environmental Permits

Permit	Authority	Program
EXNI-440	SDDANR	Minerals and Mining Program
EXNI-444	SDDANR	Minerals and Mining Program
EXNI-446	SDDANR	Minerals and Mining Program

Dakota Gold's current requirements and obligations as set out by SDDANR:

- The project shall be conducted and reclaimed in such a manner as to prevent any violation of the beneficial uses of specified water quality criteria of any water resources in the area.
- Any potential discharge from the site shall be directed to a settling pond or flat vegetated area to allow suspended solids to settle out.
- All affected lands shall have adequate sedimentation and erosion control measures applied pursuant to SDCL 45-6C-32 and according to Best Mineral Management Practices.
- Dakota Gold must construct stream crossings to protect creeks from erosion, sedimentation and other potential damage that may cause damage because of access to exploration activities.
- All topsoil shall be salvaged and stockpiled whenever possible for use in reclamation.
- When drilling fluids are used, and groundwater is encountered during drilling, the drilling fluids shall be sufficiently contained to prevent overland flow or discharge to any state waters.
- When mud pits are being used to drill a hole, where possible, these pits shall be constructed on the uphill side of the drill pad.
- Dakota Gold shall spray weeds up to 50 ft from all disturbed and surrounding areas, including along access roads within the exploration permit boundary.
- Dakota Gold shall email a weekly schedule outlining when and where holes will be drilled so the SD DANR can plan inspections and witness plugging activities.
- Dakota Gold shall perform paste pH analyses on mud pits and report the findings to DANR prior to reclamation. Dakota Gold shall amend the pit with lime or other buffer material if deemed necessary.
- All test holes shall be capped, sealed, and plugged according to the Administrative Rules of South Dakota ARSD 74:11:08 (Plugging Standards) immediately following drilling and probing.

- No drilling shall impact any historic Richmond Hill gold mine facilities designed to control, maintain, or prevent acid generation, such as the capped pit impoundment and leach pads.
- If surface casing is used in exploration holes, the following requirements shall be met:
  - Prior to removal of surface casing, the hole shall be plugged in accordance with ARSD 74:11:08 to a level just below the bottom of the surface casing.
  - The surface casing will be removed (when possible) or cut off at least one foot below the ground surface.
  - The remainder of the hole will be plugged in accordance with ARSD 74:11:08
- Dakota Gold shall notify the department in writing when exploration drilling penetrates an aquifer.
- Where affected roads and drill pad areas are no longer necessary for further exploration purposes, reclamation must be completed on these disturbed areas within 12 months. If Dakota Gold plans to continue exploration in disturbed areas but must temporarily cease exploration activities, reclamation must be completed within 24 months. Dakota Gold may submit a request to extend these deadlines as necessary.
- Reclamation must be completed on all affected acreages within 12 months following completion of all exploration activities allowed under each EXNI.
- All tree clearing must be conducted outside of the migratory bird nesting season to avoid and minimize impacts on migratory bird nesting.
- Dakota Gold must use approved reclamation seed mixtures under each EXNI.
- Dakota Gold shall avoid bones, artifacts, foundation remains, or other evidence of previously unrecorded past human use.
- If any artifacts or other archaeological or cultural resources are discovered during exploration activities, the activities shall be halted, and the State Archaeologist must be notified.

During the site visit, the QPs did not observe any registrant or drill contractor actions that would violate the above permit condition, and Dakota Gold stated that all requirements and obligations under their exploration permits have been and are being met.

Dakota Gold has stated that the existing exploration permits will suffice for the drilling program as laid out in Chapter 23.

3.8.2 Future Permitting

In general, permitting a potential gold deposit at the Richmond Hill site may require the permits listed in Table 3-4. The final Project's features, design, and location for construction may necessitate additional permitting considerations to those listed in this table.

Table 3-4: Potential Environmental Permits

Permit	Authority	Program
Conditional Use Permit(s) (CUP)	Lawrence County P&Z	Land Use
Air Quality Permit(s)	SDDANR	Air Quality
Ground Water Discharge Permit(s)	SDDANR	Ground Water Quality
Mining Permit(s)	SDDANR	Minerals and Mining
NPDES/Surface water Discharge Permit(s)	SDDANR	Surface Water Quality
Storm Water Discharge Permit(s)	SDDANR	Surface Water Quality
Solid Waste Permit(s)	SDDANR	Waste Management
Hazardous Waste Permit(s)	SDDANR	Waste Management
Water Right Permit(s)	SDDANR	Water Rights

Note: SDDANR = South Dakota Department of Agriculture & Natural Resources.

3.8.2.1 Addressing Potential Obstacles during Permitting Process

Permits though the Lawrence County Office of Planning and Zoning go through a formal review and approval process that provides public comment on the final permits during the Planning and Zoning and County Commissioner Board Hearings on the specific Lawrence County permit.

Permits though the South Dakota Department of Natural Resources (SDDANR) go through a formal review and approval process that provides for public comment to the final permits during the Board Hearings on the specific permit in South Dakota.

3.8.2.2 Pre-Mining Land Use

The pre-mining land use in the area of the Richmond Hill site includes logging, wildlife habitat, and recreation.

3.8.2.3 Baseline Study Requirements

CUP Baseline Requirements can include:

- Proposed land uses
- Setbacks
- Existing and proposed structures, design specifications, and location of all facilities
- Existing and proposed grading, drainage patterns, and landscaping
- Existing and proposed improvements, including sewer and water facilities, parking, and roads
- Existing and proposed signs with locations
- Proposed timeline for completion of plans
- Proposed parking and loading plans

- Adjacent land use
- Relationship of the proposed development to the surrounding area
- Property lines and lot dimensions
- Existing and proposed wells
- Existing and proposed septic systems and drain fields.

Additional information that the Planning and Zoning Administrator may request could include:

- A description of the activity or operation being proposed
- Hours of operation, number of employees, number of employees reporting to site
- Traffic in and out of business
- Number of vehicles on site
- Number of parking places, including handicap accessible
- Use of existing and proposed structures
- Outdoor storage needs
- Water, sewage disposal, and waste management service
- Proposed signage including size, type, and location.

State of South Dakota Baseline Requirements will require, at a minimum, the following:

- Hydrology Evaluation/Report
- Meteorology Evaluation/Report
- Air Quality Evaluation/Report
- General Geology Evaluation/Report
- Slope Stability and Geotechnical Evaluation/Report
- Soils Evaluation/Report
- Vegetation Evaluation/Report
- Wildlife Evaluation/Report
- Aquatic Resources Evaluation/Report
- Cultural Resources Evaluation/Report
- Sound Evaluation/Report
- Socioeconomic Evaluation/Report
- Visual Evaluation/Report
- Ground Water-Evaluation/Report
- Surface Water Evaluation/Report
- Critical Resources Evaluation/Report.

3.9 Potentially Significant Encumbrances

Three potentially significant encumbrances may affect the Project.

In May 2021, Dakota Gold acquired property adjacent to Richmond Hill subject to an Area of Interest (AOI) buyback right granted to Homestake. Under this AOI, Homestake has the right to buy back 51% of the property subject to the AOI if a resource of no less than 1 Moz Au is declared with the AOI. The AOI overlaps with the Richmond Hill Option Area, which is also owned by Homestake, resulting in the potential for Homestake to exercise a buyback right against itself. The buyback right runs for nine months after Homestake receives notice of the declared resource.

The Lakota Sioux assert ownership of the Black Hills of South Dakota. In *United States v. Sioux Nation of Indians*, 448 U.S. 371 (1980), the United States Supreme Court held that the United States government had “effected a taking of tribal property, property which had been set aside for the exclusive occupation of the Sioux by the Fort Laramie Treaty of 1868.” Although compensation was awarded for this unconstitutional taking, the Lakota have not accepted the award (reportedly in excess of $2 billion) and continue to claim rights to the Black Hills.

Dakota Gold has indicated that they do not believe that the former Richmond Hill mining property either helps or hinders continued exploration in any significant manner. Dakota Gold does not foresee additional exploration permitting requirements due to the former Richmond Hill mine. However, once the option is exercised and the property is purchased from Barrick, all Richmond Hill mine site water-management obligations, along with other post-closure operations, would become Dakota Gold’s responsibility. This added monetary burden to the Project must be considered when evaluating the viability of Dakota Gold’s exploration and development programs.

3.10 Violations and Fines

Currently, there are no Violations or fines.

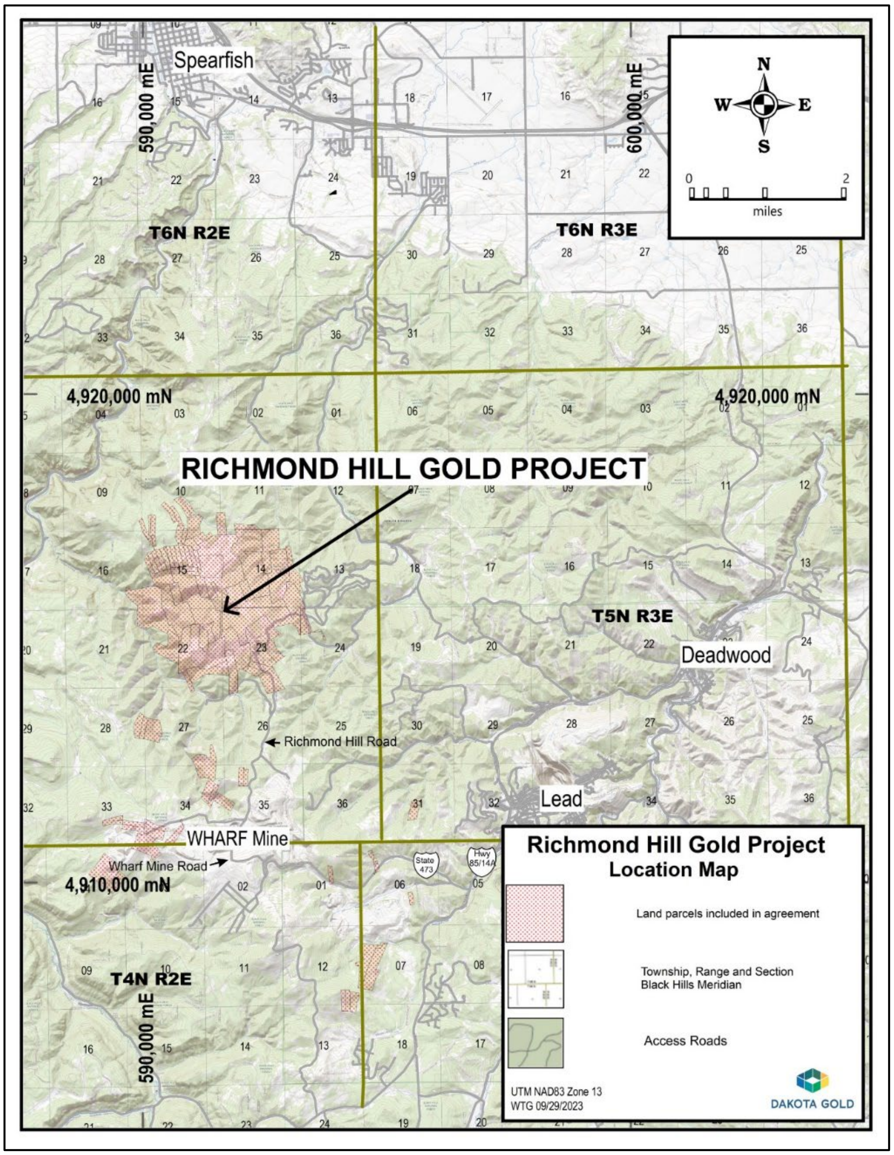
3.11 Significant Factors and Risks That May Affect Access, Title or Work Programs

To the extent known to the QP, no other known significant factors and risks may affect access, title, or the right or ability to perform work on the properties that comprise the Richmond Hill Project discussed in this Report.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

4.1 Access

Access to the Project is gained by traveling 1 mile southwest of Lead, South Dakota, on Highway 85/14A, to State Highway 473, then west approximately 3.2 miles to the Wharf Mine Road, continuing west approximately 1.2 miles before turning and traveling 1 mile north on the Richmond Hill Road (Figure 4-1).



Source: Dakota Gold (2023).

Figure 4-1: Richmond Hill Gold Project Access

4.2 Climate

The Black Hills climate is one of cool-to-cold snowy winters and warm-to-hot dry summers, with four full seasons.

Precipitation amounts vary due to mountain influence, and Richmond Hill is rated as subhumid, with approximately 30 inches of rain annually. Average monthly snowfall ranges from 5 inches in Rapid City to 15 inches in the Black Hills. The snow on the plains usually melts within a few days, with deeper snow in the Black Hills lasting much longer.

Any future mining operations are expected to be year-round. Daytime temperatures average in the 30s Fahrenheit, but Chinook winds can warm temperatures into the 50s and 60s. Occasional intrusions of Arctic air are short-lived, and temperature inversions sometimes produce warmer conditions in the Black Hills.

4.3 Local Resources and Infrastructure

The Project is within 5 miles of the twin towns of Lead and Deadwood. Dakota Gold has its base of operations in Lead, with separate facilities for office and core processing. Historical Richmond Hill Project documents are housed in secured storage at the Armories in Lead. Two other towns, Central City and Sturgis, are within 20 miles of the Project. The larger cities of Spearfish and Rapid City are within 40 miles of the Project, and most supplies can be obtained from one of these two centers. Personnel for exploration or development programs may be sourced from or housed in the four nearby communities.

Major transportation systems, including road, rail, and air, exist proximal to the northern Black Hills. Rapid City has a major rail station and regional airport, while an Interstate highway passes through the city and wraps around the northern end of the Black Hills.

Multiple facilities related to the Richmond Hill mine still exist on the property, including a water treatment plant and maintenance and storage buildings. Containment ponds are still operational, although an impermeable clay membrane has capped the open pit and leach pads.

Water for exploration drilling programs has been sourced locally and either pumped or trucked to the drills. One of three wells that supplied water to the Richmond Hill mine is still active.

A 69 kV transmission line supplies power to communities, and internal power is supplied by a 12.47 kV line to the Project site.

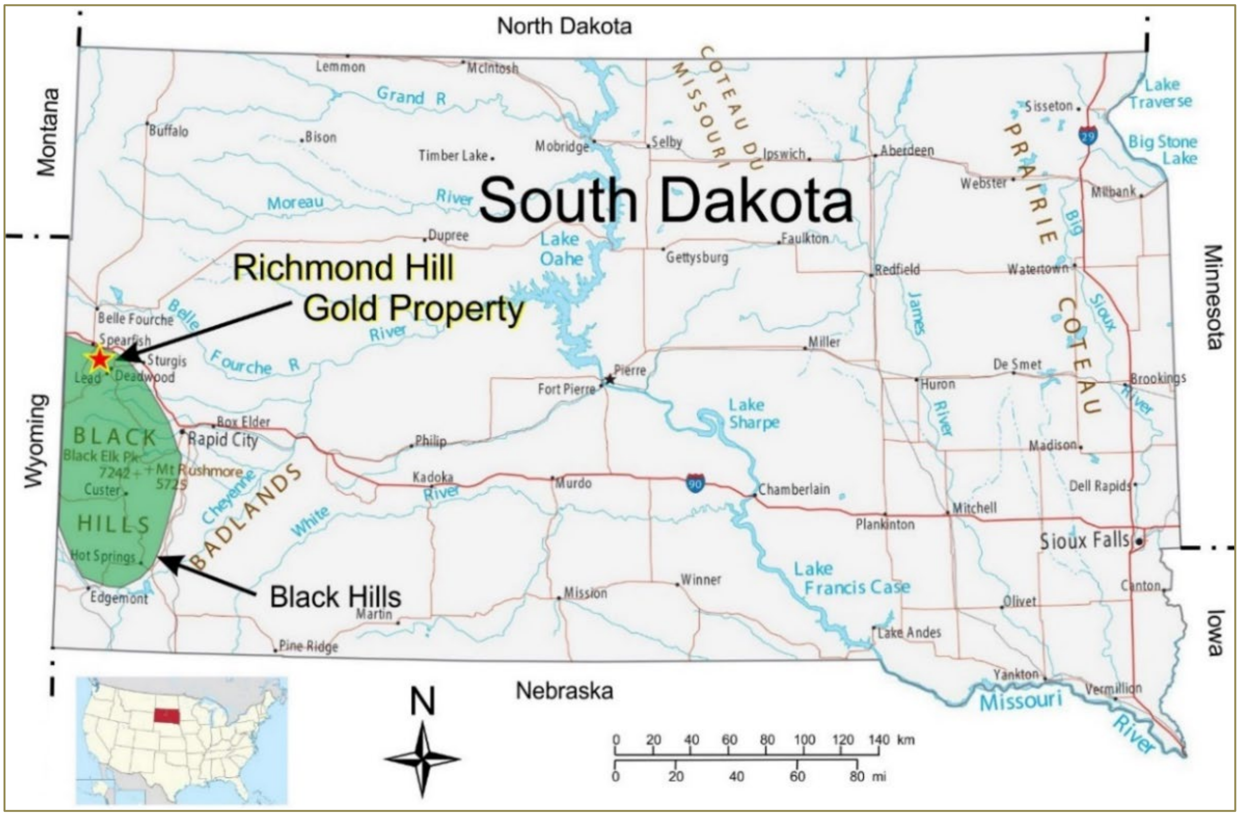
4.4 Topography, Elevation, and Vegetation

The Black Hills of southwestern South Dakota is an isolated mountain range rising from the Great Plains of North America and extending north–northwest into Wyoming (Figure 4-2). The hills are so-called because of their dark appearance from a distance, as they are covered in a pine–spruce coniferous forest. Black Elk Peak (formerly Harney Peak) rises to 7,244 ft (2,208 m) and is the range's highest summit and the highest mountain in the United States east of the Rocky Mountains. The Black Hills have been described as an island in the plains since they rise 3,000 to 4,000 ft above its surroundings—the Thunder Basin National Grassland of Wyoming lies to the west and the Buffalo Gap National Grassland to the east.

Source: Modified after Nations Online Project (1998–2023)

Figure 4-2: Black Hills Location

Several small rivers cut through the range, describing a roughly radial pattern, though most drainage is to the east—most notably Spearfish Creek in the north, Rapid Creek in the central region, and the Fall River in the south (Figure 4-3). Regardless of the original drainage direction, all rivers flow into either the Belle Fourche River, which wraps around the Black Hills to the north or the Cheyenne River, wrapping around to the south. The Belle Fourche River connects to the Cheyenne River east of the Black Hills; the Cheyenne River, in turn, joins the southeast-flowing Upper Missouri River in central South Dakota.



Source: Dakota Gold (2024).

Figure 4-3: Richmond Hill Gold Property Location

The Black Hills are home to varied landscapes, such as prairie grasslands, rolling hills, badlands, and karst features, such as caves and sinkholes, craggy peaks, and granite spires. The hills are also noted for several unique topographic features, including the Badlands, Devils Tower, Missouri Buttes, Bear Butte, Cathedral Spires, and Mount Rushmore.

An ecological crossroad, the Black Hills contains wildlife and plant species typical of habitats of the Rocky Mountains, Great Plains, northern boreal forests, and eastern deciduous forests. The local forest is dominated by ponderosa pine but also includes dense spruce stands and areas of aspen, birch, and oak (United States Department of Agriculture Forest Service, 2023). White-tailed deer and mule deer are common, and elk are encountered less often. Mountain lion sightings are rare, but coyotes are relatively common. Goshawk and osprey nest in the forest, and bald eagles may visit in the winter. Many songbird species are present, including brilliantly colored mountain bluebirds and western tanagers.

The Richmond Hill gold mine sits at an altitude of 6,000 ft, and the historical leach pad area is at 5,600 ft, about one mile north of the pit area.

5 HISTORY

Gold was first recorded in the Black Hills in 1874, although prior rumors existed of prospectors discovering placer gold. The ensuing 1875 gold rush produced limited success, except in the Whitewood and Deadwood creeks area. Other prospectors sought the hard-rock source of the placer gold upstream of the placer workings, and in 1876, the Homestake lode was discovered; it was mined almost continuously until 2002. Numerous gold deposits were subsequently discovered in the Black Hills in differing geologic environments, with several turning into significant mining camps.

5.1 Explorations

The Richmond Hill mine is in the historic Carbonate Mining District, approximately five miles northwest of Lead, South Dakota, in the northern Black Hills. Mining in the area started in the 1870s, during the gold-rush era. The only known production from the property was from the Carbonate camp, which was primarily mined for lead and silver. The bulk of this production was from the Iron Hill mine. The mining was such that it supported a nearby town and smelter. Mining continued in this area until the silver price collapsed in the 1880s. About 2,500 ounces of gold were produced from the Spanish R mine on the western side of the camp in the late 1800s.

Prior to 1981, Viable Resources Inc. (Viable) assembled a land package that included most of the Carbonate camp. The bulk of the Richmond Hill deposit lies on Mineral Survey 977, obtained by a lease from Richard McQuire that included a 2.6% NSR royalty. LAC subsequently bought out this royalty in the early 1990s. In 1981, Freeport Exploration Company (Freeport) leased several claims from various individuals within the area now known as the Property. Also in 1981, Freeport formed both a lease agreement and joint venture (JV) agreement with Viable, and drilled 52 rotary and core holes near the Richmond Hill topographical high and near the Carbonate camp several thousand feet to the north. The drilling project did not return the results Freeport needed to continue exploration, and the JV was terminated in 1983; Freeport subsequently allowed their leases to lapse.

St. Joe, owned by the Fluor Corporation, first started reviewing the Black Hills for its mineral potential in 1982 (St. Joe 1986). They noted that total gold production in the area was over 39 Moz, with the Homestake mine accounting for 36 Moz. St. Joe determined that historical gold production came from five geological ages and mineralizing processes. From oldest to youngest stratigraphically (mine or prospect examples) they are Precambrian (Homestake, Keystone, Bullion, Holy Terror, and Clover Leaf); Cambro-Ordovician Deadwood Formation (COd) (Golden Reward, Bald Mountain, Maitland, and Wasp); Mississippian Pahasapa Formation (Spearfish Gold, Ragged Top, and Deadwood Standard); Tertiary porphyry-related (Guilt Edge and Hoodoo–Union Hill); and Placer deposits (Deadwood and Rockerville) (St. Joe 1986).

Many of these mineralizing systems seemed to be present on the ground controlled by Viable, so in January 1984, St. Joe American entered into a JV with Viable to explore land around the Richmond Hill topographical high. They determined that this area held the greatest promise to host a minable gold deposit, and that year, they started drilling a breccia body 1,500 ft south of the hilltop; that breccia body contained the Richmond Hill gold deposit (St. Joe 1987). The Richmond Hill mine history is summarized in Section 5.2.

An active exploration program continued elsewhere on the claims through the life of the Richmond Hill mine, primarily looking for gold-rich oxide rock that could supplement the feed to the Richmond Hill heap leach processing facility. In 2023, the corporate entity changed to Homestake Mining Company of California, a wholly owned subsidiary of Barrick Gold Corp. (Barrick).

In 1990, LAC subsidiary Bond Gold explored thirteen prospective areas on the property; only MW-3, Richmond Hill North, and Cole Creek returned positive results. The MW-3 Main deposit was discovered in the third hole drilled, 6,000 ft northeast of Richmond Hill, and later that year the MW-3 East deposit was discovered 800 ft east-northeast of MW-3 Main, which contains higher grades. Due to the 1990 gold commodity price, at the end of 1990, several prospective areas were dropped from further exploration. These included the Earle, West Thumb, Twin Tunnels (TT), and Cleveland (CV) prospective areas. In 1991, seven additional prospective areas were explored, including Richmond Hill North (RHN), Cole Creek (CC), Eagle Bird, Helena, Huskie West, Perkins–Goodell, and Cleopatra Creek. Despite somewhat encouraging results, LAC did not develop any of these prospective areas due to low gold prices and environmental concerns. The MW-3 deposits were also excluded from further exploration due to being closed off in all directions, except those portions that trend off claims onto ground held by others. Table 5-1 provides a summary of Richmond Hill's recent history.

Table 5-1: Summary of Richmond Hill's Recent History

Company	Year	Comment
Viable Resources Inc.	Pre 1981	Assembled land package.
Freeport Exploration Company	1981	Leased several claims in Richmond Hill area.
		Joint venture (JV) and lease agreement with Viable. Conducted drilling on several prospects.
	1983	JV with Viable terminated and leases allowed to lapse.
St. Joe	1984	JV with Viable.
		Started drilling on Richmond Hill deposit breccia body.
	1985–1986	Continued drilling Richmond Hill deposit. Began property-wide drilling program. Added additional claims to the property position.
	1986	Richmond Hill positive feasibility study. Continued property-wide exploration program. Identified significant gold mineralization in the Cole Creek, Twin Tunnels, and Turnaround prospective areas.
	1987–1988	Richmond Hill deposit permitted for mining. Added the Turnaround deposit to the Mine Permit Application.

Company	Year	Comment
Bond Gold	1988	Acquired St. Joe gold division.
		Developed Richmond Hill mine as an open-cut heap leach operation. Exploration continued with discovery of Cleveland prospective area.
		First gold and silver doré poured.
LAC Minerals	1989	Acquired Bond Gold.
	1990–1991	Multiple prospective areas explored with some positive results, including MW-3 prospective area; but all rejected as possible feed sources for Richmond Hill.
	1992	Acid mine-drainage detected; studies began for determining reclamation plan for acid-rock drainage (ARD).
	1993	Final mineralized material hauled from Richmond Hill mine pit and efforts shifted to reclamation activities. Final exploration activities by LAC Minerals at the site. Final report on prospective areas completed.
	1994	Permit Amendment approved and reclamation work commenced.
LAC Minerals (USA)/Barrick	1994	Barrick Acquired LAC Minerals.
	1995	Reclamation of pit backfill and waste-rock dump completed. Last gold pour in June.
	1996	Leach pad closure plan submitted and approved.
	1997	Leach Pad closure completed, and water-treatment plant construction and operation start-up. Water treatment and monitoring are primary on-site activities.
	2008	Biological selenium-treating water-treatment plant added to system.
	2019	Wharf Resources options property and begins exploration program.
	2021	Wharf Resources drops Option with Barrick. Richmond Hill Gold Project optioned by Dakota Territory Resource Corp from Barrick including adjacent lands owned by Homestake which is also owned by Barrick.
	2022	Dakota Gold formed as a merger of Dakota Territory Resource Corp and JR Resources.
Homestake	2023	LAC and Homestake merged into single company to become Homestake Mining Company of California.

Limited formal reporting of exploration activities on the Richmond Hill property was completed as needed for corporate reporting, so the history presented herein has been gleaned from a limited number of letter reports and memos that were written by employees of the day and saved from destruction after flooding destroyed nearly all historical documents (Dakota Gold Corporation, pers. comm.). Much of the exploration status presented in this Report is from project summary reports that the exploration staff compiled in 1993 as exploration wound down. Due to that flooding, most records of ground exploration other than drilling were destroyed.

Exploration activities included geologic mapping, soil sampling, rock-chip sampling, airborne and ground geophysical surveys, and drilling. Drilling was mainly done by reverse-circulation (RC) methods; however, a few percussion holes were completed in the early 1980s, and core holes were drilled in the more intensively mineralized areas.

5.2 Mining

The Richmond Hill deposit was discovered in 1984, and St. Joe Gold Corporation filed an application to mine in 1987, following receipt in 1986 of a positive St. Joe feasibility report (St. Joe 1987). In 1988, Bond Gold Corporation acquired St. Joe Corporation's Gold Division, and in March of that year, a mining permit was granted; in late 1988, mining started as an open-pit heap leach operation (Duex and Anderson 1994).

Richmond Hill mine facilities construction began in April 1988 under the ownership of Bond Gold. In the fall of 1988, production began from the Richmond Hill pit, with the first bar of gold and silver doré poured in December 1988. In November 1989, LAC Minerals acquired Bond Gold Corporation.

Mine production was from a single open pit with a valley-fill waste dump and three heap leach pads. Pods of mined sulfide-bearing mineralized rock placed on the waste-rock pile caused acid mine-drainage by June 1992. Thus, in July 1992, LAC was required to submit an application to amend its mine permit to the South Dakota Department of Environment and Natural Resources (SDDENR) and the South Dakota Board of Minerals and Environment (SDBME), outlining a new reclamation plan as the result of the ARD detected at the toe of the waste-rock dump. The permit amendment was approved in February 1994, and reclamation work commenced in April 1994. The approved plan consisted of constructing a retention pond, treating the waste-dump discharge, and hauling all potentially ARD waste rock back to the pit and placing it under a multilayer capping system.

Mining continued intermittently until late 1993, and processing of heap leach pads continued until June 1995. Total production for the life of the mine was 5.24 Mton, with non-mineralized-rock production of 3.75 Mton. The final ore was hauled from the Richmond Hill pit in October 1993. In all, 172,294 ounces of gold were produced from the mine, along with 212,610 ounces of silver (Dakota Gold, pers. comm.)

Barrick acquired LAC in November 1994. Reclamation of the engineered pit backfill facility and former waste-rock dump was completed in September 1995.

In conjunction with the mining permit amendment, a leach pad closure plan was submitted and approved in June 1996. Closure of the leach pads consisted of recontouring the pads and constructing a multilayer capping system similar to the capping system at the pit impoundment. Leach pad closure was completed in July 1997. The capping system was successful in significantly reducing water infiltration and, accordingly, the amount of leach pad effluent requiring treatment.

Since the leach pad effluent and the water stored in the process ponds did not meet discharge standards—primarily due to elevated levels of selenium—construction of a water-treatment plant began in 1995. The primary system consisted of a 200 gal/min reverse-osmosis (RO) unit operating at 50% recovery. A chemical precipitation circuit was first constructed in 1995 to reduce selenium operated to treat the concentrate from the RO unit. A portion of the treated concentrate was mixed with the RO permeate for discharge. The water-treatment plant began operation in July 1997 and ran year-round full-time until December 1999 (Dakota Gold, pers. comm).

The original water-treatment plant ran seasonally from 2002 until 2008 when a biological selenium-treating water-treatment plant was constructed to treat the concentrate stream. This biological water-treatment plant operates in conjunction with the reverse-osmosis unit to treat and discharge the effluent collected from the leach pads. Water treatment, environmental monitoring, and continued reclamation activities are ongoing at the site.

6 GEOLOGIC SETTING, DEPOSIT TYPE, AND MINERALIZATION

6.1 Local Geology

The Property is on the northwestern portion of the Lead dome, a subsidiary dome north of the main Black Hills uplift. The Lead dome developed in response to a major Tertiary intrusive event that also led to the development of the Tertiary-aged gold deposits. These Tertiary intrusive rocks have a wide range of compositions and occur as stocks, sills, dikes, laccoliths, and breccia pipes. The Project's patented and unpatented claims form a roughly circular area about 2 miles in diameter (Figure 6-1).

Two major terranes underlie the claims. Precambrian metamorphic rocks outcrop on the southern portions of the property and consist of metamorphosed volcanic and sedimentary rocks. The western portion of this terrane contains primarily extrusive metavolcanic rocks that appear to be mostly mafic in composition. The metasedimentary rocks on the eastern side consist of phyllite, iron formations, and quartzites. Overlying the Precambrian rock on the north end of the Project area is a nearly complete Paleozoic section, which includes the Cambro-Ordovician Deadwood Formation; Ordovician to Mississippian Englewood and the Whitewood and Winnipeg Formations; Mississippian Pahasapa Formation; and the Pennsylvanian Minnelusa Formation. Tertiary igneous rocks of varying composition have intruded extensively into both terranes. Property geology is depicted in Figure 6-2.

Within the Precambrian terrane, Tertiary mineralization occurs within breccia pipes and altered Precambrian rocks, with minor mineralization in Tertiary intrusive rocks. Examples include the Richmond Hill deposit, Twin Tunnels, Turnaround, Richmond Hill North, West Thumb, Huskie West, Cleveland, Calvin P, Cole Creek Heights, and Earle zones.

Within the Paleozoic terrane, mineralization occurs in the Cambro-Ordovician Deadwood Formation along two primary horizons containing the most consistent mineralization. Examples within the Deadwood Formation are Cole Creek in the upper portion and MW-3 Main, MW-3 East and Chism Gulch in the lower portion. Localized gold mineralization also occurs in the Pahasapa Formation but is limited to narrow veins and structures in the old Carbonate Camp area.

Carbonate Camp is several thousand feet north of the Richmond Hill Gold deposit, comprising two east–west fractures separated by 1,100 ft, with numerous showings and workings (LAC 1993). Mainly known for its silver, lead, and gold mineralization, mining occurred over several short periods between 1881 and 1940, with the Spanish R mine on the western side of the camp accounting for most of the gold production. Individual deposits along the main (southern) fracture include Segregated Iron Hill, Seabury Calkins, Iron Hill, Combination, Able Holmes, and Adelphia. The north fracture includes Darboy, Farwest, Rattler, Surprise, and Hartshorn deposits. Deposits off the main fractures are the Spanish R, Buntz, and Homerun.

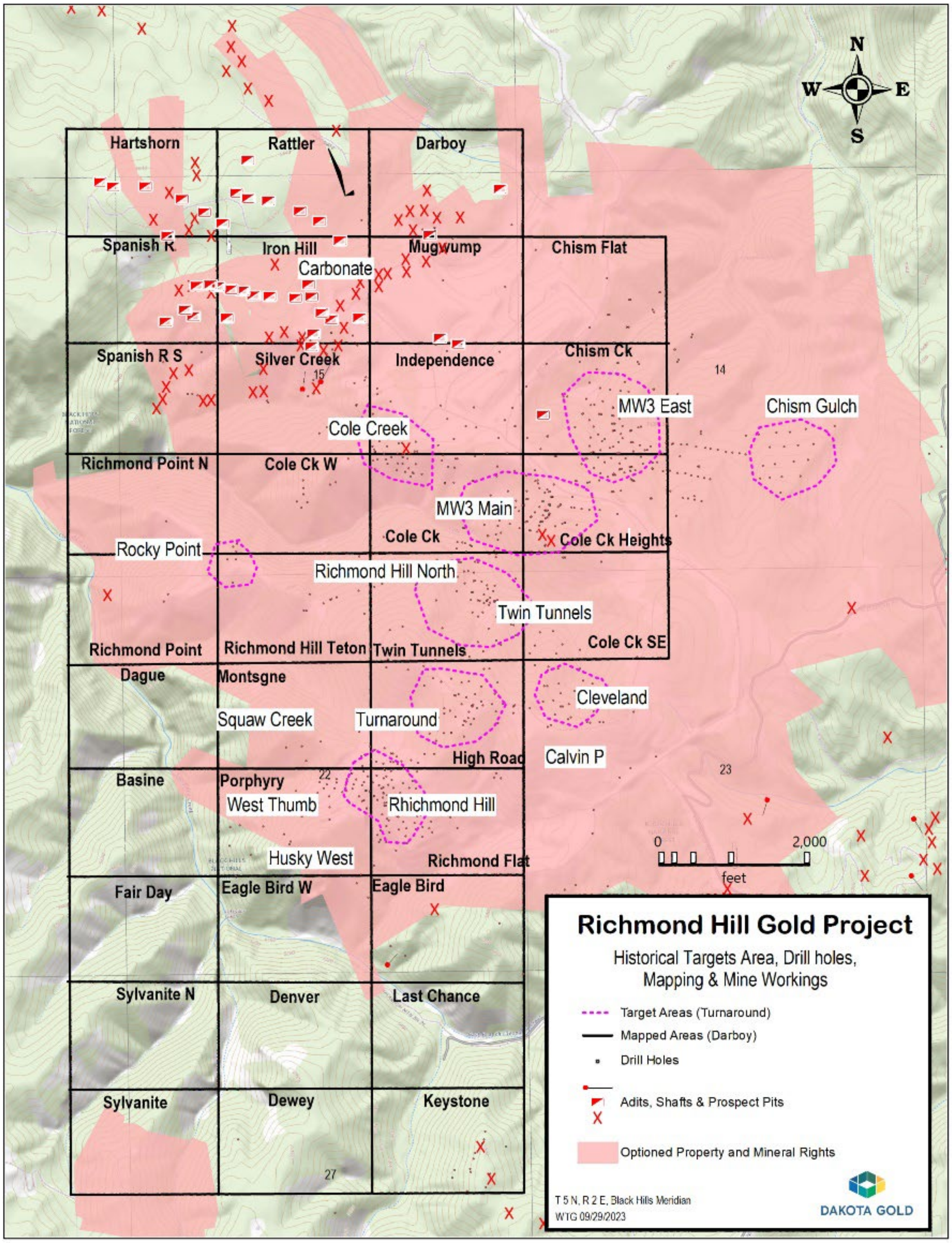


Figure 6-1: Exploration Zones

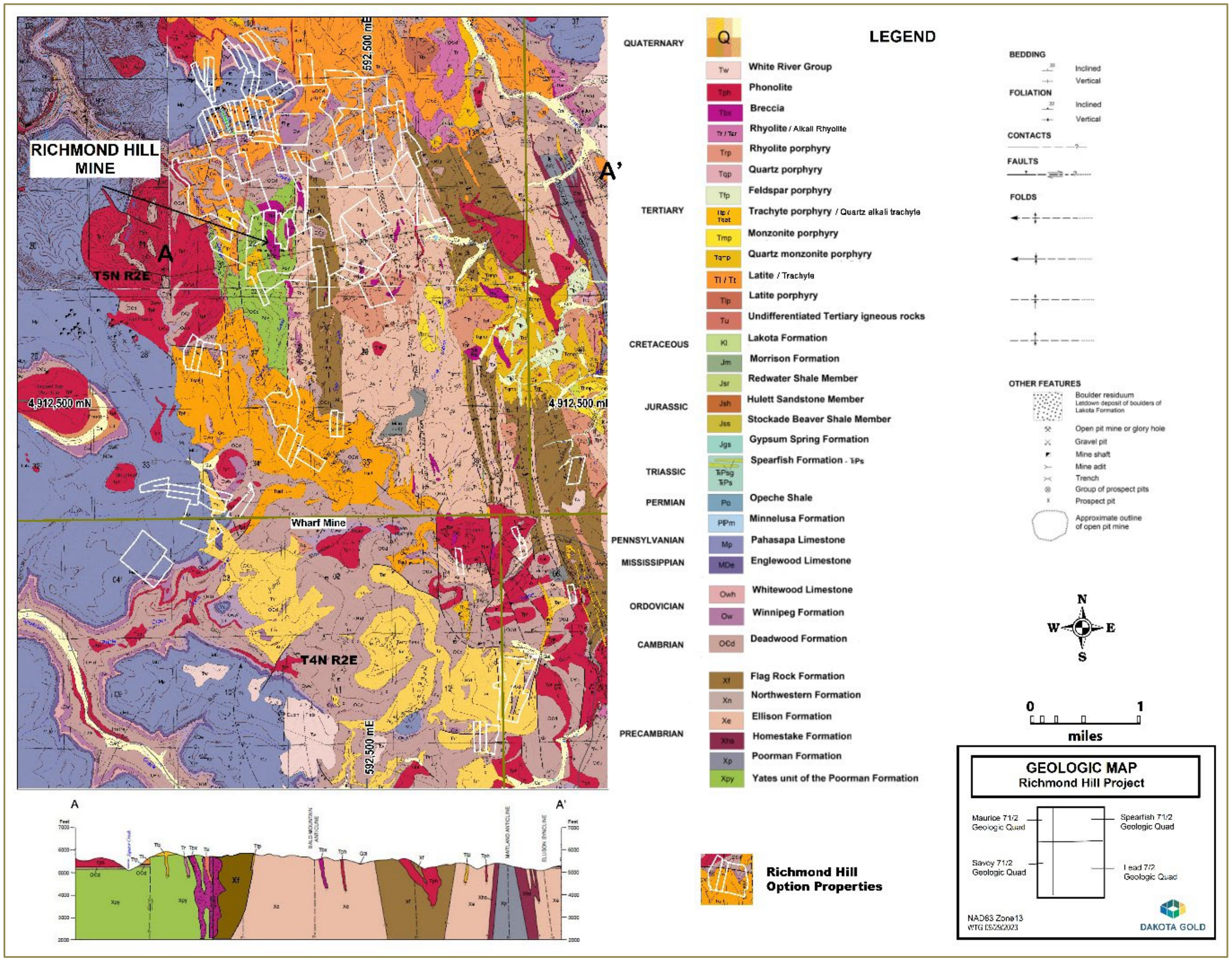
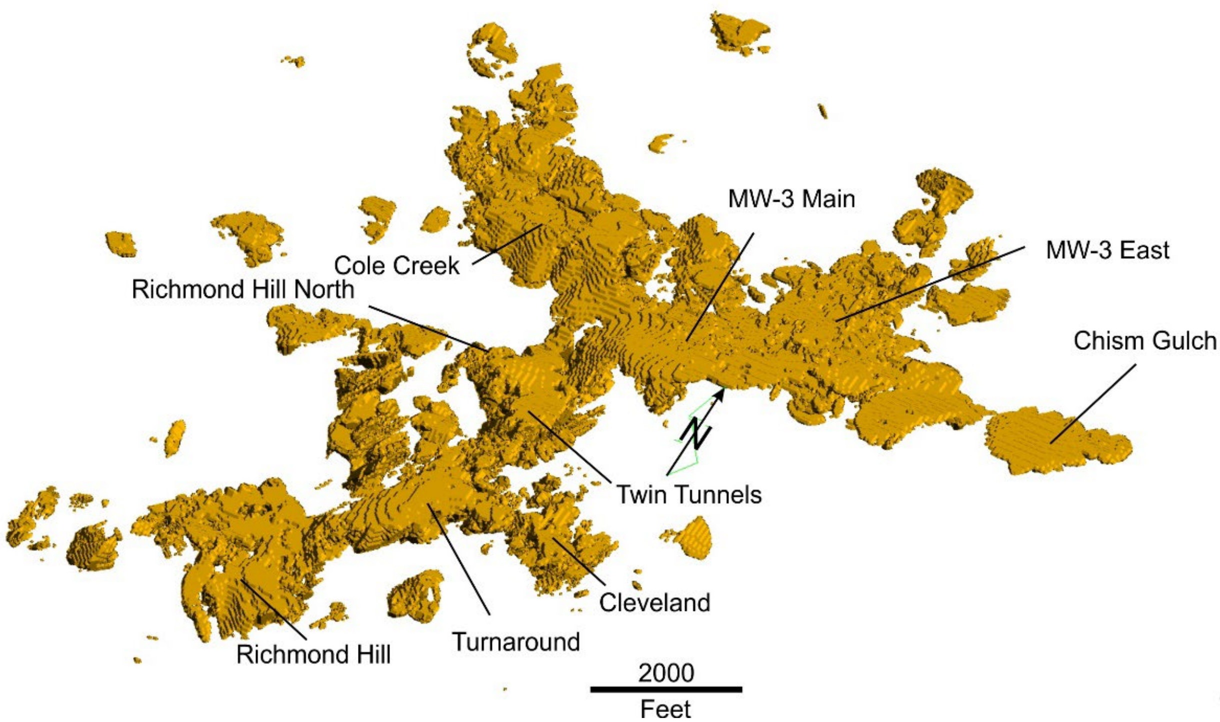


Figure 6-2: Geology of Richmond Hill

Other zones within the Property include Chism Gulch, Rocky Point, Iron Hill, and Cleopatra Creek. Each of these areas contains gold and silver mineralization and has exploration potential. Targets included in the mineral resource estimate and zones for which historical write-ups exist are described in more detail below.

Several gold deposits and zones exist within the Project area. Figure 6-3 is a 0.01 oz/ton grade shell showing the distribution of zones within the global resource estimate calculated for this Report. The grade shell measures approximately 13,000 ft north-south by 10,000 ft east-west and 3,000 ft vertically and is close to gold mineralization's known limits. The type and character of these zones are discussed individually below.



Source: AKF (2024).

Figure 6-3: Richmond Hill Gold Project Target Zones on 0.01 oz/ton Grade Shell Plot

The Richmond Hill gold mine is centered on an elongate Tertiary breccia pipe intruded into Precambrian phyllite and amphibolite, with stockwork zones fracturing and mineralization surrounding the pipe. The mine is the only site within the Project that has had recent mining. Mining activities were limited primarily to the oxidized cap, although some sulfide-bearing material was also mined. The geology of the Richmond Hill gold mine is as follows:

> The (Richmond Hill) breccia pipe contains angular clasts of Tertiary intrusive rock and Precambrian metavolcanic rocks in a matrix of rock flour, iron oxides, barite, and adularia. Accessory minerals in the breccia include quartz, alunite, jarosite, kaolinite, fluorite, and rutile. The breccia is argillically altered and weakly silicified. Pyrite and marcasite occur in unoxidized rock. The deposit (that was mined) was primarily in the oxidized zone which extended to a depth of 250 ft. Gold grain sizes were

determined by scanning electron microscope studies to be less than 2 microns (µm) occurring in quartz, feldspar, kaolinite, and iron oxides. (Paterson et al. 1988)

The breccia pipe and enclosing rocks are oxidized up to 250 ft deep, resulting in a hematitic–jarositic cap. The hydrothermal breccia pipe hosts gold—two zones of altered and stockwork-fractured Precambrian schist lying on the eastern and northwestern edges of the pipe, and one zone of stockwork-fractured trachyte porphyry intrusion southwest of the pipe. Gold is widespread, occurring as small native particles near oxidized-pyrite sites. Alteration is mainly argillic with local silicification, and numerous quartz–barite–adularia veins cut the deposit. The Precambrian amphibolite schist east and northwest of the breccia pipe has undergone intense argillic alteration and contains fine-grained gold in oxidized pyrite sites. In unoxidized material, pyrite and arsenical marcasite appear to be associated with gold (Paterson 1988). The oxidized breccia pipe has historically been the most attractive gold host within the mine. Sulfide mineralization lying beneath the oxidized cap also carries gold, but in 1986 was not deemed suitable to mine using heap leach recovery processes; therefore, the relatively flat-lying oxide–sulfide contact was used as the floor to the deposit for mining.

The sulfide resource underlying the Richmond Hill deposit's westernmost zone of oxidized and fractured Precambrian rocks is a zone of mineralized sulfide-bearing rock not suitable for heap leaching. The host rock contains pyrite and arsenical marcasite averaging 5% to 10%, locally reaching 25% (Duex's 1988 edit of Paterson 1988).

The Richmond Hill North zone is approximately 3,000 ft north-east of the Richmond Hill gold mine. A 1990 radiometric airborne geophysical survey identified the Richmond Hill North zone as having the potential for Richmond Hill deposit-style mineralization. The area has three intrusive bodies and a large breccia pipe where early drilling returned mixed results. The geology comprises Proterozoic metavolcanic and sedimentary rocks overlain by the Cambro-Ordovician Deadwood Formation and intruded by Tertiary porphyritic intrusive rocks (LAC 1993). Proterozoic rocks are mapped as amphibolite and mica schist, which have been deformed by three stages of folding, and metamorphosed to greenschist facies. Rock units strike north–south and dip vertically.

The Deadwood Formation rocks comprise basal sandstone, conglomerate, and shale units dipping north-northwest at 10 to 15 degrees. Tertiary intrusive rocks are mineralized breccia bodies with fragments up to 30 ft in diameter, comprising Paleozoic sediments and Tertiary porphyry fragments cemented by a finer matrix and rock flour.

The Twin Tunnels zone is within the Richmond Hill North area and is described in more detail below. The Twin Tunnels zone is 2,900 ft northeast of the Richmond Hill gold deposit at the headwaters of Cole Creek. It is named for a pair of adits driven on a breccia comprising the Southern Extension and Northern Extension zones. The Southern Extension is a mineralized Tertiary breccia and jasperoid, whereas the Northern Extension is a Tertiary intrusive complex (Watson 1990).

Gold mineralization at the Twin Tunnels Southern Extension is within silicified Precambrian rocks surrounding a jasperoidal core (St. Joe 1986). Only the southern portion of the breccia is known to be mineralized, although the breccia continues to the north beyond drill-tested ground.

The Twin Tunnels Northern Extension is a sericite- and argillic-altered complex that is mineralized with pyrite containing gold and silver. The rocks comprise a mineralized metavolcanic, a poorly mineralized coarse- and fine-grained amphibolite unit, and an unmineralized Tertiary porphyry intrusive. Altered metavolcanic rocks are oxidized, vuggy, and kaolin-rich, with about 5% finely disseminated pyrite. The metavolcanic unit has a massive and glassy matrix, few vugs, and carries higher-grade gold mineralization.

The Turnaround zone is 1,000 ft northeast of the Richmond Hill gold deposit and is a breccia pipe overlain by an unmineralized porphyry cap. Bedrock oxidation extends to over 400 ft below the overburden–bedrock interface, and sulfide pods are found randomly throughout the host stratigraphy, suggesting that primary sulfide mineralization was oxidized during the late stages of hydrothermal alteration and more-recent weathering (Paterson 1988). The pipe is weakly mineralized throughout, with a higher-grade section along the southeast margin. Alteration and clast compositions differs from the pipe at the Richmond Hill deposit, as there are abundant Cambro-Ordovician Deadwood Formation clasts that contain higher-grade mineralization. Drilling into the pipe and adjacent rocks was conducted from 1985 to 1987, comprising 40 holes.

The Cleveland area is about 2,000 ft northeast of the Richmond Hill gold deposit. It contains Precambrian iron formation amphibole schist and metasediments affected by three periods of later folding. Most gold mineralization is controlled by east–west fault systems (Duex 1989). The drilling program indicated that mineralization was cut off along strike, thinned, and became erratic to the north; heap leachable metallurgical recoveries decreased with depth (Horton 1989).

The MW-3 area is approximately 6,000 ft northeast of the Richmond Hill mine and comprises two zones—Main and East—which were reported to have bulk-mineable oxide resources, but were never mined (LAC 1991). The zone contains the Richmond Hill mine's processing facility on the northern portion.

The southern part of the MW-3 area is underlain by Precambrian metasediments containing iron formations, whereas the northern portion is underlain by the Cambro-Ordovician Deadwood and Winnipeg Formations, which dip northerly at 15 to 20 degrees. Intruding the sediments are Tertiary monzonitic porphyry dikes and sills, as well as stocks and associated breccia bodies.

Gold mineralization at MW-3 occurs throughout the Deadwood Formation, and less so within unconformably underlying Precambrian metasediments. Potential bulk-mineable material is disseminated in the basal conglomerate and sandstone members of the Deadwood Formation, and uppermost Precambrian schists (LAC 1991). Steeply dipping and north-northwest-striking fractures known locally as verticals also control replacement gold-mineralization to a lesser extent. The basal contact between Cambrian and Precambrian rocks is strongly oxidized glauconitic limestone, shale, and occasional massive limestone beds. Underlying Precambrian metasediments comprise mica schist, iron formation, and clastic quartzites with interbedded mica schists. Gold is found within iron formation rocks, and most continuously in oxidized schists. Gold occurs erratically within structures up to 50 ft below the zone of oxidation.

The MW-3 Main deposit mineralization is hosted mainly in Deadwood Formation basal sandstone and conglomerate, and a minor amount in Precambrian oxidized-iron-formation schists and lower contact unit. Consistent gold mineralization is found between two north-northwest-trending fractures or faults (verticals). East of the verticals the grade decreases quickly, and west of the verticals gold is present, but structurally controlled, including a major structure 500 ft to the west that is 30 ft wide and more than 400 ft down dip (strike length not stated in LAC 1991). Oxidation of the Precambrian schists is thought to have occurred during the Cambrian, and prepared the rocks for Tertiary gold mineralizing solutions to penetrate along faults or fractures into the schists.

The MW-3 East deposit is about 800 ft east-northeast of the Main deposit and is hosted in the Deadwood Formation lower contact zone altered to a ferruginous clay (LAC 1991). The underlying Precambrian clastic quartzite and mica schist were not oxidized in the Cambrian and were not receptive to the gold-mineralizing fluids. Gold mineralization in the lower contact zone is controlled by north-northwest-striking verticals, with best grades between two Tertiary porphyry dikes. The zone is 50 ft thick and overlain by Deadwood Formation shale and Tertiary sills. The mineralization continues to the east on land once controlled by Homestake, which drilled the eastern extension in 1993 and named the project area Chism Gulch.

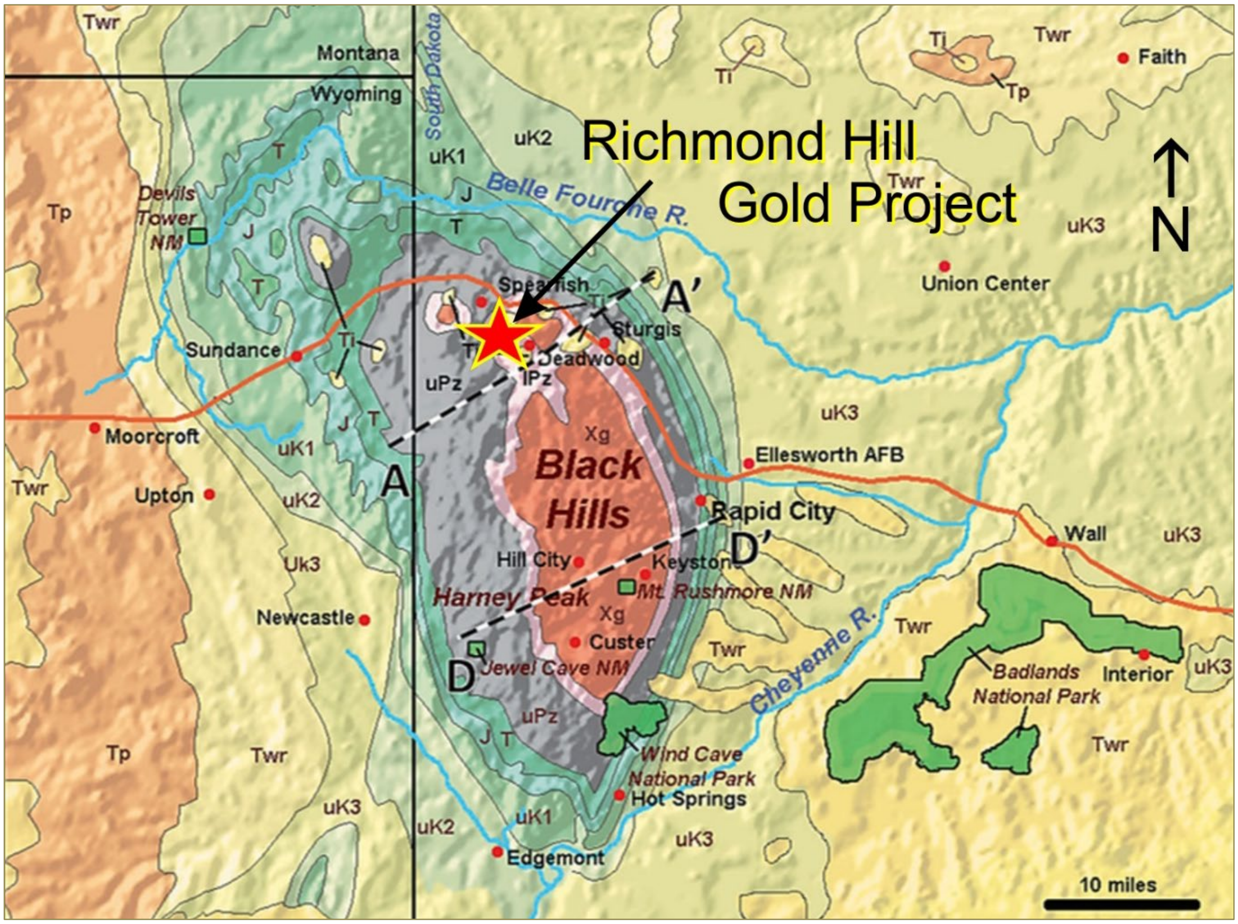
LAC did not continue exploring MW-3 Main and MW-3 East, citing the gold price in the 1990s.

The Cole Creek area is 4,000 ft north of the Richmond Hill gold deposit on the north side of Cole Creek, within the northern third of the old Carbonate camp. The prospect contains replacement-style mineralization in the uppermost part of shallow Deadwood Formation limestone, sandstone, and shale, dipping 15 to 20 degrees to the northwest. The sedimentary rocks are intruded by Tertiary porphyritic igneous (monzonite to phonolite) rocks as sills, dikes, stocks, and breccias. Mineralization is controlled by two northwest-trending faults separated by approximately 120 ft, with mineralization continuous between the faults, and as an irregular halo outward from the faults (St. Joe 1986). All near-surface bulk-mineable zones were evaluated, but deeper zones were not explored (Dakota Gold, pers. comm.)

The Richmond Hill Gold Project is host to multiple gold–silver zones and deposits, many of which Dakota Gold determined warranted further exploration. Following option of the property in 2021, Dakota Gold started a Project-wide exploration program including geology, geophysical, and drilling surveys described in more detail in Chapter 7.

6.2 Regional Geology

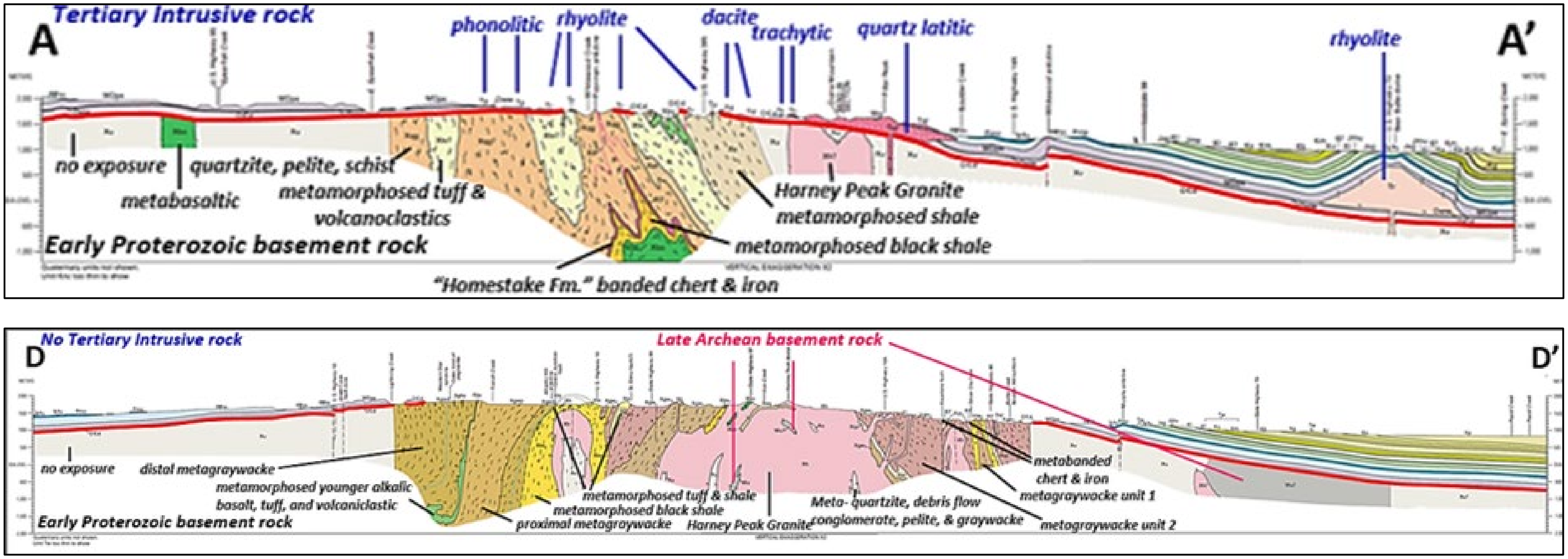
The Black Hills is an oval-shaped north-northwest-striking mountain range along the western side of South Dakota, which extends into Wyoming. At approximately 45 miles by 90 miles, the Black Hills is a domal uplift where erosion has exposed a window of Precambrian igneous and metamorphism rocks flanked by a thick sequence of Paleozoic- to Mesozoic-aged sedimentary rocks dipping off in all directions on the margin of the uplift. Figure 6-4 is a generalized geologic map of the Black Hills area showing the Project location and cross sections A–A′ and D–D′ are provided in Figure 6-5. Much of the regional geology summary is sourced from Lufkin et al. (2009).



Source: Geology of Wyoming (n.d.).

Notes: Xg—Precambrian metamorphic and igneous rocks; lPz—lower Paleozoic (Cambrian–Mississippian); uPz—Upper Paleozoic (Pennsylvanian-Permian); T—Triassic, J—Jurassic; uK1-uK3—undesignated Cretaceous (oldest to youngest); Ti—Tertiary igneous rocks; Twr—Tertiary White River Group; Tp—Tertiary Pliocene (Upper Miocene-Pliocene Ogallala Formation). Cross-sections A–A' and D–D' are shown in Figure 6-5.

Figure 6-4: Regional Geology of the Black Hills



Source: Redden and DeWitt (2008).

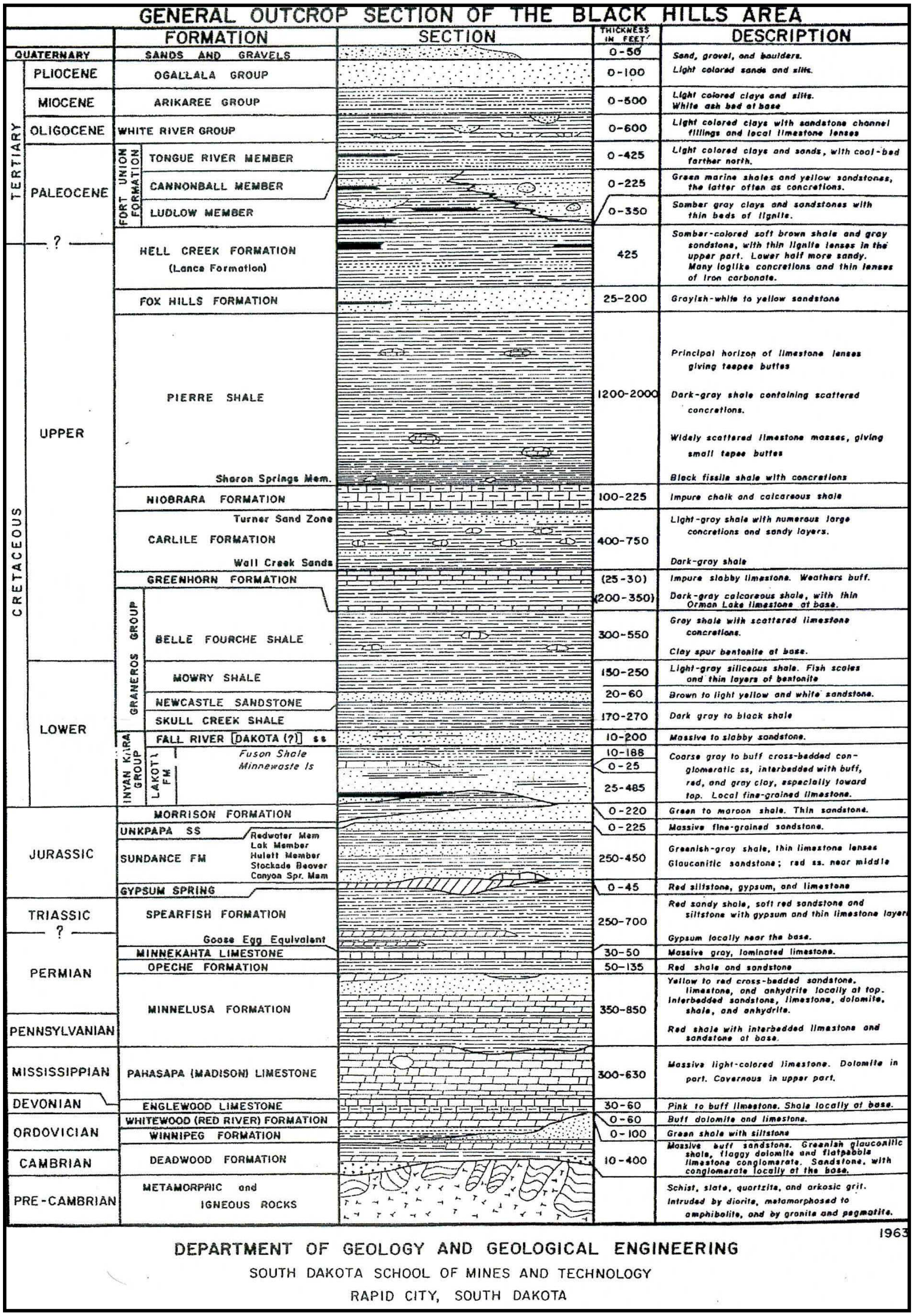
Notes: A–A'—(northern Black Hills); D–D'—(southern Black Hills) (shown in Figure 6-1)

Southwest to northeast structural cross sections AA' (northern Black Hills) and DD' (southern Black Hills). The "Great Unconformity" between Precambrian and Phanerozoic rocks indicated by solid red line.

Figure 6-5: Southwest to Northeast Structural Cross-Sections

Lufkin et al. (2009) theorize that rocks comprising the metamorphic core were laid down as sand and clay in an intracontinental basin bordered by the Wyoming Archaean craton on the west and an earlier rift basin on the east. With compaction, these sediments became sandstone and shale several miles thick. Orogenic-related metamorphism created quartzite, phyllite, and schist, while subsequent intrusions of granite generated higher metamorphic grades. With uplift in the Precambrian the metamorphic rocks may have formed a mountain range of unknown height that was then eroded unevenly over the succeeding 2 Ga. In the Paleozoic, the Precambrian rocks were inundated by a sea that deposited 6,500 to 7,000 ft of sandstone, shale, and limestone sedimentary rock during the Cambrian through Permian periods. These Paleozoic strata thin from north to south and dip east on the Black Hills' eastern side and west on the western side. Figure 6-6 displays a Precambrian–Paleozoic stratigraphic section for the entire Black Hills.

Tertiary intrusive rocks are developed only in the northern Black Hills (section A–A′ in Figure 6-5) including the Richmond Hill Gold Project area. The Early Proterozoic Homestake Formation is the main gold-mineralized zone. The blocks of Archean crust in the southern Black Hills (D–D′ in Figure 6-5) may be rafted portions of the Superior craton. The complexity of folding and metamorphosis within the Precambrian rocks indicates that these ancient units were subjected to multiple deformational events before, during, and after the Trans-Hudson tectonic event (Redden and DeWitt 2008).



Source: Terry (2010).

Figure 6-6: Black Hills General Stratigraphic Section

6.2.1 Landforms and Structures

The geographic occurrence of Black Hills geologic formations is controlled by various landforms. Black Hills landforms are divided into five main types: Central Crystalline Core (Core); Limestone Plateau; Red Valley; Cretaceous (Dakota) Hogback; and Buttes. Bordering the undulating Core is the Limestone Plateau, which covers a greater area on the west side of the Core than the east due to a much gentler westward rock dip in comparison to the steeper dips on the east side of the Core. The Richmond Hill Gold Project area is characterized by these first two landforms.

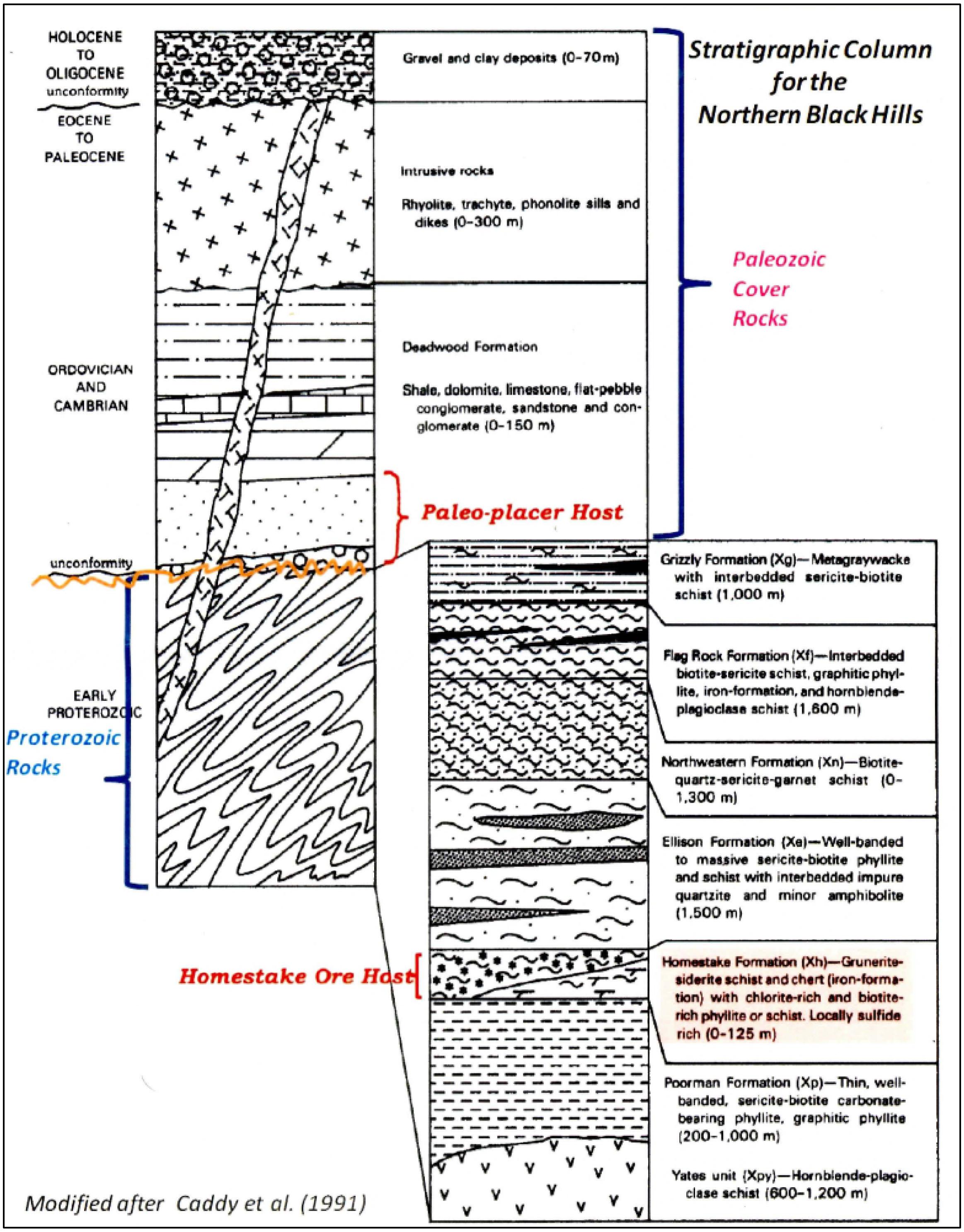
Outboard of the Limestone Plateau is the Red Valley, a broad lowland that developed by erosion of the Spearfish and Sundance red-bed formations. Like the Limestone Plateau, the Red Valley width is controlled by the rock dips, with shallower dips producing a wider valley on the west and a narrower valley on more-steeply dipping eastern exposures. The Cretaceous Hogback is a 300- to 400 ft-high ridge outboard of the Red Valley, formed by Lakota Sandstone that is resistant to erosion, along with dip-slope rocks of the Fall River Sandstone Formation. Rocks of the underlying strata are exposed on the steep cliff faces below the ridge crests. Evidence for the timing of erosion to create the current landform favors initiation in early Tertiary time, though some valleys likely were carved within the last five million years.

Buttes occur in the Northern Black Hills Igneous Province and are formed by a west- to northwest-striking zone of intrusive rocks cutting across the Black Hills uplift. Erosion of the enclosing strata has exposed the igneous rocks, which occur as dikes, sills, laccoliths, stocks, ring dikes, and diatremes. Due to greater resistance to weathering and erosion, the igneous rocks forming these structures stand out as positive topographical features such as Devils Tower and Bear Butte. Within the Northern Black Hills, the laccoliths generally cause the greatest disruption of the existing lithological layers into which they are intruded. The laccoliths cause doming and fault-bounded uplift, with the Deadwood Formation being the preferred host.

The Laramide uplift of the Paleozoic and Proterozoic basement started about 70 Ma ago. Timing of the uplift can be constrained to the early Tertiary, since undeformed and horizontal Tertiary White River Group rocks lie unconformably above tilted Mesozoic strata, which was disrupted by doming Protoerozoic basement. West vergent monoclines separate the Black Hills uplift from the Powder River Basin to the west. The eastern flank of the Black Hills uplift is caused by doming of the Proterozoic basement which forms asymmetric anticlines.

6.2.2 Northern Black Hills Lithology

The northern Black Hills area includes the Richmond Hill Gold Project. A description of the local and property geology follows. Foliated metamorphic rocks that form the northern Black Hills central core are elevated up to 4,000 ft above the surrounding flatlands and are mainly composed of quartzite, phyllite, and schist that have been metamorphosed to lower–upper greenschist facies; these are radiometrically dated to between 2.5 and 1.7 Ga. (Redden and Dewitt, 2008). The metamorphic core has been complexly folded, faulted, and locally intruded by the 1.7 Ga Harney Peak Granite. These rocks partly underly the Property. A stratigraphic section of the Black Hills surrounding the Richmond Hill Project Area is presented as Figure 6-7.



Source: Modified after Caddy et al. (1991).

Figure 6-7: Precambrian Stratigraphic Section of the Richmond Hill Gold Project Area

Starting in the Cambrian, tropical marine clastic rocks were deposited from north to south during a marine transgression—mainly sandstone and shale of the Deadwood Formation. The subsequent northward regression created a southward thinning wedge of strata from 400 ft thick in the north to 7 ft thick in the south.

The Deadwood Formation comprises two thick layers of quartz arenite separated by glauconitic sandstone, shale, limestone, and intraformational conglomerate layers. The Deadwood Formation extends up into the overlying Ordovician shale and dolomite of the Winnipeg Formation and Whitewood Dolomite. No Silurian rocks are found in the Black Hills, which likely represents a period of emergence and erosion. In the Upper Devonian to Mississippian, the area was covered by tropical seas, which deposited shale and limestone of the Englewood Limestone and then the Madison Limestone.

The Madison Limestone, locally called the Pahasapa Limestone, is 850 ft thick in the north and 350 ft in the south. From the late Mississippian to early Pennsylvanian, the Pahasapa Formation was subject to 20 Ma of erosion and subsequent karst development in its upper layers, creating open spaces available for later mineralizing fluids.

The Deadwood and Pahasapa Formations are the main paleozoic mineralized geological unit on the Richmond Hill Gold Project. The units deposited subsequently are considered cover rocks and include, in decreasing age. the Minnelusa Formation, Opeche Formation, Minnekahta Formation, and Spearfish Formation. These rocks are mainly shale, sandstone, siltstone, limestone.

Following deposition of the Spearfish Formation, the Black Hills was again emergent and eroded for about 70 Ma, precluding deposition of any early-Mesozoic strata. The erosion continued to the mid-Jurassic, after which the area was again inundated by seawater, which allowed the Sundance Formation to be deposited.

Overlying the Sundance Formation are the upper Jurassic Unkpapa Formation and Morrison Formation. The latter likely experienced erosion, as its upper contact is an unconformity that marks the division between the Jurassic and Cretaceous periods.

At the close of the Jurassic and into the Cretaceous, much of central North America from north to south was submerged in seawater known as the Western Interior Seaway. Between 130 and 65 Ma a thick sequence of shale, limestone, and sandstone was deposited in twelve recognized formations. By the end of the Cretaceous, between 6,500 and 7,000 ft of sedimentary strata had accumulated over the metamorphic core on what was to become the northern Black Hills.

Early in the Tertiary the Black Hills experienced uplift and erosion related to the Laramide orogeny. This was most notable during the Paleocene and Eocene, with the sediments being shed to the west into the Powder River Basin. Minor volcanic activity resulted in numerous shallow igneous intrusions in the northern Black Hills, with well-known examples being the Devils Tower, Missouri Buttes, and Bear Bute. The igneous bodies trend younger from east (58 Ma) to west (48 Ma).

Other Tertiary rocks formed during fluvial deposition in the late Eocene and Oligocene and comprise channel fillings of sandstone, claystone, and minor limestone.

6.3 Deposit Type

Mineralization at the Richmond Hill Gold Project is dominantly replacement style within Tertiary aged breccias of host Precambrian metasedimentary and Cambrian-Ordovician sedimentary rocks. Gold bearing fluids possibly derived from Tertiary intrusions migrated along steeply dipping fractures called verticals, and gold was deposited in favorable structural or chemical traps as replacement deposits. Breccia pipes within Precambrian metasediments and the Cambro-Ordovician Deadwood Formation are the most common gold-bearing host rocks. The historic Richmond Hill gold mine produced ore from Tertiary breccias dominantly hosted within Precambrian units that were processed as an open pit, heap leach operation.

6.4 Mineralization

Gold mineralization settings in the Black Hills are complex, and gold has been found in many geologic settings, including Archean Paleoplacer, early Proterozoic Carbonate Iron Formation, Proterozoic Vein, Cambrian Placer, Tertiary Epithermal, and Quaternary Placer.

On the Richmond Hill Gold Project Tertiary-aged replacement gold mineralization, and Precambrian iron formation-hosted gold mineralization were drilled during exploration programs in the 1980s and 1990s. Subsequent drilling in 2023 identified the iron formation to be within the Proterozoic Flagrock Formation magnetite and sulfide-bearing iron formation containing Tertiary gold–silver mineralization but no classic Homestake style siderite iron-formation mineralization.

The current genetic model is that Tertiary-aged gold- and silver-bearing fluids possibly derived from the Tertiary intrusions migrated along steeply dipping fractures called verticals, and gold was deposited in favorable structural or chemical traps as replacement deposits. Breccia pipes within Precambrian metasediments and the Cambro-Ordovician Deadwood Formation are the most common gold-bearing host rocks. These breccia pipes are associated with Tertiary alkalic magmatism that generated most of the Tertiary-aged gold deposits in the Homestake District.

Gold mineralization in the breccia pipes had previously been identified in various targets within the Project area, including Richmond Hill, Richmond Hill North, Twin Tunnels, and Turnaround. Dakota Gold followed up on this earlier work, and drill tested three of the six known breccia pipes within Twin Tunnels, Turnaround, and Richmond Hill zones. To this Report date drilling has not defined the limits of mineralization in these breccia pipes.

Dakota Gold's current exploration program seeks to confirm and expand upon known oxide gold resources and test the extent of gold sulfide resources. The zones included within the mineral resource estimate are Richmond Hill, Richmond Hill North, Cleveland, Turnaround, Twin Tunnels, Cole Creek, and MW3.

Historical production prior to the 1980s in the Project area was primarily from underground mining of high-grade structures. With the advent of heap leaching technologies, a resurgence of mining occurred, and open pit mining of these resources began. The Richmond Hill gold mine and Wharf deposits to the south are examples, with the Wharf open pit mine being the only mine currently operating in the Black

Hills. Most gold is associated with pyrite at depth, and near-surface gold is liberated by natural oxidation. Sulfide-rich deposits have been processed historically using fine grinding and cyanidation, along with roasting, to recover the gold and silver. The Deadwood Formation hosts numerous historic mines, including Golden Reward, Bald Mountain, Maitland, and Wasp. Further north and west in the Carbonate and Ragged Top districts, fluids related to Tertiary intrusions have localized gold, silver, lead, zinc, and tungsten along faults or breccia pipes within the Pahasapa Limestone. Tertiary porphyry-hosted gold deposits include the Gilt Edge and Hoodoo-Union Hill mines.

7 EXPLORATION

Dakota Gold entered into an option agreement with Barrick on October 14, 2021, and began ground exploration on the Project including gravity, induced polarization (IP) survey and drilling. Prior to optioning the Project, Dakota Gold flew an airborne geophysical survey over a wide area of the Homestake district. These are summarized in the following sections from data sheets provided by Dakota Gold (Berry 2023a, 2023b).

7.1 Airborne Geophysics

From June 26 to August 1, 2020, New Sense Geophysics Ltd. conducted a high-resolution helicopter-borne magnetic and gamma-ray spectrometric survey over the Homestake District of Northern Black Hills, South Dakota. The survey consisted of 11,636-line km covering an area of 962.4 km^2, and included the Property (Figure 71). The purpose of the survey was to map Precambrian lithologies and structure, as well as Tertiary intrusive rocks and associated alteration in outcrop, subsurface, and beneath cover. A report detailing the contractor's work is dated August 31, 2020.

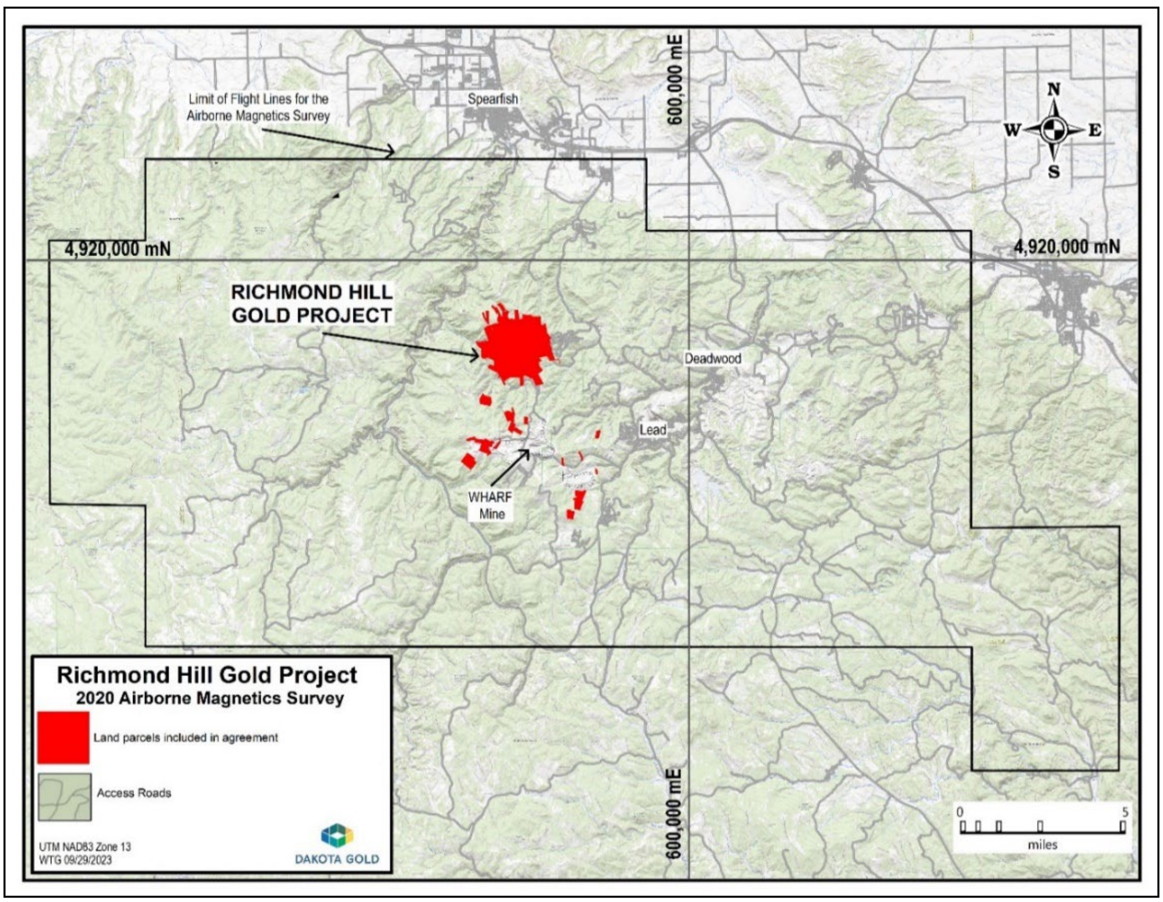


Figure 7-1: Airborne Magnetics Survey Flightline Limits

The airborne magnetic survey was able to identify the Tertiary intrusive centers and possibly larger feeder dikes. Most of the Intrusive centers had previously been identified by surface mapping either by exposed intrusive rocks or by doming of the Paleozoic and Mesozoic strata. The radiometric survey, especially thorium, identifies the larger Tertiary intrusive centers.

It is the opinion of the QP responsible for Section 7.1 that the airborne geophysical survey aided Dakota Gold is selecting the Richmond Hill Gold Project area to option, and also aided interpreting the extent geological units under areas of cover.

7.2 Gravity Compilation and Survey

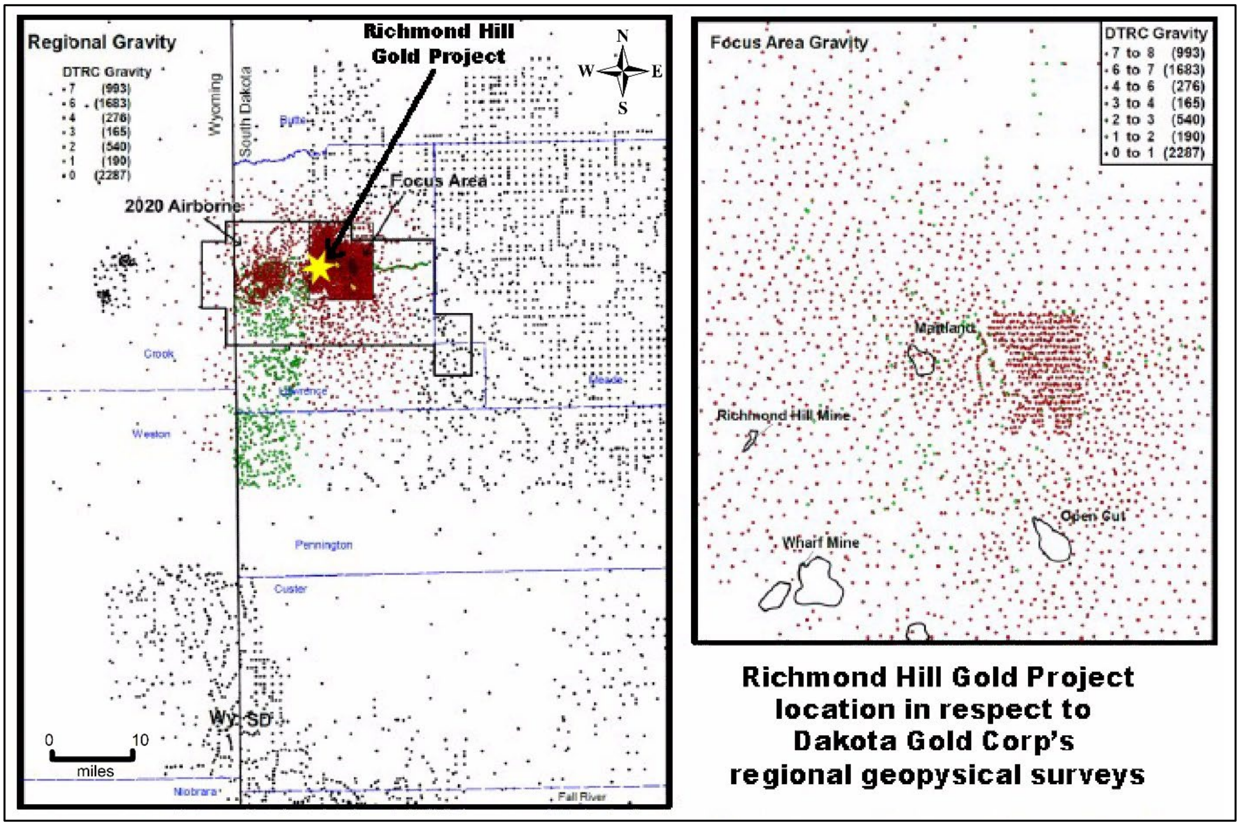
In December 2021, geophysical contractor Robert B. Ellis, Allan Spector and Associates, Ltd. and Magee Geophysical Surveys LLC (Magee) completed a report titled *Gravity Compilation and Processing (2021 Merge) Homestake District*. Their work entailed compiling and merging historical Homestake gravity data with National Geophysical Data Center gravity data and Magee gravity data for the Black Hills region.

During May and June 2022, Magee collected additional gravity data to be added to the Dakota Gold data set. The survey acquired data from 550 gravity stations across the Black Hills to fill in gaps in the regional data set and to replace older readings that potentially had elevation- or terrain-correction problems. The survey area included Lawrence, Pennington, Butte, and Custer Counties of South Dakota, and Crook, Weston, and Niobrara Counties of Wyoming (Figure 7-2). Although the survey encompassed a large area, additional stations were surveyed near Richmond Hill. No report was completed summarizing this work, but maps and cross-sections were produced to assist with ongoing geologic interpretations.

The gravity survey was used to map out differences in density of the various rock units. The Tertiary intrusive rocks generally have lower densities than the Precambrian metamorphic host rocks. For example, there is a large intrusive body east of the Project area known as the Cutting Stock that is a distinctive gravity low. The larger metabasalt units often generate gravity highs. The eastern contact of the metabasalt running through the center of the Project does not generate a large density-contrast. The lack of density contrast may be because of the heavy alteration of the metabasalt adjacent to the north–south-trending Tertiary breccia pipes or that the lower-density breccias tend to intrude along this structure.

The QP responsible for Section 7.2 of this Report believes that the gravity survey aided Dakota Gold in interpreting the extent of geological units in areas of cover, and spotting drill-hole collars benefited from a combination of this and other airborne and ground-based surveys.

The gravity survey aided in interpreting the extent of geological units in areas of cover, and drill-hole collars were spotted using a combination of this and other airborne and ground-based surveys.



Source: Robert B. Ellis, Allan Spector and Associates, Ltd. and Magee Geophysical Surveys LLC (2021).

Notes: Index maps showing compiled gravity stations for the Black Hills regional area (left) and a focus area (right). Black dots are National Geophysical Data Center stations. Green dots are historical Homestake (Spector) stations. Red dots are stations acquired for Dakota Gold in 2020 and 2021. Black Polygons are outlines of Dakota Gold's 2020 airborne geophysical survey and the primary gravity focus area. Blue polygons are county lines.

Figure 7-2: Gravity Survey Station Locations

7.3 Induced Polarization Survey

From September 15 to October 2, 2022, KLM Geoscience LLC (KLM)conducted IP and resistivity geophysical surveys across four lines for 8.1 miles (13.1 km) of survey lines at the Project (Figure 7-3). The survey was a dipole–dipole-type array with a 200 m dipole size using a 5 kW transmitter and 16-channel IP receiver. The survey generated an IP response with parameters of two seconds, time domain, 12 window, and 150 ms, 55 ms delay after turn-off. Pseudo-sections were generated initially and then inverted to model true sections. Using the survey results, Dakota Gold was able to plan drill holes more accurately to intersect intended zones. KLM produced the *Dakota Gold Richmond Hill DCIP Survey Logistical Report* on October 2, 2022.

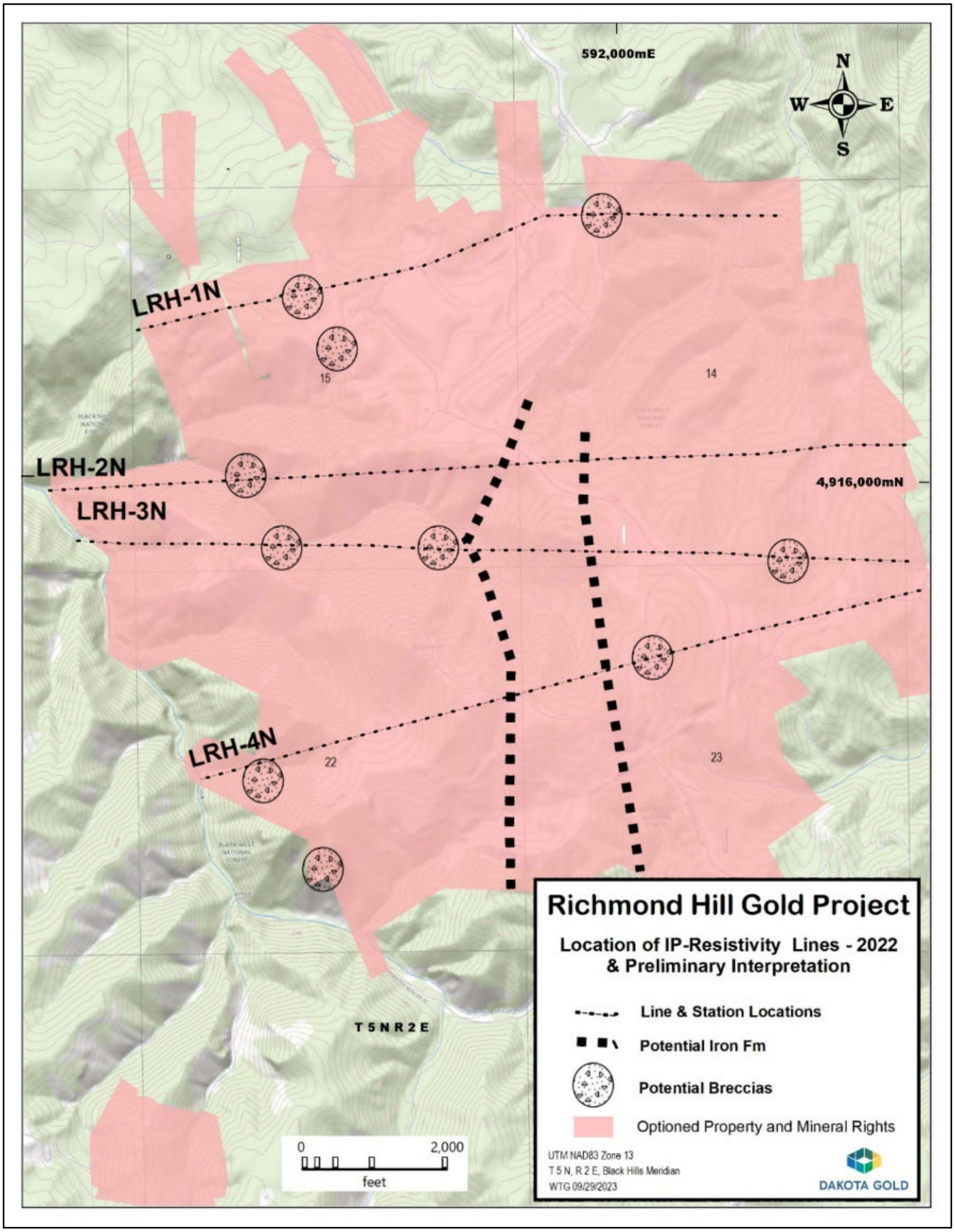


Figure 7-3: Geophysical IP—Resistivity Survey Line Locations

The IP survey identified possible breccias and iron formation as identified by the resistivity and chargeability response. Several drill holes tested the chargeability anomaly that was interpreted to be iron formation. The holes intersected Proterozoic Flagrock Formation magnetite and sulfide-bearing iron formation containing Tertiary gold–silver mineralization but no classic Homestake-style siderite iron formation mineralization. Resistivity highs corresponded to Proterozoic Ellison Formation quartzites and unaltered Proterozoic greenstones, and these areas were excluded from drill testing.

The QP responsible for Section 7.3 of this Report believes that the IP survey aided Dakota Gold in mapping iron formation and other non-mineralized rock formations at depth and that a more detailed survey could be considered in areas lacking outcrop and needing additional subsurface information.

7.4 Geological Mapping

Small-scale geological mapping was conducted over the Project starting November 1, 2021, and continuing intermittently to the Report date. Dakota Gold geologists mapped an area of 3.3 square miles (8.6 km^2) (Figure 7-4) to help guide drill-hole targeting, with the ultimate goal of integrating surface geology with drill-hole lithology to produce a three-dimensional (3D) geological model. Much of the work consisted of field-checking St. Joe Minerals, Bond Gold, and LAC mapping and sample programs from the 1980s and 1990s. The recent mapping has yet to be compiled and is still in field note form. Dakota Gold has stated that the mapping confirms earlier work by others (James Berry, pers. comm.) and that the geology map provided as Figure 6-6 is the most accurate as of the Report date.

It is the opinion of the QP responsible for Section 7.4 of this Report that the geologic map provided in Figure 6-6 is of sufficient detail to allow targeted drilling.

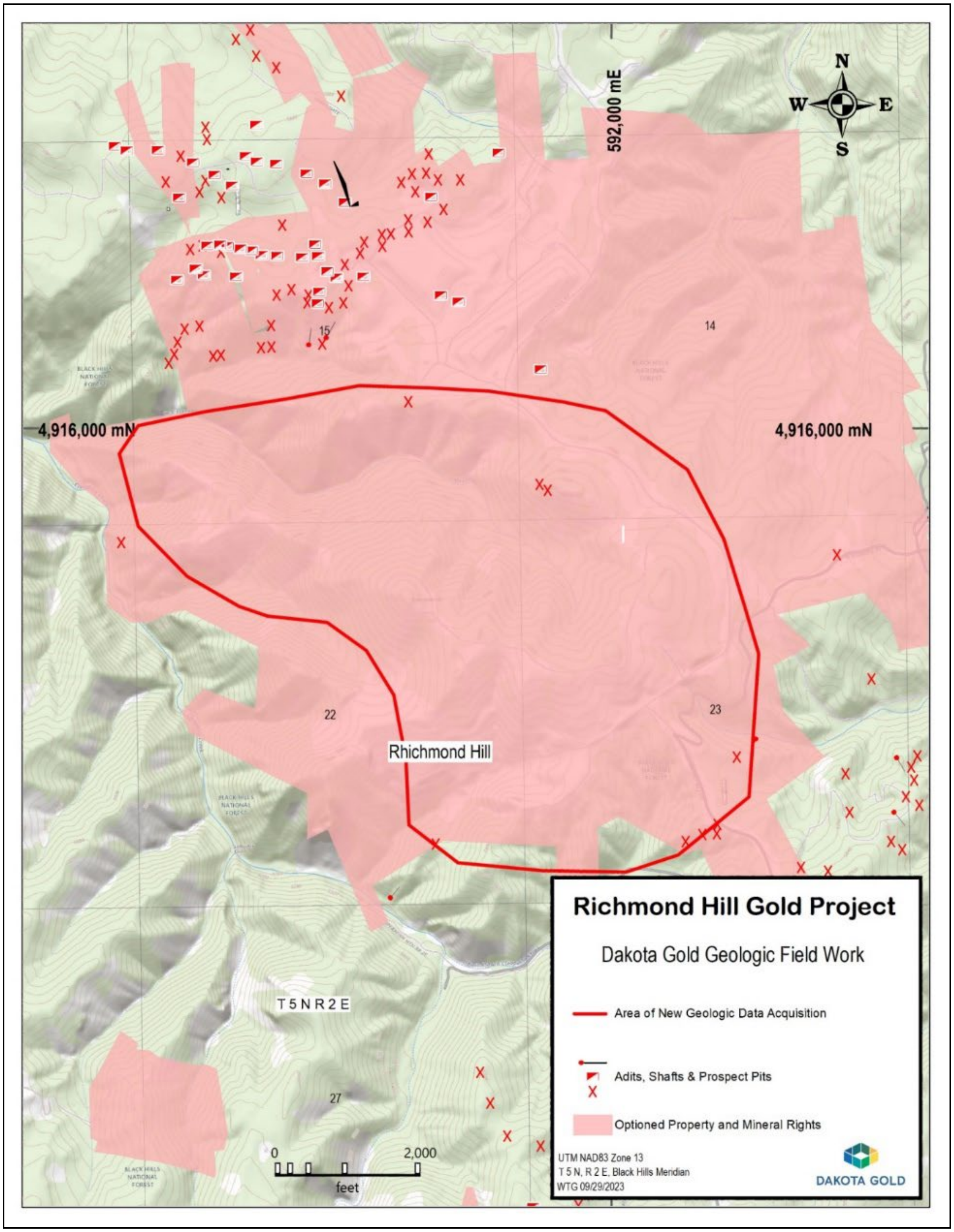


Figure 7-4: Dakota Gold Geologic Fieldwork

7.5 Drilling

7.5.1 Summary

The Project has been drilled by at least 1,113 rotary, RC, and core holes testing multiple prospective areas within the claim boundaries. Only 1,083 of these holes were included into the project database; however, only 1,006 holes are acceptable for geological and resource modeling as discussed in Sections 7.5.2 to 7.5.5.

A total of 1,026 of the 1,083 drill holes are regarded as historical as these were completed before the current drilling programs by Dakota Gold, which completed an additional 57 diamond drill holes from optioning the Property in 2021 to the date of this Report. Historical drilling comprises 325,532 ft of rotary, RC, and core drilling, and Dakota Gold completed 103,657 ft of core drilling. Figure 7-5 shows the distribution of historical and current drill collars.

7.5.2 Freeport (1981–1983)

Freeport completed 30 conventional rotary drill holes. All of these holes were excluded from the final database as the collar locations are not known and contamination between samples was likely.

7.5.3 St. Joe and Bond Gold (1984–1993)

St. Joe, Bond Gold (while independently operated), and Bond Gold (while owned by LAC) completed multiple RC and core-drilling programs on various prospects across the Project area. Separate drill-hole numbering series were used for each prospect area and were sequentially carried on between program operators. There are no core or pulp samples available from these drilling programs. In all, 951 drill holes were completed; however, only 875 drill holes are acceptable for geological and resource modeling as 77 were excluded due to incomplete collar and/or downhole surveys or large discrepancies between data sources. These exclusions are discussed further in Sections 8 and 9.

Drill hole collar locations were surveyed at the time of drilling into the Richmond Hill mine grid, which is a property specific grid. The original surveyed collar and control point coordinates were obtained from scanned paper sheets with tabulated digital and handwritten survey coordinates under Scott Engineering Letterhead, or directly from drill log headers. The Scott Engineering survey tickets are typical of survey instrument printouts from that time period, although no instruments were specified in any of the historical documentation. Documentation comprising drill hole collar coordinate listings from later in the programs indicates that Geodimeter Surveying Software was being used to manage surveying data.

The Richmond Hill mine grid was originally established using a 1’ x 1’ true north grid with the US Locating Monument #41 assigned coordinates of X = 100,000’ and Y = 100,000. Key control points for this grid were relocated by Dakota Gold personnel and Ponderosa Land Surveys, re-surveyed in US State Plane Coordinates System, and a custom projection created for transferring between the Richmond Hill mine, US State Plane, UTM NAD 83, and Homestake mine coordinate systems (Ponderosa 2024).

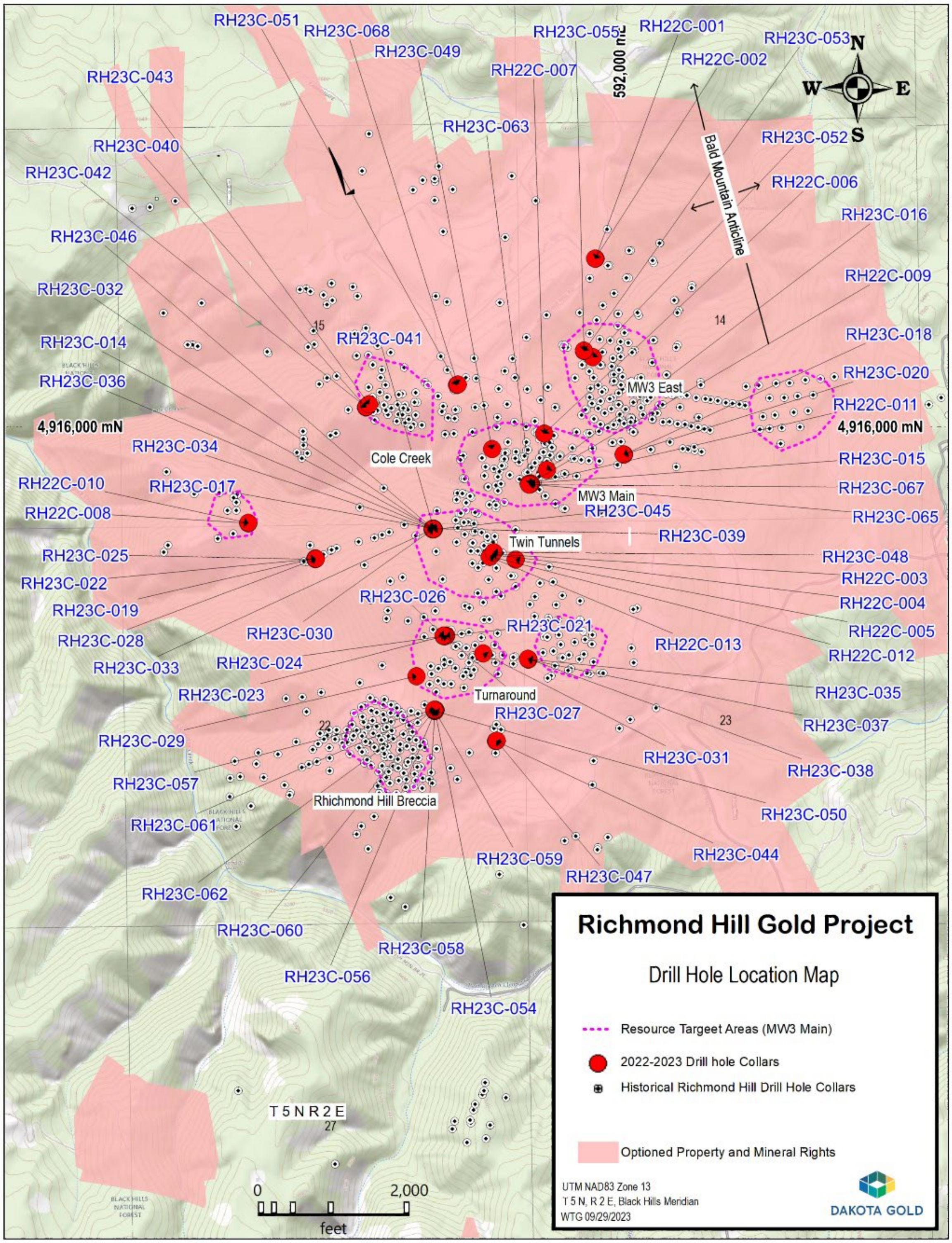


Figure 7-5: Richmond Hill Gold Project Drill Collars

Drill hole dips were obtained directly from drill log headers and apply only to the drill hole collar as most drill holes were relatively short. No instruments were specified for any of the downhole surveys.

Drill logs comprise mostly handwritten sheets with a header section for hole details and a description section for from-to intervals and geological descriptions plus varying amounts of supporting information. A small number of drill logs from later holes comprise spreadsheets. Information from handwritten logs was transferred to standardized digital drill logs containing hole number, collar coordinates, azimuth, dip, dates started and completed, from-to depth intervals, sample numbers, gold values in oz/ton, silver values in ppm and codes for lithology, oxide or sulphide mineralization, and alteration.

7.5.4 Coeur (2019–2020)

Coeur (Wharf Division) completed two drilling campaigns comprising 75 RC holes (R19R-4674 to -4683 and R20R-4684 to -4747 & 4690A). There are no core or pulp samples available from these drilling programs. Only 74 of the Coeur drill holes are acceptable for geological and resource modeling as one hole was excluded due to a missing downhole survey.

Drill hole collar locations were surveyed at the time of drilling into the UTM NAD 83 coordinate system. These were then converted to Richmond Hill mine grid coordinate system by Dakota Gold using the procedures described by Ponderosa Land Surveys (Ponderosa 2024).

Drill hole dips were obtained by surveys completed every 50 ft downhole starting at the collar and also at the end of each hole. A Surface Recording Gyro (SRG) instrument was used for the downhole surveys, but the actual instrument brand name was not specified. All data was exported to a spreadsheet provided by Coeur to Dakota Gold.

Drill logs comprise colored acQuire strip logs based on geological data stored in acQuire database software and exported to spreadsheets comprising hole numbers, collar coordinates, azimuths, dips, dates started and completed, from-to depth intervals, sample numbers, gold and silver values, ABA, alteration, lithology, mineralogy, oxidation, rock type, sulphide, and texture.

7.5.5 Dakota Gold (2022–2023)

7.5.5.1 Summary

J. Berry (2023b) assembled the following drilling summary from Dakota Gold news releases and is presented in whole with minor edits for clarity.

7.5.5.2 2022 Drilling

Dakota Gold began core drilling with one drill rig on March 28, 2022. A second drill was added to the drilling project on November 9, 2022. The two drills have been working since then, except for June 15 to September 30, 2023, when only one drill was in use. Thirteen holes were completed in 2022, totaling

27,954.1 ft. The deepest hole was RH22C-001, which was drilled to 4,509 ft. The average hole depth was 2,150 ft.

The first two holes of the 2022 program tested the stratigraphy of the northern portion of the Project area, looking for Homestake Formation in the core of the Bald Mountain Anticline. Instead, only Ellison Formation was encountered below the Cambrian unconformity, indicating that the plunge of the Bald Mountain Anticline was steeper than expected.

Drill holes RH22C-003 through RH22C-007 were drilled in the Twin Tunnels area to test for high-grade gold mineralization in possible iron formation near the contact with a large greenstone unit. These holes did not encounter any Precambrian iron formation-hosting gold mineralization, but did encounter broad zones of Tertiary alteration in the greenstone and adjacent phyllites.

Drill holes RH22C-008 and RH22C-010 were drilled west of Twin Tunnels to test for replacement-style mineralization in the Paleozoic section and to test a geophysical target. Both holes yielded disappointing results. Drill holes RH22C-009 and RH22C-011 were drilled to test the area north of RH22C-005 at Twin Tunnels and had good results; RH22C-012 and RH22C-013 were drilled to confirm the high-grade mineralization encountered in historical hole TT-86-26. RH22C-013 confirmed the high-grade gold mineralization.

7.5.5.3 2023 Drilling

Forty-nine holes totaling 75,702.9 ft were completed at Richmond Hill from January 2 to October 5, 2023. Hole depths varied from 429.5 to 3,590.1 ft. The average hole depth was 1,514 ft.

Drill holes RH23C-014 and RH23C-017 were drilled at Twin Tunnels. RH23C-015 and RH23C-016 were drilled to test for deeper mineralization below the MW3 Main zone. Both holes encountered gold mineralization in Precambrian phyllite and Tertiary iron formation-hosting breccias and fracture zones.

Drill holes RH23C-019, RH23C-021, RH23C-022, RH23C-023, RH23C-024, RH23C-025, RH23C-026, and RH23C-027 were drilled at the Turnaround breccia pipe. It was determined from these holes that the breccia zone was extensive and went to depth, although not all portions of the breccia were well mineralized.

Drill holes RH23C-028 through RH23C-056 were drilled as dual-purpose holes to confirm historical drilling results and obtain metallurgical test samples. The following holes were drilled at Turnaround: RH23C-028, RH23C-029, RH23C-031, RH23C-035, RH23C-046, and RH23C-047.

Drill holes RH23C-028 and RH23C-046 were drilled at the north end of the Turnaround breccia. Both holes encountered mineralization 800 ft below the surface. Both holes encountered gold mineralization.

Drill holes RH23C-029, RH23C-031, and RH23C-035 were drilled in the central portion of the Turnaround breccia. RH23C-031 and RH23C-035 encountered gold mineralization.

Drill hole RH23C-047 was drilled at the south end of the Turnaround breccia. This hole intersected gold mineralization in the breccia pipe and the adjacent Precambrian phyllite country rock.

Eight confirmation-metallurgical holes were drilled at the Twin Tunnels breccia area: RH23C-030, RH23C-032, RH23C-033, RH23C-034, RH23C-036, RH23C-039, RH23C-041, and RH23C-048. Most of the holes at Twin Tunnels breccia were drilled from the western portion of the breccia pipe over to the eastern side, and fanned from north to south. RH23C-048 was drilled from the southeastern side of the breccia to the west. RH23C-030 was lost during drilling and was offset with RH23C-032.

Four holes were drilled at the Richmond Hill breccia and historical pit area: RH23C-044, RH23C-050, RH23C-054, and RH23C-056.

Drill hole RH23C-044 was 1,030 ft east of the Richmond Hill breccia pipe. It intersected gold mineralization in Deadwood Formation, Tertiary breccia, and Tertiary-altered Flagrock Formation.

Drill holes RH23C-050, RH23C-054, and RH23C-056 were drilled from the east side of the Richmond Hill mine historical pit and angled under the pit to confirm the mineralization that was left below the pit. Elevated gold grades were encountered.

Drill holes RH23C-040, RH23C-042, and RH23C-043 were all drilled at the Cole Creek area, targeting Tertiary gold mineralization within the Deadwood Formation. RH23C-040 also encountered Tertiary epithermal mineralization below the unconformity, hosted within Precambrian greenstone. All of the drill holes encountered gold mineralization.

The following holes were drilled at the MW3 Main prospective area: RH23C-049 and RH23C-051. RH23C-049 intersected gold mineralization. These intercepts were in Tertiary-mineralized Precambrian phyllites and iron formation. RH23C-051 intersected gold mineralization in oxidized, lower Deadwood Formation, in Tertiary trachyte, and also in Tertiary-mineralized Precambrian phyllite.

The following holes were drilled at the MW3 East prospective area: RH23C-052, RH23C-053, and RH23C-055. RH23C-052 intersected gold mineralization in oxidized Deadwood Formation and in Tertiary-mineralized Precambrian phyllite. RH23C-053 intersected gold mineralization in oxidized Deadwood Formation. RH23C-055 intersected gold mineralization in oxidized Deadwood Formation, and in Precambrian-hosted Tertiary breccia.

7.5.5.4 Procedures

Drill holes were lined up to the proposed hole positions using a Reflex TN14 Gyrocompass, which recorded the surface azimuth and dip of the drill hole. Drill hole collar locations were surveyed by a licensed surveyor at the time of drilling into the Homestake mine coordinate system. These coordinates were converted to Richmond Hill mine grid coordinate system by Dakota Gold using the procedures described by Ponderosa Land Surveys (Ponderosa 2024).

Drill hole dips were obtained by surveys completed every 50 ft downhole starting at the collar and also at the end of each hole. North-Seeking Gyro (NSG) instruments comprising Reflex TN14 and Sprint_IQ tools were used. All data was exported to a spreadsheet provided by Dakota Gold.

Drill logs comprise mostly handwritten sheets with a header section for hole details and a description section for from-to intervals and geological descriptions plus varying amounts of supporting information. Information from handwritten logs was transferred to spreadsheets containing hole number, collar coordinates, azimuths, dips, dates started and completed, from-to depth intervals, sample numbers, gold and silver values, lithology, mineralization, geotechnical, geophysics, density, and breccia.

7.5.6 Opinion

The QP responsible for Section 7.5 has reviewed the drilling results and found that they are correctly represented as compared to the drilling results presented on geochemical laboratory certificates. In addition, the following comments can be made regarding drilling results:

- The procedures for the drilling programs followed standard industry procedures available at the time that the work was completed.
- The upper portions of some drill holes have lower recoveries due to oxidation, resulting in softer rock.
- Mineralized prospects are typically not continuous to surface where low recovery exists.
- There is no currently known relationship between recoveries and grades that could materially affect the accuracy and reliability of the results.

7.6 Hydrogeology and Geotechnical

Dakota Gold has not initiated either hydrogeology or advanced geotechnical characterization studies. Homestake is conducting ongoing hydrology and hydrogeology water quality testing related to Richmond Hill mine post-closure operations. The QP responsible for Section 7.6 was not provided with information related to methodologies or results of the sampling, but Dakota Gold would assume liability to continue with post-closure operations should they complete the option. The extent to which these studies affect this Report is covered further in Chapter 17. However, the reader is cautioned that ongoing reclamation of the historical Richmond Hill mine represents a significant liability to the Project unless the mine site is included in new mining operations.

Dakota Gold has acquired no geotechnical data such as rock strength parameters, as the Project is still in the early stages of exploratory drilling. However, Dakota Gold is collecting recovery and rock quality designation (RQD) data as part of the drill-logging process. Drill core is assembled at the drill as it slides out of the core tube before being placed into core boxes. The driller's recovery measurements are double-checked during the core-logging process, along with measuring and calculating the RQD. The QP responsible for Section 7.6 observed core handling at the drills and core-logging facilities and confirmed that Dakota Gold and their drill contractor are following industry standard procedures.

8 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Drilling Programs

Table 8-1 summarizes the historical and current Project drilling programs in four chronological groups by which the sample preparation, analyses, and security procedures described in this chapter are organized.

Table 8-1: Groups of Drilling Programs at Richmond Hill Gold Project

Company	Year	Comment
Viable Resources	Pre 1981	Assembled land package.
Freeport Exploration Company	1981–1983	Joint venture (JV) and lease agreement with Viable Resources Conducted drilling programs. Terminated JV and leases lapsed.
St. Joe	1984	JV with Viable.
		Conducted drilling program on Richmond Hill deposit breccia body.
	1985–1986	Conducted drilling programs on Richmond Hill deposit and property. Discovered significant mineralization at Cole Creek, Twin Tunnels, and Turnaround.
	1987–1988	Richmond Hill and Turnaround deposits permitted for mining.
Bond Gold	1988	Acquired St. Joe gold division.
		Developed Richmond Hill as an open-cut heap leach operation. Conducted drilling with discovery at Cleveland.
LAC Minerals	1989	Acquired Bond Gold and continued work through Bond.
	1990–1991	Conducted drilling programs on multiple prospects with positive results at MW3.
	1993	Final exploration activities at the site.
Barrick Gold	1994	Acquired LAC Minerals.
Coeur Mining Inc.	2019–2020	Optioned property from Barrick Gold and conducted drilling program.
	2021	Terminated property option.
Dakota Territory Resources	2021	Dakota Territory Resources optioned property.
Dakota Gold	2022–2023	Dakota Gold formed from merger of Dakota Territory and JR Resources. Conducted drilling programs for metallurgical testing and validation.

8.2 Procedures for Historical Drilling Programs from 1981 to 1993

8.2.1 Freeport (1981–1983)

Freeport completed 30 conventional rotary drill holes and submitted samples of varying lengths to an unknown laboratory for gold and silver analyses. As there are no supporting laboratory certificates, the

QP has excluded these samples from the final database that has been created by verifying original drill-hole data.

8.2.2 St. Joe and Bond Gold (1984–1993)

8.2.2.1 Drilling Programs

St. Joe, Bond Gold (while independently operated), and Bond Gold (while owned by LAC) completed multiple RC and core-drilling programs on various prospective areas across the Project area. Separate drill-hole numbering series were used for each prospect area and were sequentially carried on between program operators. There are no core or pulp samples available from these drilling programs. In all, 952 drill holes were completed for which information is available. As most of the laboratory certificates are available and were used to check against the existing database that Dakota Gold provided, the QP included 875 of these in the final database for geological and resource modeling.

8.2.2.2 Sampling, Sample Preparation, Analyses, and Security

The first four core holes drilled in 1984 at Richmond Hill were shipped in their entirety to a metallurgical laboratory in Viburnum, Missouri, for testwork. The core was crushed to 0.75 inches, split to obtain representative samples, prepared, then analyzed. Core from later holes was cut lengthwise, one-half was kept for reference at St. Joe's field office, and the other half sampled in 5 ft intervals, and shipped for preparation and analyses.

Dry RC drilling chips were sampled in 5 ft intervals and split on site under supervision of company geologists to create two samples of equal weight. One of these samples was shipped for preparation and analyses, and the other sample stored for reference at the company's field office. When water was encountered, it was used during drilling, which necessitated using a wet splitter to split samples down to a manageable size. Samples were then dried and split into two samples, and one was sent for preparation and analyses.

Most of the samples were shipped to Bondar Clegg laboratory in Lakewood, Colorado, and assayed there or at the Bondar Clegg laboratory in North Vancouver, B.C. The security procedures used for the shipments are not known. Bondar Clegg was independent of St. Joe and Bond Gold, and was acquired by ALS Limited in 2002. It is not known if Bondar Clegg had any accreditations at the time the analytical work was completed between 1984 and 1993. A small number of samples was sent to Nevada GSI laboratory in Sparks, Nevada. The history of this laboratory is not known with regard to independence and accreditations.

Sample preparation procedures followed a standard industry process of taking submitted samples through successive stages of reducing particle sizes and weights to obtain representative subsamples for assaying. Procedures comprised drying, crushing (jaw or rolls), splitting (riffle), pulverizing (spindle, plate, bowl), splitting (scoops), and analyses. No details are available regarding sample preparation procedures used by Bondar Clegg and Nevada GSI.

Gold assays were conducted by Bondar Clegg and Nevada GSI using 1-assay-ton samples; fusing using a standard lead collector fire assay; cupelling of the lead button to obtain a gold–silver bead; removing silver by a mixture of nitric and hydrochloric acids; weighing of the final gold-only bead by a gravimetric balance; and reporting results in ounces per ton, with lower detection limits (LDL) of 0.001, 0.002. or 0.0025. There were no over-limit analyses for gold. Silver analyses conducted by Bondar Clegg and Nevada GSI were determined using 10 g samples, dissolving samples with a mixture of hot nitric and hydrochloric acids, instrument reading using atomic absorption spectroscopy (AAS), and reporting of results in parts per million with LDLs of 0.1 or 0.2 ppm. Samples with results over 30 ppm Ag were reassayed, and results were reported in ounces per ton for Bondar Clegg or parts per million for Nevada GSI. Silver data were not compiled for this Report.

Most of the assay certificates are available and were used to check against the existing database; then the data were included into the final database for geological and resource modeling.

8.2.2.3 Quality Assurance and Quality Control Procedures

Current industry standard QA/QC programs were not part of any of the drilling completed by St. Joe and Bond Gold from 1984 to 1993, which is not unusual for that era of exploration work. Instead, data were validated by comparing the tonnes and gold grade of two areas—Test Areas 1 and 2—that contain multiple drill holes, using the current mineral resource estimate and a separate non-published estimate based only on historical drill holes. Data from Dakota Gold drill holes were removed, then the estimation was redone using the same parameters, and both results were compared (Table 8-2). Details are provided in a separate audit document kept on file with AKF.

The comparison indicates that the addition of the Dakota Gold drill-hole data resulted in a better definition (higher grade, fewer tons) of the distribution of mineralization than was obtained by St. Joe and Bond Gold historical drill data alone; the comparison also indicates that the addition of the Dakota Gold data did not substantially alter the quantity of gold estimated to be present. Therefore, it is inferred that the Dakota Gold, and St. Joe and Bond Gold historical drill-hole data are sufficiently similar that they would produce a similar estimation outcome.

Table 8-2: Comparison of Contained Resources in Test Areas 1 and 2 at Richmond Hill Gold Project

Test Area 1	Cutoff Au oz/ton	Au oz/ton	Tonnes	Ounces
Current Estimate	0.01	.0213	2,179,000	46,000
Historical Estimate	0.01	.0191	2,500,000	48,000
Difference (Current/Historical) %		-12	13	4
Test Area 2	**Cutoff Au oz/ton**	**Au oz/ton**	**Tonnes**	**Ounces**
Current	0.01	.0200	12,151,000	243,000
Historical	0.01	.0189	12,860,000	243,000
Difference (Current/Historical) %		-6	6	0

Three types of check assays were completed: first on 10% of the original samples using the same pulps at Bondar Clegg; second were third splits the company took every 50 ft of drilling in the field and submitted to Bondar Clegg; third were random checks done at Skyline Labs (Skyline), Tucson, Arizona. In addition, the first 20 holes included splits taken by the company and submitted to Bondar Clegg and also to another laboratory, Cone Labs (Cone).

Skyline was independent of St. Joe, Bond Gold, and Lac Minerals. It is not known if Skyline had any accreditations at the time the analytical work was completed; however, it is currently accredited under ISO 17025:2017. Cone's history is not known with regard to independence and accreditations.

Pulp samples submitted to Skyline and Cone for checking gold assays used the following procedure: 1-assay-ton samples; fusing using a standard lead collector fire assay; cupelling of the lead button to obtain a gold–silver bead; removing silver by a mixture of nitric and hydrochloric acids; instrument reading using an AAS; and reporting of results in parts per million.

Overall, the check assaying procedures and data confirmed Bondar Clegg's original assays. Comparison of assay results for each type of checking showed high correlation coefficients and a minimal percentage-change of the mean for the checks within Bondar Clegg. Differences were slightly higher when Skyline and Cone were used, which was attributed to differences between labs. Plots by company geologists to check assay variability with grade also showed no significant changes.

8.3 Procedures for Drilling Programs from 2019 to 2020

8.3.1.1 Drilling Programs

Coeur (Wharf Division) completed two drilling campaigns comprising 75 RC holes (R19R-4674 to 4683 and R20R-4684 to -4747), which the QP included in the final database for geological and resource modeling. There are no core or pulp samples available from these drilling programs.

8.3.1.2 Sampling, Sample Preparation, Analyses, and Security

RC drilling chips were sampled in 10 ft intervals, and a total of 2,721 samples were collected. Samples were initially shipped to Bureau Veritas Metals and Minerals in Vancouver; later the shipping was switched to Sparks, Nevada. The security procedures used for the shipments is not known. Bureau Veritas is independent of Dakota Gold and is accredited under ISO/IEC 17025:2017.

Sample preparation procedures followed a standard industry process of taking submitted samples through successive stages of reducing particle sizes and weights to obtain representative subsamples for assaying. Procedures comprised drying if required, crushing to 70% passing (P_{70}) 2 mm (jaw), splitting of 1 kg (riffle), pulverizing to P_{85} 200 mesh (bowl), splitting 30 g (scoops), and analysis.

Gold assays (code FA430) were conducted using 30 g samples; fusing using a standard lead collector fire assay; cupelling of the lead button to obtain a gold-silver bead; removing silver by a mixture of nitric and hydrochloric acids; instrument reading using an AAS; and reporting results in ounces per ton with an LDL of 0.0001. There were no over-limit analyses for gold.

Silver analyses (code AQ300) were determined as part of a multielement suite using 0.5 g samples; dissolving samples with a mixture of hot nitric and hydrochloric acids; instrument reading using an inductively couple plasma–emission spectroscopy (ICP–ES); and reporting results in ounces per ton with an LDL of 0.009. Samples with results over 30 ppm Ag were re-assayed, and results were reported in ounces per ton. Silver data were not compiled for this Report.

Gold and silver analyses (code CN401) were also conducted by cyanide leach using 15 g samples; dissolving samples with 30 ml of reagent; instrument reading using an AAS; and reporting results in ounces per ton with an LDL of 0.001. Gold and silver cyanide leach data were not compiled for this Report.

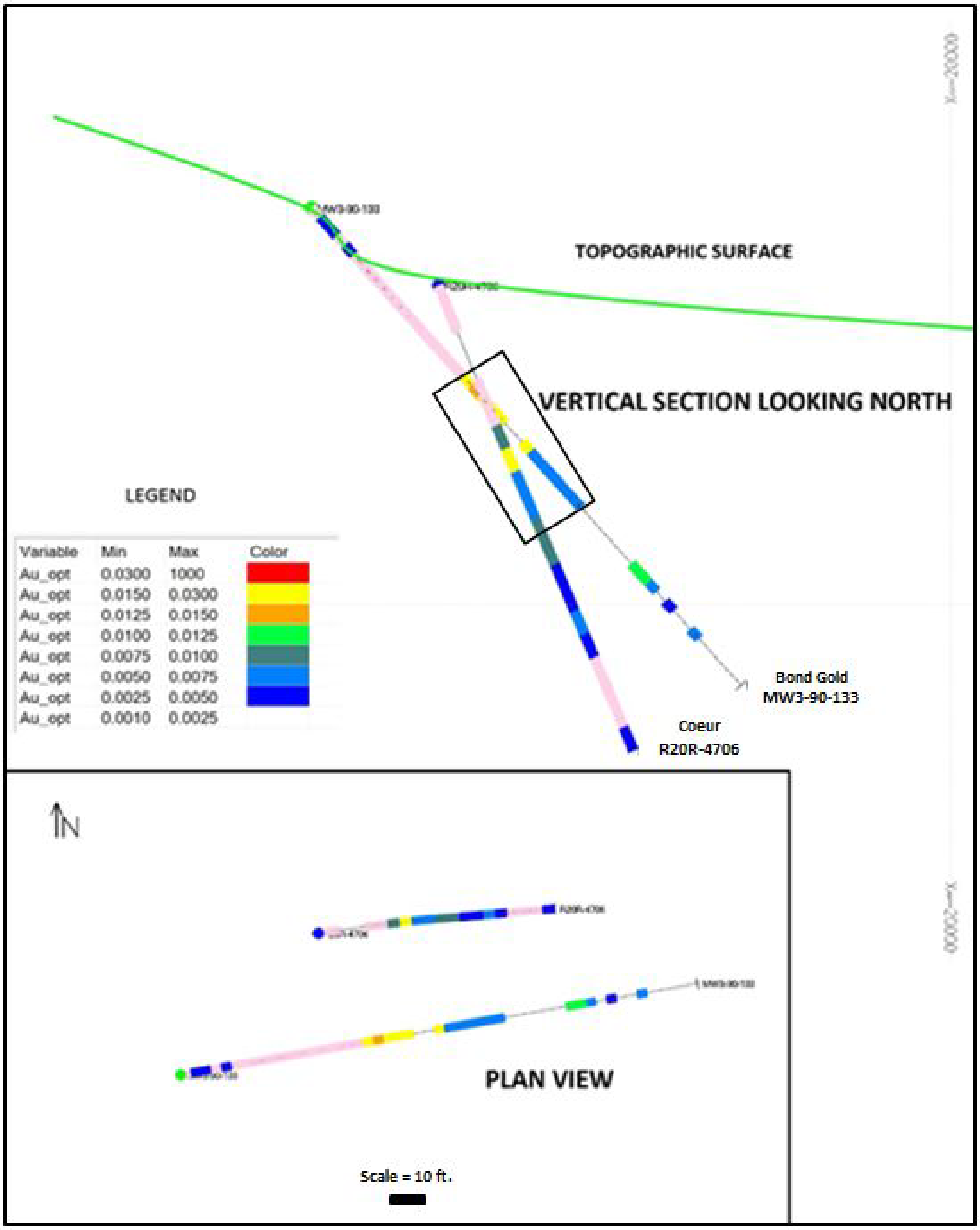
8.3.1.3 Quality Assurance and Quality Control Procedures

Current industry standard QA/QC programs were not part of the drilling completed by Coeur from 2019 to 2020. Instead, data were validated by comparing the distribution of gold grades from one Coeur drill hole to an adjacent Bond Gold drill hole (Table 8-3 and Figure 8-1). Details are provided in a separate audit document kept on file with AKF.

The comparison indicates that the downhole gold grade distribution and overall gold grade is similar for both holes where they intersected a 70 ft zone of mineralization roughly 35 ft between holes. It is inferred that the Coeur and Bond Gold drill-hole data are sufficiently similar that they would be expected to produce a similar estimation outcome.

Table 8-3: Comparison of Gold Grade Distribution between Coeur R20R-4706 and Bond MW3-90-133

Richmond Hill Gold Project Comparison of Gold Distribution from Adjacent Drill Holes					
Coeur = R20R-4706			Bond Gold = MW3-90-133		
From	To	Au oz/ton	Au oz/ton	From	To
60		0.0104	0.0250	90	95
	70		0.0150	95	100
70		0.0155	0.0180	100	105
	80		0.0180	105	110
80		0.0084	0.0240	110	115
	90		NS=0.0000	115	120
90		0.0048	NS=0.0000	120	125
	100		0.0190	125	130
100		0.0100	0.0080	130	135
	110		0.0060	135	140
110		0.0085	0.0050	140	145
	120		0.0050	145	150
120		0.0041	0.0080	150	155
	130		0.0050	155	160
Total Ft. =	70	0.0088	0.1100	70	= Total Ft.



Source: AKF (2024).

Figure 8-1: Comparison of Gold Grade Distribution Between Coeur R20R-4706 and Bond MW3-90-133

Approximately 10% of samples were sent for checking to McClelland Laboratories, Inc., in Reno, Nevada. McClelland is independent of Coeur and is accredited under ISO/IEC 17025:2017. Pulp samples submitted to McClelland for checking gold assays used the following procedure: 1-assay-ton samples; fusing using a standard lead collector fire assay; cupelling of the lead button to obtain a gold–silver bead; removing silver by a mixture of nitric and hydrochloric acids; instrument reading using an AAS; and reporting results in ounces per ton with an LDL of 0.001. There were no over-limit analyses for gold.

Overall, the check assaying procedures and data from McClelland confirmed Bureau Veritas' original assays. Bureau Veritas assays tend to be biased slightly higher, which is partly due to results being reported to four decimal places, whereas McClelland reported only to three decimal places and the data appear to be rounded down.

8.4 Procedures for Drilling Programs from 2022 to 2023

8.4.1.1 Drilling Programs

Dakota Gold completed two drilling campaigns comprising 57 core holes (RH22C-0001 to -0013 and RH23C-014 to -058, excluding -057).

8.4.1.2 Sampling, Sample Preparation, Analyses, and Security

Core was cut in half lengthwise along one side of the logging orientation line, and halves were stacked vertically for adequate drainage prior to sampling. Sample lengths varied based on geological criteria and averaged roughly 5 ft. One-half of the core from each sample interval was kept for reference, and the other half was placed in a smaller prenumbered polyweave sample bag. Multiple smaller bags were placed together in larger polyweave sample bags that were sealed using numbered ziplock tags, and the larger polyweave bags were placed into numbered shipping bins. Each bin was accompanied by a sample shipment form and sent for preparation and analyses. A total of 18,832 samples was collected and initially a secure company truck shipped samples to ALS in Twin Falls, Idaho; later tracked shipments used FedEx secure transportation to ALS in Winnipeg, Manitoba.

ALS is independent of Dakota, and accredited under ISO/IEC 17025:2017 for selected analytical techniques. Sample preparation procedures followed a standard industry process of taking submitted samples through successive stages of reducing particle sizes and weights to obtain representative subsamples for assaying. Procedures comprised drying, crushing to P_{70} −2 mm (jaw), splitting of 250 g (riffle), pulverizing to P_{85} −75 µm (bowl), splitting (scoops), and analyses.

Gold assays (code Au-AA23) were conducted using 30 g samples; fusing using a standard lead collector fire assay; cupelling of the lead button to obtain a gold-silver bead; removing silver by a mixture of nitric and hydrochloric acids; instrument reading using an AAS; and reporting results in parts per million with an LDL of 0.005. There were no over-limit analyses for gold.

Silver analyses (code ME-MS61) were determined as part of a multielement suite using 0.5 g samples; dissolving samples with mixture of hot nitric and hydrochloric acids; instrument reading using an inductively coupled plasma-emission spectroscopy (ICP-ES), and reporting results in ounces per ton with an LDL of 0.009. The method is considered geochemical and not an assaying method. Samples with results greater than 100 ppm were reanalyzed, and results were reported in parts per million with an LDL of 1 ppm (Ag-OG62). Silver data were not compiled for this Report.

Gold analyses (code Au-AA13) were also conducted by cyanide leach using 30 g samples; dissolving samples with 30 ml of reagent; instrument reading using an AAS; and reporting results in parts per million with an LDL of 0.03. Gold and silver cyanide leach data were not compiled for this Report.

8.4.1.3 Quality Assurance and Quality Control Procedures

Insertion

Dakota inserted certified reference materials (CRM), blanks (BLK), and duplicates (DUP) into the batches of samples to be submitted for analyses using the following procedures.

1. CRMs were purchased commercially in bulk from Klen International Pty Ltd, and from Rocklabs (a division of Scott Automation). Nineteen separate CRMs were used, with grades ranging from 0.453 to 8.917 ppm, and those up to 2.715 ppm were most commonly used. CRMs were chosen based on the character of mineralization (oxide or sulfide) and lithology. Approximately 200 g were manually transferred to tin-top-sealed kraft bags, then placed in plastic ziplock bags for protection.
2. BLKs comprised locally obtained coarsely crushed marble at a nominal value of 0.005 ppm Au. Approximately 1 to 2 kg was manually transferred to polyweave sample bags similar to those used for routine core samples.
3. DUPs comprised field material, crushed material, and pulverized material. Sample duplicates (SDP) were obtained from quarter-core splits of the parent core sample; crushed duplicates (CDP) from a 50% split of the crushed parent sample; and pulp duplicates (PDP) from a 50% split of the pulverized parent sample.
4. CRMs and BLKs were inserted after roughly every 11th routine sample, alternating between the two, although this sometimes varied depending on mineralization. A sequence of DUPs comprising one SDP, one CDP, and one PDP, was inserted after roughly every 36th routine sample.
5. The same consecutive numbering sequence was used for the core and quality control (QC) samples. CRMs and BLKs were inserted at an overall rate of approximately 5% for each sample type; SDPs, CDPs, and PDPs were inserted at roughly 3% for each sample type.
6. In all, 1,078 CRMs, 957 BLKs, 58 SDPs, 58 CDPs, and 59 PDPs were inserted; and analyses were returned for 1,072 CRMs, 950 BLKs, 52 SDPs, 52 CDPs, and 55 PDPs, which were used for QC monitoring.

Certified Reference Materials Performance

Dakota Gold initially used a CRM tolerance limit of 10% of the certificate mean value to assess laboratory performance, which was revised to 8% in about mid 2023. There was no monitoring of CRM performance using charts with tolerance limits.

The QP responsible for Chapters 8 and 9 of this Report was provided with the raw analytical data, which required a significant number of CRM code corrections before data could be assessed. Gold assays were then plotted on control charts using mean, ±3 standard deviations (SD) tolerance limits, and ±10% tolerance limits based on certificates from multi-laboratory consensus programs that provided mean and SD statistics (Figure 8-2 to Figure 8-4).

In all, 11 CRMs representing 0.6% of the total of 1,047 CRMs used were outside of the ±10% tolerance limits. The 11 CRMs were further assessed for their possible impact on surrounding grades. One of the 11 CRMs was re-assayed and passed; four are surrounded by routine samples that are barren; and six are surrounded by routine samples that have low values that are not significant. Therefore, the impacts of the failures are not considered material to the overall analytical program.

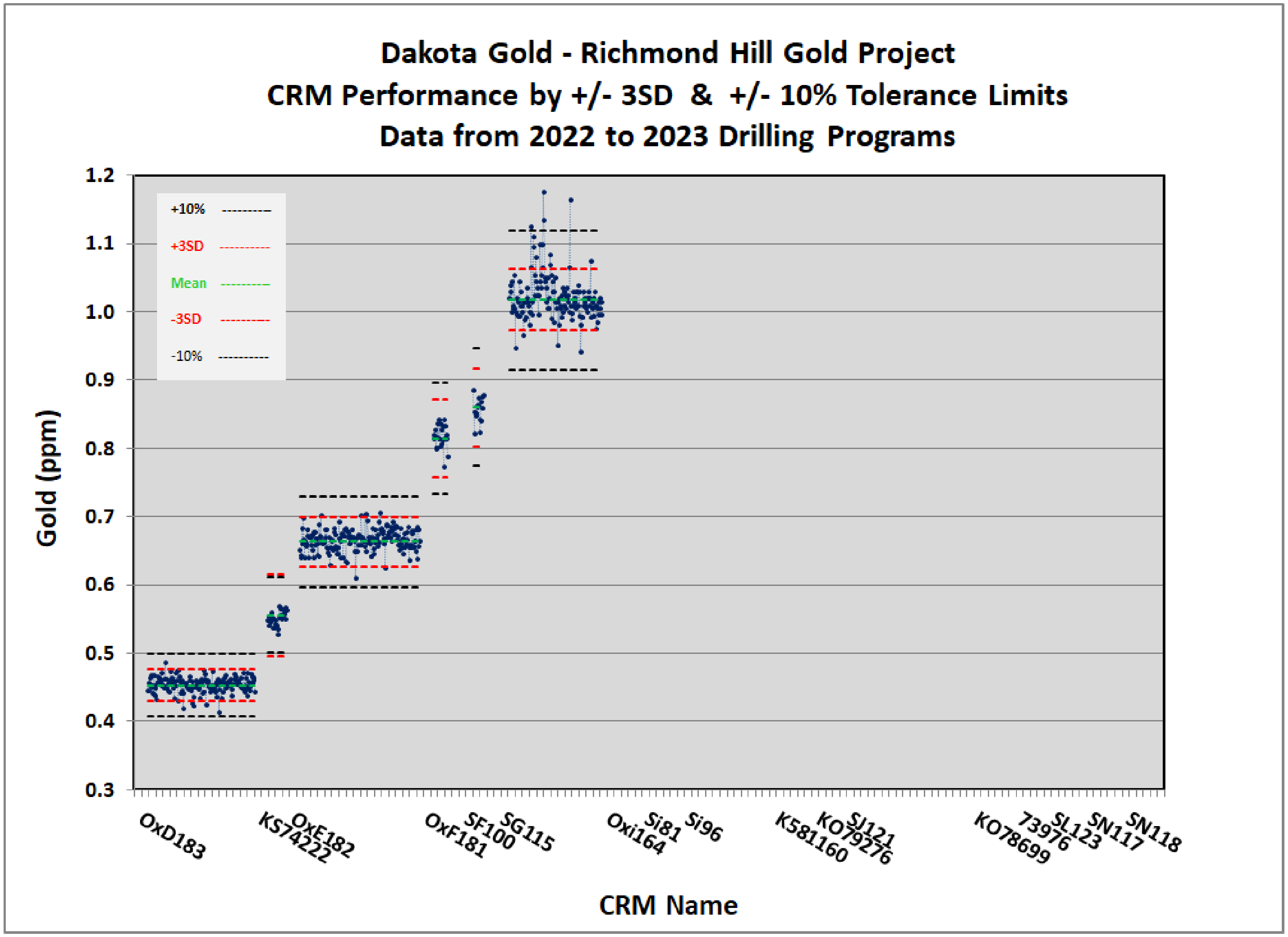


Figure 8-2*:* **Quality Control Monitoring of CRM Gold Assays from ALS in the 0.3 to 1.2 ppm Grade Range (February 2024)**

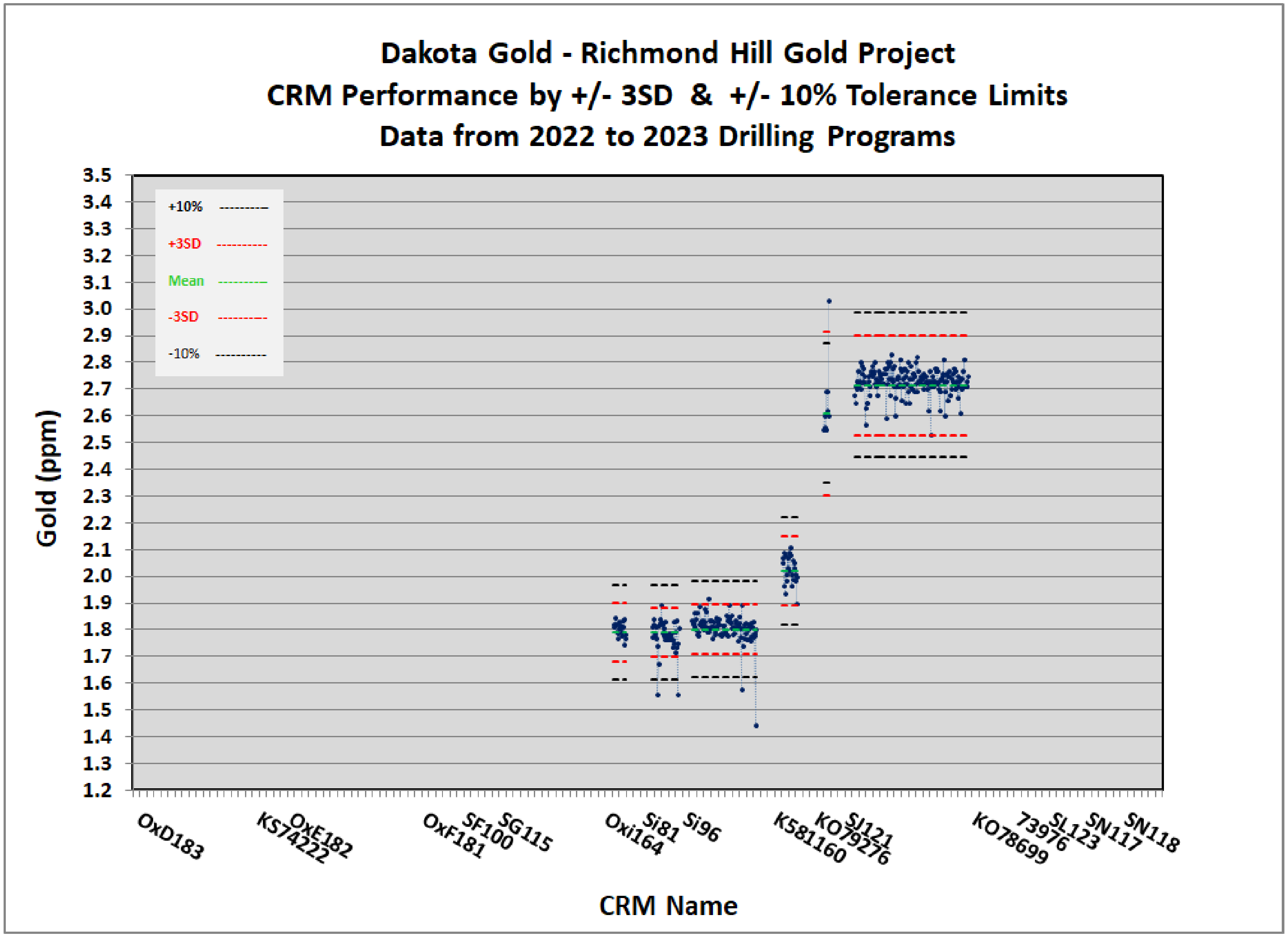


Figure 8-3: Quality Control Monitoring of CRM Gold Assays from ALS in the 1.2 to 3.5 ppm Grade Range (February 2024)

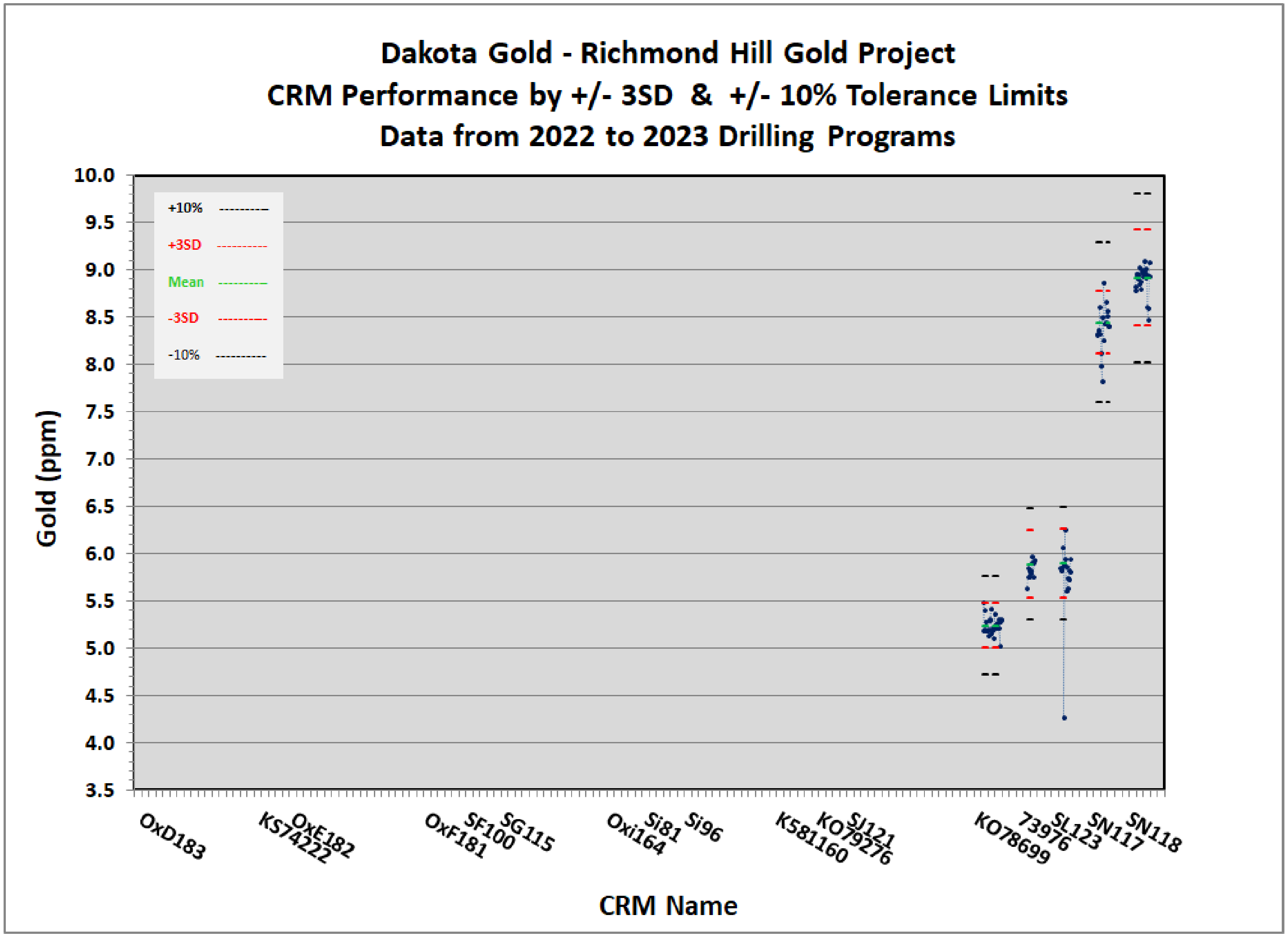


Figure 8-4: Quality Control Monitoring of CRM Gold Assays from ALS in the 3.5 to 10.0 ppm Grade Range (February 2024)

Blanks Performance

The QP reviewed in detail seven BLKs that returned values at or above 0.02 ppm. One of the samples returned a value of 1.31 ppm, and based on the submitted weights and reported values was deemed to have been switched with the subsequent sample at the laboratory. The remaining six samples ranged from 0.020 to 0.031 ppm and follow samples that are elevated in gold, which indicates a small amount of carryover during sample preparation. The number of samples and gold values are not considered material to the overall analytical program.

Check Assays

Check assays had not been completed at the Report date, but are in progress.

8.5 Opinion

The QP is of the opinion that the procedures for sampling, sample shipping, sample preparation, and for analyzing gold and silver for the 1984 to 2020 drilling programs followed acceptable standard analytical laboratory procedures available at the time the work was completed. Although current industry standard QA/QC monitoring programs were not part of these drilling programs, the historical drilling data are acceptable for geological and resource modeling based on two data validation comparisons. The first comparison showed that St. Joe and Bond Gold historical drilling data are sufficiently similar to current Dakota Gold drilling data to produce a similar estimation outcome. The second comparison showed that historical Coeur historical data, and St. Joe and Bond Gold historical data are sufficiently similar that they would be expected to produce a similar estimation outcome.

The QP is of the opinion that for the 2022 to 2023 drilling programs, the procedures used for sampling, sample shipping, sample security, sample preparation, analyzing gold and silver, and QA/QC monitoring are appropriate for obtaining reliable data that is acceptable for geological and resource modeling.

9 DATA VERIFICATION

9.1 Site Visit

The QP responsible for Chapters 8 and 9 of this Report visited the Project for three days in early October 2023, and reviewed the following items for the purpose of data verification:

- Historical drilling and mining areas
- Current drilling areas
- Sites of drill holes in progress
- Core from current drilling
- Core-logging facilities
- Secure archives of historical hard-copy data files at Unit 20 of Lead's Armory storage building:
  - Original handwritten drill logs
  - Printouts of digital drill logs
  - Original collar survey data sheets
  - Original assay certificates
  - Drill-hole location maps
  - Drill-hole cross-sections.

9.2 Data Management

9.2.1 Data Sources

The following data items was provided to the QP responsible for Chapters 8 and 9 of this Report:

- Four CSV files comprising historical collar, survey, assay, and lithology data
- Microsoft Access database of historical collar, survey, assay, and lithology data
- Scanned versions of historical hard-copy data files
- Digital drill logs of some historical data.

Zimmer (2022) compiled and documented the collar, survey, assay, and lithology data in a report titled *Summary of Work Completed on the Richmond Hill Project*, dated April 29, 2022.

9.2.2 Data Verification

All available drill-hole information were entered by five data-entry personnel into four types of spreadsheets—collars, surveys, assays, and lithologies—with each type further divided into five sections containing columns of drill-hole data:

- Collar surveys—all holes on one sheet:
  - Source—risk factor
  - Original—date, hole ID, northing, easting, elevation, depth
  - Database—hole ID, northing-elevation, depth
  - Differences—hole ID, easting-elevation, depth
  - Paper check notes.
- Downhole surveys—all holes on one sheet:
  - Source—risk factor
  - Original—date, hole ID, depth, azimuth, angle
  - Database—hole ID, depth, azimuth, angle
  - Differences—hole ID, depth, azimuth, angle
  - Paper check notes.
- Assays—each drill-hole series on one sheet:
  - Sources—risk factors for Au oz/ton, Ag oz/ton, Ag ppm
  - Original—date, hole ID, sample, from, to, Au oz/ton, Ag oz/ton, Ag ppm
  - Database—hole ID, sample, from, to, Au oz/ton, Ag oz/ton, Ag ppm
  - Differences—hole ID, sample, from, to, Au oz/ton, Ag oz/ton, Ag ppm
  - Paper check notes.
- Lithologies—each drill-hole series on one sheet:
  - Source—risk factor
  - Original—date, hole ID, sample, from, to, geology (geo), alteration (alt), mineralization (min)
  - Database—hole ID, sample, from, to, geo, alt, min
  - Differences—hole ID, sample, from, to, geo, alt, min
  - Paper check notes.

Project information is available for 1,083 completed drill holes that were included in the final database; however, only 1,005 of these were acceptable for geological and resource modeling. Drill holes were excluded if they lacked complete collar surveys or downhole surveys, or had large discrepancies between the historical database and original data sources.

The "Source" section for each spreadsheet contains the origin of the data used for entry, each of which and was assigned a risk factor using the following criteria for each type of data:

- Collar surveys comprising 1,006 records:
  - R0 = 42% of collar coordinates have original survey data sheets
  - R1 = 48% of collar coordinates on digital drill logs printouts and present in database
  - R2 = 5% of collar coordinates on digital drill log printouts, but not present in database
  - R3 = 4% of collar coordinates present in database, but not on drill logs
  - R4 = 60 drill holes excluded due to incomplete collar surveys or downhole surveys
  - R5 = 18 drill holes excluded due to large discrepancies between data sources.

- Downhole surveys comprising 5,194 records:
  - R0 = 87% of surveys on original digital drill logs and present in database
  - R1 = 11% of surveys on scanned drill logs and present in database
  - R2 = 1% of surveys on scanned drill logs, but not present in database
  - R3 = 1% of surveys present in database, but not on drill logs
  - R4 = 59 drill holes excluded due to incomplete collar surveys or downhole surveys
  - R5 = 18 drill holes excluded due to large discrepancies between data sources.

- Assays:
  - R0 = Assays on original laboratory data certificates
  - R1 = Assays on scanned drill logs and present in database
  - R2 = Assays on scanned drill logs, but not present in database
  - R3 = Assays present in database, but not on drill logs
  - R4 = Assays excluded as missing from certificates and scanned drill logs.

- Lithologies:
  - R0 = Lithologies on original drill logs
  - R1 = Lithologies on printouts of digital drill logs and present in database
  - R2 = Lithologies on printouts of digital drill logs, but not present in database
  - R3 = Lithologies present in database, but not on drill logs
  - R4 = Lithologies excluded as missing on drill logs.

The "Original" section of each spreadsheet contained the newly entered data; the "Database" section of each spreadsheet contained the data provided by Dakota Gold; and the "Differences" section of each spreadsheet contained the results of "True/False" or "Calculated" tests between the Original and Database columns of data. All sheets were programmed with conditional formatting to highlight differences where "False" or "Non-zero Calculated" values were returned.

Measurement differences between the Original and Database sections were classified into categories, investigated based on impact, and revised where required, as follows:

- Insignificant—no actions required:
  - Different conventions for below-detection values.
- Minor—no actions required:
  - Different number of decimal places
  - Simplified geological letter codes.
- Major—further checks required:
  - Shift of several units of measurement.
- Significant—further checks required as unrealistic values:
  - Data appear unrelated.

Final data sheets were compiled into collar, survey, assay, and lithology files, and included into the final database for geological and resource modeling.

9.3 Opinion

The QP is of the opinion that the final database is of sufficient quality for geological and resource modeling based on the following criteria:

- The drill-hole collars and traces are reasonably accurately located for 3D plotting.
- The assay and data are acceptable based on procedures described in Chapter 8.
- The assay and geological data are properly assigned to locations along drill holes.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

The testwork data were used to conceptualize a preliminary process flowsheet that could produce gold and silver doré, and to evaluate the metallurgical performance of the mineralization. The processing and metallurgical data are adequate for the purposes used in this *S-K 1300 Initial Assessment and Technical Report Summary.* This chapter presents a general summary of historical metallurgical testwork results (1987–1991) and more-detailed summaries of 2023 testwork.

10.1 Historical Metallurgical Reports

Between 1987 (St. Joe 1987) and 1991 five historical metallurgical test programs were completed on the sulfide material from the Richmond Hill gold deposit, including mineralogy, gravity, roasting, bioleach, flotation, and leaching. Dawson Metallurgical Laboratories (1988) in Murray, Utah, reported similar results for the sulfide material as those for the 2023 testwork undertaken by Base Metallurgical Laboratories (BaseMet) in Kamloops, B.C. The historical test programs are listed in Table 10-1.

Table 10-1: Historical Metallurgical Reports

Test Program	Year	Sample ID
Process Mineralogy and CN Leach Tests of Sulfide Ore Samples from Richmond Hill Project, No. 5H06	1987	RH 85-54, 83, 102, 108
Dawson Metallurgical Laboratories, Inc., *Cyanide Leaching with Intensive Pre-aeration on a Sample from the Richmond Hill Project*, No. P-1395	1988	Not available
Dawson Metallurgical Laboratories, Inc., *Results of Preliminary Cyanide Leach Test on 8 Samples from South Dakota*, No. P-1590	1988	CV4-1A to 4A, CV5-1A to 4A
Extractive Technologies Metallurgical Laboratories, *Agitation Cyanidation Testwork*, No. 0161	1989	CV-88-6, 8, 23
LAC Minerals-Richmond Hill Inc., *Report on Samples Submitted by Tod Duex for Bottle Roll Analysis*	1991	BR-1H1, BR-1H2, BRB-W1, BR-SR1, BR-DB1, BR-BD2, BR-SC1, BR-SC2, BR-B1, BR-W2, BR-SR2, BR-SR3, BR-B2

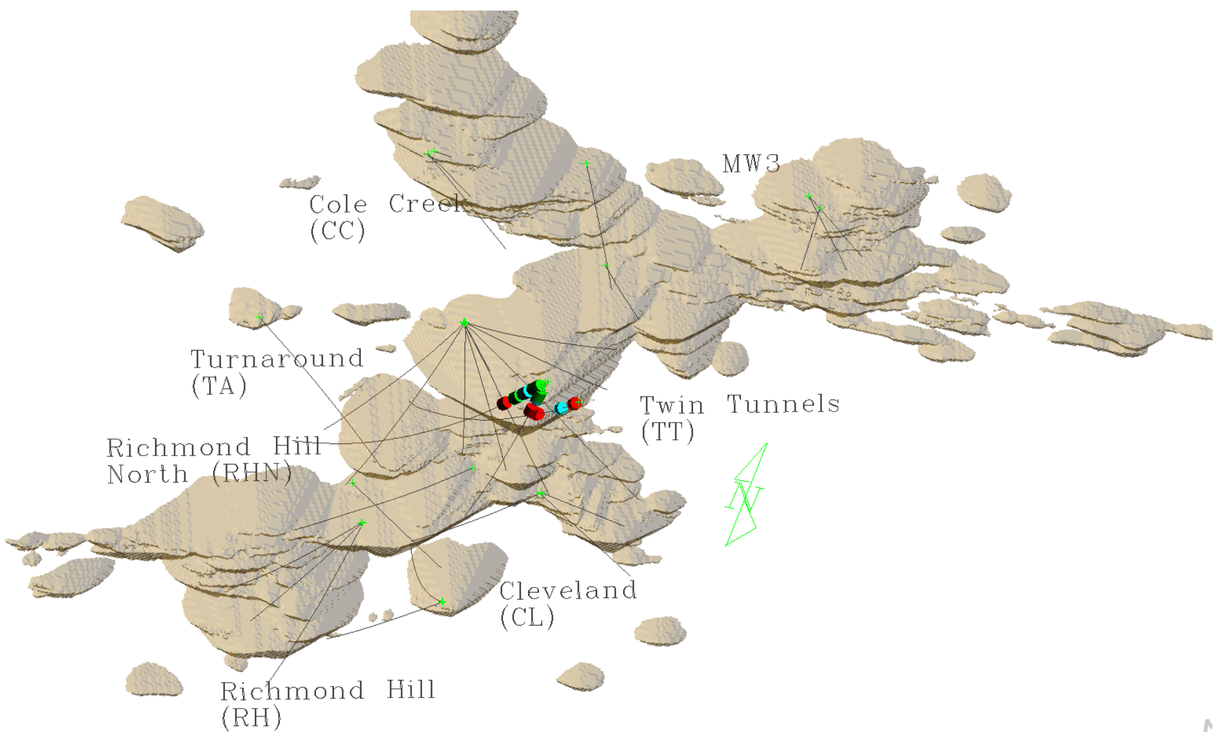
Historical mineralogy indicated that the tested sulfide material contained fine gold locked in coarse gangue, and large amounts of gold associated with fine- to medium-sized iron sulfides locked in gangue minerals. Historical gravity concentration testwork achieved 7% Au to 23% Au recovery and was not investigated further. Whole-ore-leach (WOL) results were low, with gold extraction averaging 46% Au. Roasting, bioleach, and POX of the flotation concentrate followed by cyanide leach increased gold extraction. Roasting and bioleach recovered between 74% and 80% of the gold. The result of including an autoclave prior to leaching was gold extraction of approximately 93% Au and silver extraction of 74% Ag. Cyanide consumption was found to be low at 1.5 kg/t, but lime consumption was relatively high at 7 kg/t.

10.2 Metallurgical Report—BL1244

In August 2023 BaseMet completed test program BL1244 on Richmond Hill zone drill-core material, a preliminary metallurgical investigation of extracting gold and silver from three mineralogical classifications: oxide, mixed, and sulfide.

10.2.1 Sample Selection

Drill core from three drill holes was provided for metallurgical testwork at BaseMet—RH22C-003, RH22C-004, and RH22C-005. Continuous intervals of drill core were used to create three master composites (MC). The three MCs represent oxide, mixed, and sulfide layers found in the deposit. Figure 10-1 shows the location of the mineralization and drill holes.



Note: Not to scale.

Figure 10-1: Drill-Hole Locations

10.2.2 Head Assays

The MC head assays are listed in Table 10-2. The gold head assays range from 0.65 to 0.82 g/t with sulfur ranging from 1.64% for RH22 Ox to 6.21% for RH22 Sul.

Table 10-2: Master Composite Head Assays

Sample	Assays						
	Cu (%)	Fe (%)	Ag (g/t)	Au (g/t)	S (%)	C (%)	TOC (%)
RH22 Sul	0.013	7.18	5.0	0.65	6.21	0.25	0.07
RH22 Mix	0.014	7.85	2.8	0.82	5.16	0.50	0.09
RH22 Ox	0.014	8.32	1.4	0.74	1.64	<0.01	<0.01
Method	FAAS	FAAS	ICP	FAAS	LECO	LECO	LECO

Notes: FAAS = Flame Atomic Absorption Spectroscopy; ICP = Inductively coupled plasma; LECO = Infrared Combustion; TOC = Total Organic Carbon.

10.2.3 Mineralogy

The sample mineral contents were measured using a quantitative evaluation of minerals by scanning electron microscopy bulk mineral analysis (BMA) method on unsized fractions. The analysis provides quantitative mineral content but does not determine gold and silver distribution. Due to the low abundance of gold and silver, more detailed and complex mineral analyses would be required to directly measure gold and silver mineral distribution.

The main minerals measured were quartz, feldspars, and micas, but it is worth noting that there were more clay minerals and iron oxides in the oxide MC. The sulfide MC content was mainly associated with pyrite, with minor amounts of sphalerite, chalcopyrite, and arsenopyrite. The oxide and mixed MC contained pyrite, barite, and alunite. Mineral abundances can be found in Table 10-3, and sulfide mineral content in Figure 10-2.

Table 10-3: Mineral Content

Mineral	Abundance (weight %)		
	RH22 Ox	RH22 Mixed	RH22 Sul
Pyrite	0.97	8.20	11.9
Sphalerite	0.00	0.01	0.04
Arsenopyrite	0.00	0.00	0.00
Chalcopyrite	0.00	0.02	0.00
Other Sulfides	0.00	0.01	0.00
Quartz	16.4	26.4	14.4
Plagioclase	1.64	1.51	1.35
K-Feldspar	24.5	30.2	50.0
Biotite	0.99	1.87	1.42
Muscovite/Illite	18.4	10.3	10.2
Chlorite	4.64	1.93	0.85
Clays	15.4	3.20	5.37
Other Silicates	3.29	2.30	1.03

Mineral	Abundance (weight %)		
	RH22 Ox	RH22 Mixed	RH22 Sul
Fe Oxides	6.74	3.67	1.17
Other Oxides	1.71	2.37	1.63
Calcite	0.08	0.67	0.03
Other Carbonates	0.02	0.05	0.02
Barite	4.03	5.61	0.39
Other	1.15	1.77	0.25
Total	**100**	**100**	**100**

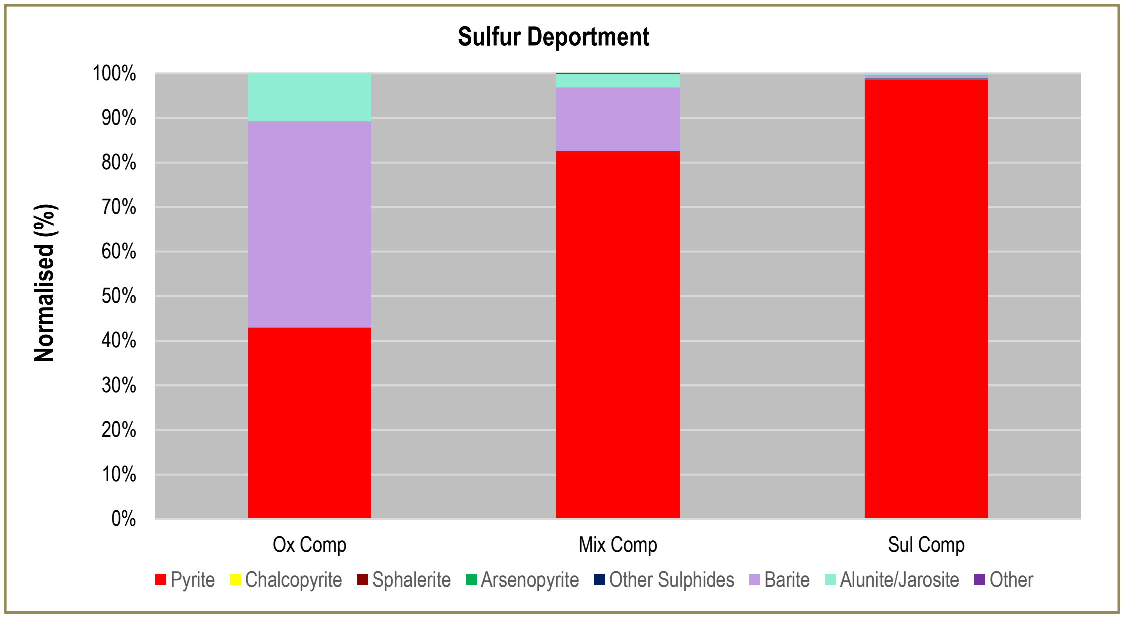


Figure 10-2: Sulfur Mineral Content—BaseMet 2023, BL1244

10.2.4 Comminution

BaseMet completed preliminary comminution testwork on the MCs. The Bond ball mill work index (BWi) results indicate that the tested oxide material would be classified as soft, and the mixed and sulfide material as moderately hard to hard. The harder the material the more power required to meet the target grind size. The tests were completed at a closing screen of 106 µm. The results are listed in Table 10-4.

Table 10-4: Bond Ball Mill Work Index

Sample	BWi (kWh/t)	Grind Size (P_{80} µm)
RH22 OX	11.0	68
RH22 MIX	20.7	76
RH22 SUL	18.6	78

10.2.5 Gravity-Recoverable Gold

Gravity-recoverable gold testwork was undertaken on the three MCs. All three samples had relatively low gravity-recoverable gold. The nominal grind sizes used for this testwork were 80% passing (P_{80}) 1,700 µm, P_{80} 212 µm, and P_{80} 75 µm. The oxide MC has the most gravity-recoverable gold, at 33%, and the sulfide MC had the least at 8.7%. No further gravity concentration was investigated.

10.2.6 Flotation Leach Results

10.2.6.1 Rougher Flotation

Rougher flotation tests were completed at P_{80} approximately 75 µm, at a natural pH between 5.6 and 7.0, using potassium amyl xanthate (PAX) as a collector, with methyl isobutyl carbinol added to maintain a consistent froth. The tests were completed at a relatively low PAX dosage (80 g/t) and a higher PAX dosage (200 g/t). The higher-dosage tests were performed at a lower density in the range of 25% to 27% due to increased viscosity observed during the initial flotation tests. The flowsheet is illustrated in Figure 10-3.

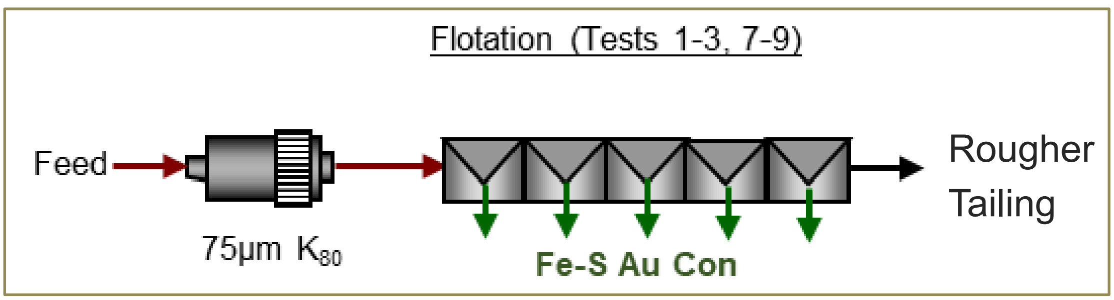


Figure 10-3: Rougher Flotation Flowsheet—BaseMet 2023, BL1244

The gold recovery to the rougher concentrate under these conditions ranged from 62% to 69% for all three MCs. The sulfide MC had the best results, with a gold recovery of 69% in the flotation concentrate. The lower density for the higher PAX test reduced the mass pull for the sulfide MC, and the gold grade in the concentrate was higher. Very little change was noted for the oxide flotation with the second rougher test. The silver recovery for the MCs tested was in the same range as gold (66% to 69%), but much lower for the oxide MC (39% to 44%). The rougher concentrate grades were relatively low, ranging from 2 to 6 g/t Au, and would need further testwork to determine if upgrading could be achieved to produce a saleable concentrate. To improve the concentrate grade for sale or extraction of gold from the concentrate by leaching, additional processing might include either additional flotation stages, continuous gravity concentration, spiral concentration, or shaking tables. The rougher flotation results and rougher mass versus recovery curves are shown in Table 10-5 and Figure 10-4, respectively.

Table 10-5: Rougher Flotation Results

Test	Sample	PAX (g/t)	Weight (%)	Assay				Distribution (%)			
				Fe (%)	Ag (g/t)	Au (g/t)	S (%)	Fe	Ag	Au	S
1	RH22—Sul	80	29.4	14.6	12.0	1.5	15.6	56	69	69	75
2	RH22—Mix	80	15.9	21.5	11.9	3.6	23.1	40	67	66	74
3	RN22—Ox	80	8.6	12.7	10.1	6.2	.1	12	39	67	41
7	RH22—Sul	200	17.0	27.4	19.2	2.8	35.2	62	69	68	88
8	RH22—Mix	200	11.6	26.9	13.4	5.1	31.1	38	66	62	71
9	RN22—Ox	200	8.6	12.4	11.1	6.1	7.8	13	44	68	43

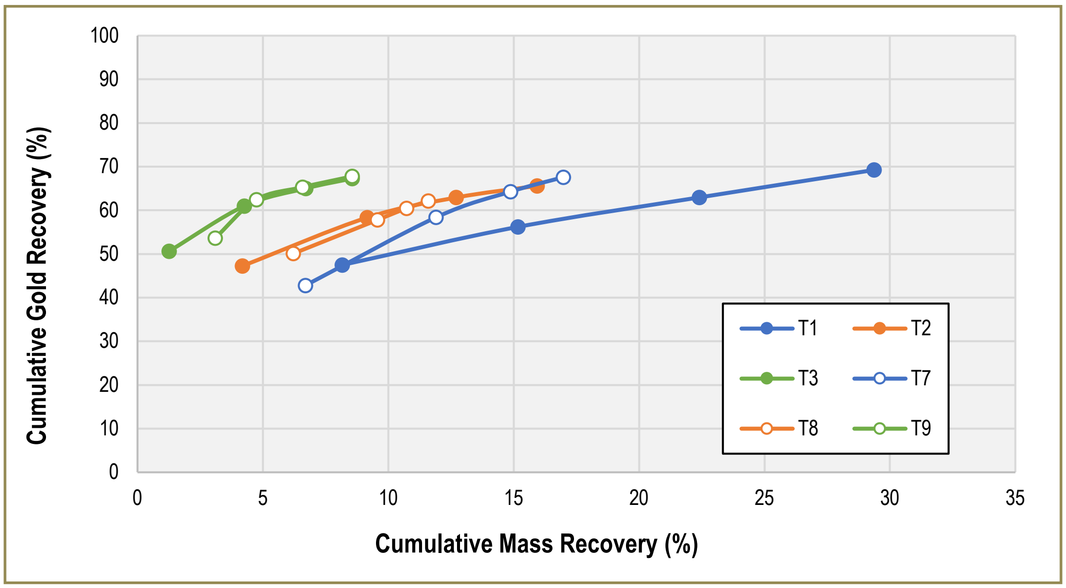


Figure 10-4: Rougher Mass vs. Gold Recovery—BaseMet 2023, BL1244

10.2.7 Whole-Ore-Leach—Primary Grind Evaluation

WOL tests were completed on all three MCs at a target of P_{80} 30, 50, and 75 µm. The test conditions included a 48-hour leach using 1,000 ppm sodium cyanide, with oxygen sparged to maintain dissolved oxygen (DO) above 20 mg/L, and at pH 10.5.

The highest leach extraction recorded was for the oxide MC, with results ranging from 89.0% Au to 92.6% Au at the three grind sizes. The best result was at P_{80} 50 µm, with 92.6% of the gold extracted. The mixed MC performed better at the finer grind sizes, with approximately 80% Au extraction. Results for the sulfide MC were not as encouraging, with gold extraction ranging from 47.0% Au to 54.4% Au with marginally better performance at the finer grind size. Sodium cyanide consumption was low for the oxide MC compared to the sulfide MC at the same grind size. No pre-oxidation was tested on the sulfide MC.

Silver extraction improved from 75 to 50 µm for all three MCs, but little improvement was noted when the grind was further reduced to 30 µm, with the exception of the sulfide MC.

Table 10-6 shows the WOL results, and the WOL gold extraction versus time in Figure 10-5.

Table 10-6: Gold Extraction vs. Grind Size

Test	Sample	Primary Grind (P_{80} µm)	Extraction (%)		Reagent (kg/t)	
			Au	Ag	NaCN	Lime
4	RH22—Sul	75	47.0	61.6	2.8	5.0
10	RH22—Sul	50	52.1	66.3	2.7	4.0
11	RH22—Sul	30	54.4	69.1	3.0	4.0
5	RH22—Mix	75	73.6	68.3	1.2	3.4
12	RH22—Mix	50	79.7	80.4	1.7	2.5
13	RH22—Mix	30	81.4	80.1	2.0	2.6
6	RN22—Ox	75	89.4	87.6	0.8	6.6
14	RN22—Ox	50	92.6	96.2	1.1	7.1
15	RN22—Ox	30	89.0	96.7	1.6	6.1

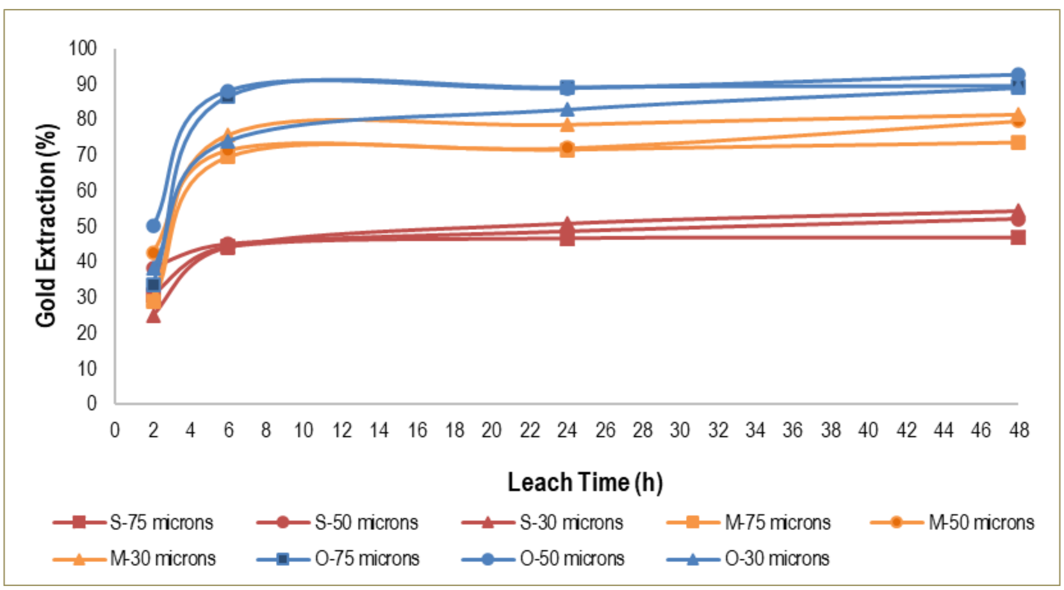


Figure 10-5: Gold Extraction vs. Time—BaseMet 2023, BL1244

10.2.8 Diagnostic Leach

To investigate the leach performance on the MCs, and gold associated with different groups of minerals, a five-stage diagnostic leach test was conducted. In the initial stage a cyanide leach was completed on the MCs at a primary grind of P_{80} 75 µm. In each stage the tailings from the previous stage were advanced and tested with different acids, followed by a cyanide leach. Figure 10-6 illustrates the procedure used for the diagnostic leach test.

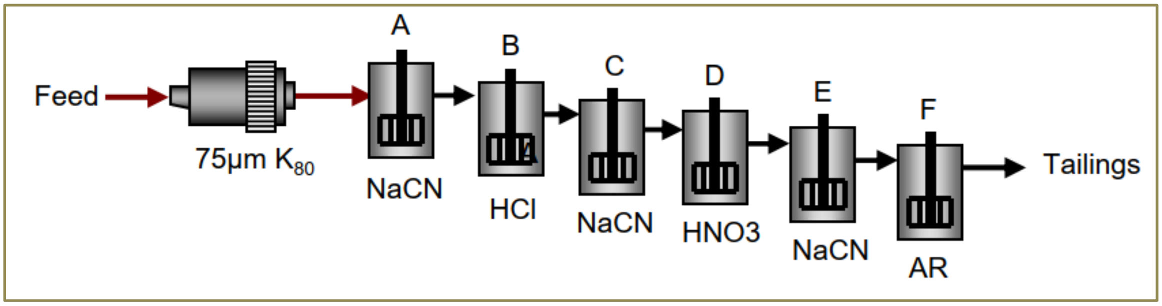


Figure 10-6: Diagnostic Leach Test Flowsheet—BaseMet 2023, BL1244

At each stage of the test, various minerals and mineral groups are dissolved by the acid used. The results are listed in Table 10-7.

Table 10-7: Gold Extraction vs. Grind Size

Stage	Description of Gold	Au Stage Extraction (%)		
		RH22—Sul	RH22—Mix	RH22—Ox
A: High-Intensity CN Leach	Cyanidable gold	47.4	72.9	91.0
B/C: HCl Digestion/Cyanidation	Carbonate locked	18.8	4.4	2.4
D/E: HNO_3 Digestion/Cyanidation	Arsenical minerals (arsenopyrite)	29.4	12.5	2.0
F: Aqua Regia Digestion	Pyritic sulfide locked	3.5	1.9	2.6
Tailings	Silicate (gangue) encapsulated	1.0	8.3	1.9
Total		**100**	**100**	**100**

The results indicate that most of the oxide material is free or exposed, and responds well to WOL, with gold extraction expected in the range of 91% Au. The leach extraction for the mixed MC was 72.9% Au, which is consistent with the WOL results discussed in Section 10.2.7. The results indicate 12.5% Au reports to the D/E stage (i.e., nitric acid), but the BMA results do not indicate a significant amount of arsenopyrite in the sample. The mixed MC had the highest percentage of gold locked in silicate or gangue. The sulfide MC had poor gold extraction at the first cyanide leach stage. High gold dissolution was recorded in the hydrochloric acid and nitric acid digestion stages. All three MCs had a low amount of gold locked in pyrite.

10.2.9 Flotation Leach Flowsheet

To improve the gold extraction in the mixed and sulfide MCs, a flotation-leach flowsheet was investigated. Two flowsheets were tested. The first included rougher flotation followed by regrind of the rougher concentrate, with cyanide leach of the rougher concentrate and rougher tailings streams. The second flowsheet included POX to decompose the sulfide minerals after the rougher concentrate regrind prior to cyanide leach. The flowsheets for both tests are illustrated in Figure 10-7 and Figure 10-8.

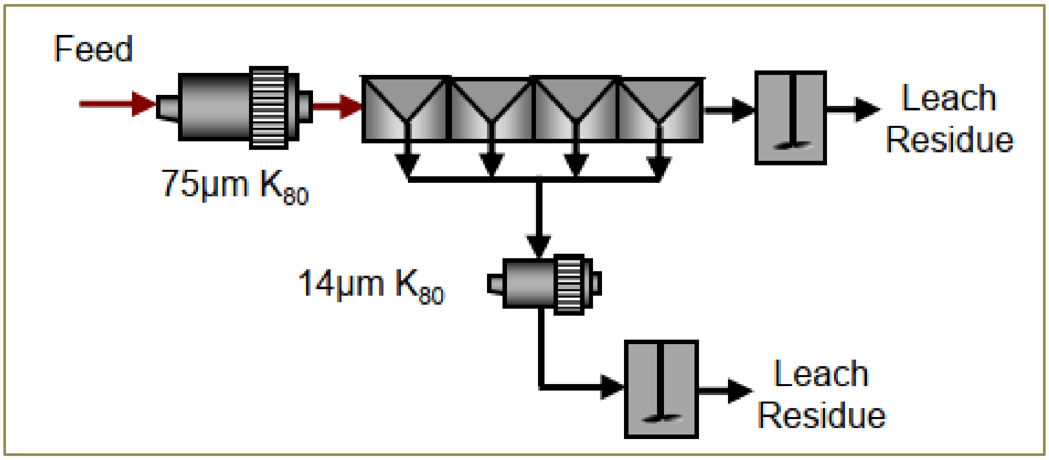


Figure 10-7: Flotation/Leach Flowsheet—BaseMet 2023, BL1244

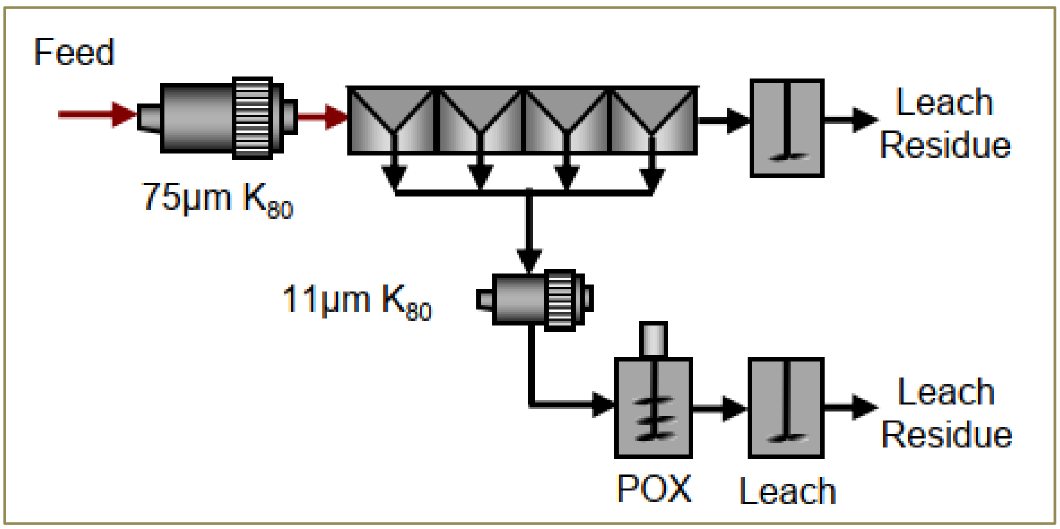


Figure 10-8: Flotation/POX/Leach Flowsheet—BaseMet 2023, BL1244

The results for both flowsheets, as well as WOL, are listed in Table 10-8. The mixed MC showed a few percent improvement with the float/leach and float/POX/leach flowsheets compared to WOL. The results are what would be expected based on the diagnostic leach. For the sulfide MC the float/POX/leach flowsheet provided the best results compared to the other two flowsheets. Based on the fine regrind of P_{80} approximately 11 µm and relatively low recoveries with the float/leach flowsheet suggests that the gold is likely finely disseminated in sulfides and would be difficult to recover. The POX flowsheet achieved relatively high gold extraction after oxidation of the rougher concentrate of over 91%, but at the concentrate grades feeding the circuit of 4.9 g/t Au and 3.0 g/t Au for the mixed and sulfide MCs, respectively, it would likely be difficult to make this process economically viable without further preconcentration

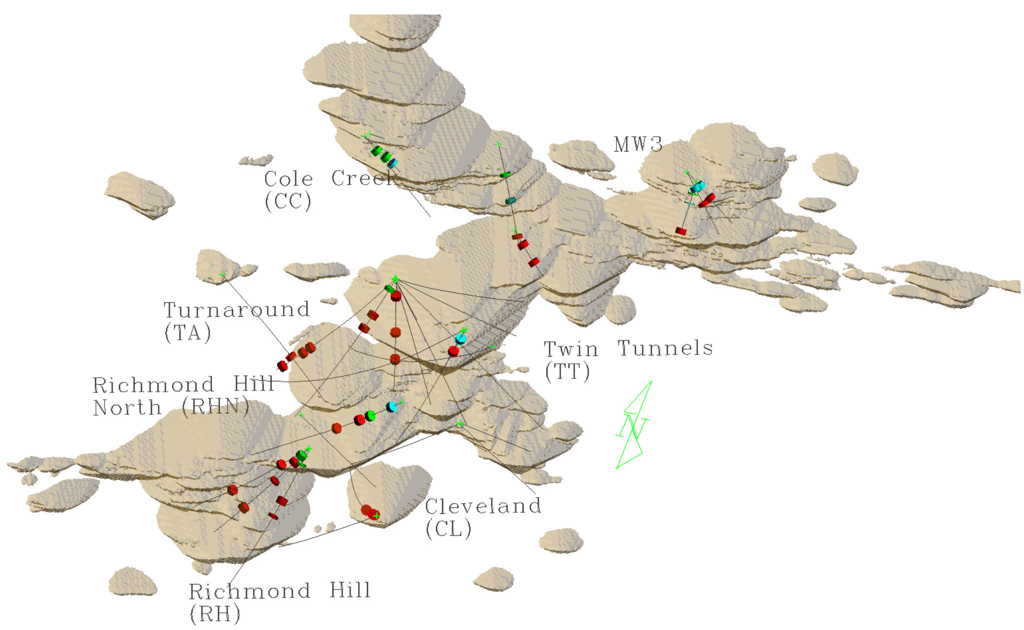
Table 10-8: Summary of Results

Test	Flowsheet	Stage Recovery (% of Head)								Total Extraction (%)		NaCN (kg/t Head)
		Rougher Concentrate		Leach Rougher Tailings		Leach Concentrate		POX/Leach Concentrate				
		Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag	
RH22 Sul												
19	Float/Leach	75	69	14	11	35	54	-	-	48	65	2.4
21	Float/POX Leach	87	86	7	11	-	-	83	68	91	80	11.3
4	WOL	-	-	-	-	-	-	-	-	47	62	2.8
RH22 Mix												
20	Float/Leach	70	60	24	27	58	51	-	-	82	78	1.3
22	Float/POX Leach	57	52	30	40	-	-	52	12	82	53	7.0
5	WOL	-	-	-	-	-	-	-	-	80	80	1.2

Notes: POX = pressure oxidation; WOL = whole-ore-leach.

10.3 Metallurgical Report—BL1346

In September 2023, intervals from 29 drill holes representing seven zones were collected for metallurgical evaluation. The zones include Twin Tunnels Turn Around Monitoring Well 3, Richmond Hill., Cleveland, Cole Creek, and Richmond Hill North. MCs were compiled to represent the oxide, mixed, and sulfide layers within each zone. The list of MC and head grades can be found in Table 10-9. The focus of the testwork was to optimize the flowsheet on the Twin Tunnels Master Composite and then run the final flowsheet on all the MCs.



Note: Not to scale.

Figure 10-9: Drill-Hole Locations

Table 10-9: Master Composite Head Assays

Sample	Assays							
	Au (g/t)	Ag (g/t)	Cu (%)	Fe (%)	S (%)	C (%)	TOC (%)	S2 (%)
MC-TT-O	1.45	1.3	0.008	3.70	0.08	0.01	0.01	0.04
MC-TA-M	0.88	3.0	0.014	6.50	3.27	0.37	0.03	3.18
MC-TA-S	0.83	3.4	0.017	18.20	5.61	0.75	0.04	5.52
MC-TT-O	0.31	0.5	0.016	30.60	0.27	0.02	0.04	0.07
MC-TT-M	0.65	3.5	0.014	21.60	5.77	1.59	0.03	5.7
MC-TT-S	0.88	4.7	0.016	8.56	6.84	1.05	0.09	6.68
MC-MW3-O	1.13	2.7	0.003	3.96	0.21	1.02	0.02	0.15
MC-MW3-M	1.46	8.3	0.005	7.82	3.90	1.22	0.06	3.86
MC-MW3-S	4.18	11.7	0.009	14.10	7.20	1.62	0.03	6.32
MC-RHN-O	0.44	2.1	0.02	10.10	0.06	0.01	0.02	0.02
MC-RHN-S	0.92	5.5	0.011	7.18	5.06	2.91	0.04	5.04
MC-CV-O	0.4	0.8	0.005	6.88	0.92	0.15	0.13	0.64
MC-CV-M	0.38	1.2	0.008	8.70	2.76	0.35	0.15	2.72
MC-CV-S	2.29	2.0	0.005	15.20	5.24	0.29	0.04	5.18
MC-CC-O	0.71	2.3	0.003	5.18	0.25	0.02	0.03	0.08
MC-CC-M	0.58	14.3	0.007	6.22	2.82	0.10	0.02	2.76
MC-CC-S	0.74	7.1	0.017	10.90	6.51	2.72	0.39	6.46
Method	FAAS	ICP	FAAS	FAAS	LECO	LECO	LECO	GRAV

Notes: CC = Cole Creek; CV = Cleveland; FAAS = Flame Atomic Absorption Spectroscopy; GRAV = Gravimetrics; ICP = Inductively coupled plasma; LECO = Infrared Combustion; M = mixed; MW3 = Monitoring Well 3; O = oxide; RH = Richmond Hill; RHN = Richmond Hill North; S = sulfur; TA = Turn Around; TOC = total organic carbon; TT = Twin Tunnels.

10.3.1 Sample Selection

The MCs were compiled from continuous intervals of drill core from several drill holes within each of the seven zones that were identified. The location of the drill holes and the zones are illustrated in Figure 10-9.

10.3.2 Mineralogy

Samples were sent out for BMA. The mineral abundance for each of the MCs is shown in Table 10-10 and Table 10-11. The main minerals are quartz, K-feldspar, and biotite. Pyrite is the most abundant (>98%) of the sulfur minerals in the mixed and sulfide MC. The sulfur content in the oxide MC feed is quite low, less than 0.5%. There are “Other” sulfur minerals (alunite, barite, jarosite) in the oxide MC in addition to pyrite, which account for 40% to 60% of the sulfur distribution; overall, they have very small absolute abundance in the feed. Sulfur deportment is shown in Figure 10-10 and Figure 10-11.

Table 10-10: Mineral Abundance (wt%)

Mineral	MC-TA-M	MC-TA-O	MC-TA-S	MC-TT-M	MC-TT-O	MC-TT-S	MC-MW3-M	MC-MW3-O	MC-MW3-S	MC-RH-O
Pyrite	5.30	0.01	7.66	8.34	0.05	12.8	8.69	0.30	14.5	0.20
Chalcopyrite	0.01	0.00	0.02	0.04	0.01	0.02	0.00	0.00	0.01	0.00
Other Sulfides	0.05	0.00	0.07	0.03	0.01	0.04	0.17	0.00	0.03	0.00
Quartz	25.6	8.23	14.8	7.43	2.83	10.4	68.2	18.5	50.9	3.21
Plagioclase	4.11	0.27	7.71	3.88	3.45	2.05	0.06	0.80	0.03	12.0
K-Feldspar	45.4	76.5	46.0	54.8	52.8	51.6	7.44	58.3	9.44	39.6
Sericite/Muscovite	1.93	1.72	1.29	1.34	1.20	2.77	1.80	4.17	1.09	0.83
Biotite	7.75	5.91	9.31	9.25	15.4	6.42	1.92	4.13	3.63	18.2
Chlorite	1.27	2.47	0.90	1.17	5.92	1.11	0.59	0.76	1.02	3.36
Clays	2.23	1.83	1.79	1.40	2.43	2.56	0.59	1.07	0.55	3.13
Other Silicates	1.05	0.01	5.06	2.37	0.67	1.57	0.64	1.29	0.91	6.93
Fe-Oxides	2.18	1.76	0.22	0.59	11.1	0.73	2.72	1.94	8.42	8.67
Other Oxides	1.17	1.01	2.16	2.80	3.07	2.96	1.96	0.64	0.72	2.36
Carbonates	1.45	0.13	2.75	5.82	0.57	4.09	3.79	7.33	7.83	1.48
Apatite	0.27	0.05	0.12	0.07	0.01	0.10	1.20	0.62	0.70	0.09
Other	0.22	0.05	0.17	0.63	0.51	0.75	0.21	0.11	0.23	0.04
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Notes: M = mixed; MW3 = Monitoring Well 3; O = oxide; RH = Richmond Hill; S = sulfur; TA = Turn Around; TT = Twin Tunnels.

Table 10-11: Mineral Abundance (wt%)

Mineral	MC-RH-M	MC-RH-S	MC-CV-O	MC-CV-M	MC-CV-S	MC-CC-O	MC-CC-M	MC-CC-S	MC-RHN-O	MC-RHN-S
Pyrite	1.63	8.31	0.68	7.49	8.50	0.04	3.15	10.9	0.01	7.82
Chalcopyrite	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.04
Other Sulfides	0.00	0.06	0.00	0.02	0.01	0.00	0.16	0.03	0.00	0.04
Quartz	2.92	7.90	21.4	25.2	27.0	28.0	81.7	33.4	5.06	4.72
Plagioclase	5.33	6.36	3.56	7.62	5.66	0.09	0.01	1.92	1.53	7.19
K-Feldspar	51.5	45.3	47.9	22.3	24.9	57.0	6.38	17.4	59.6	42.3
Sericite/Muscovite	0.51	1.13	5.41	6.41	0.73	1.15	0.24	5.16	1.23	0.93
Biotite	20.0	16.6	9.20	16.3	14.2	5.67	0.98	8.64	11.8	8.72
Chlorite	3.24	1.79	2.19	4.84	3.36	1.32	0.33	0.82	3.77	1.18
Clays	1.84	4.21	1.78	2.54	2.60	0.96	0.36	0.71	1.72	0.94
Other Silicates	1.91	2.45	0.01	1.19	0.28	0.05	0.23	3.58	0.56	9.76
Fe-Oxides	7.97	2.58	5.13	4.30	10.6	3.83	2.81	4.58	9.37	0.15
Other Oxides	1.96	1.99	0.55	0.93	1.31	0.79	1.39	2.68	3.20	1.74
Carbonates	1.04	1.00	0.29	0.55	0.61	0.43	0.45	9.74	1.75	13.7
Apatite	0.04	0.12	0.01	0.18	0.10	0.23	1.48	0.35	0.01	0.10
Other	0.06	0.17	1.93	0.11	0.13	0.37	0.33	0.13	0.31	0.66
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Notes: CC = Cole Creek; CV = Cleveland; M = mixed; O = oxide; RH = Richmond Hill; RHN = Richmond Hill North; S = sulfur.

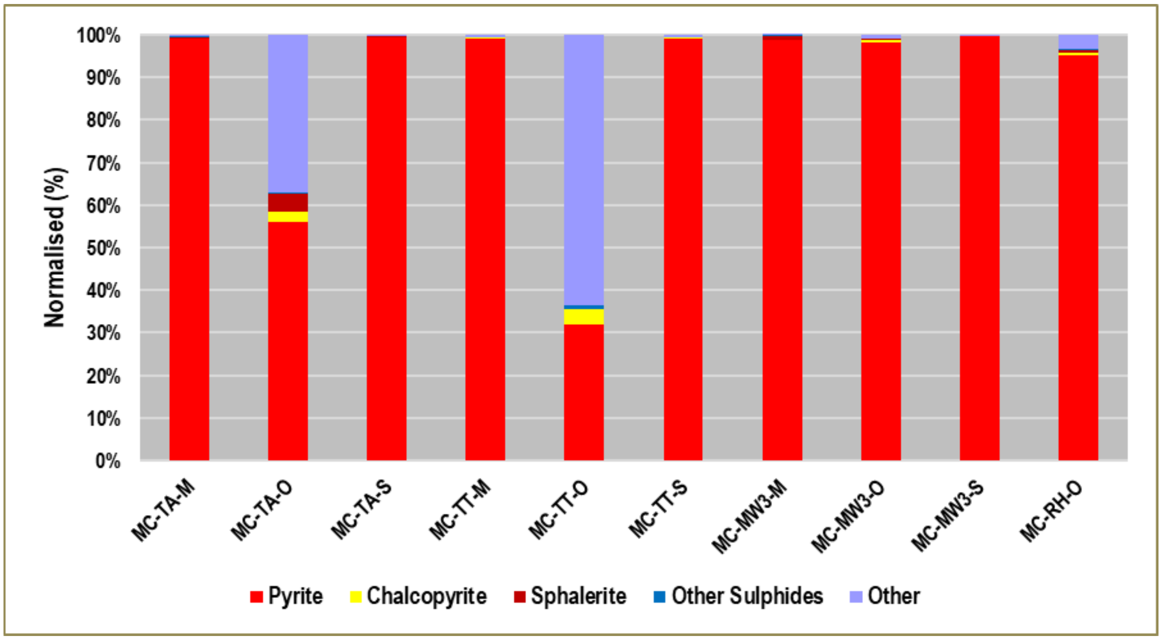


Figure 10-10: Sulfur Mineral Content—BaseMet 2023, BL1346

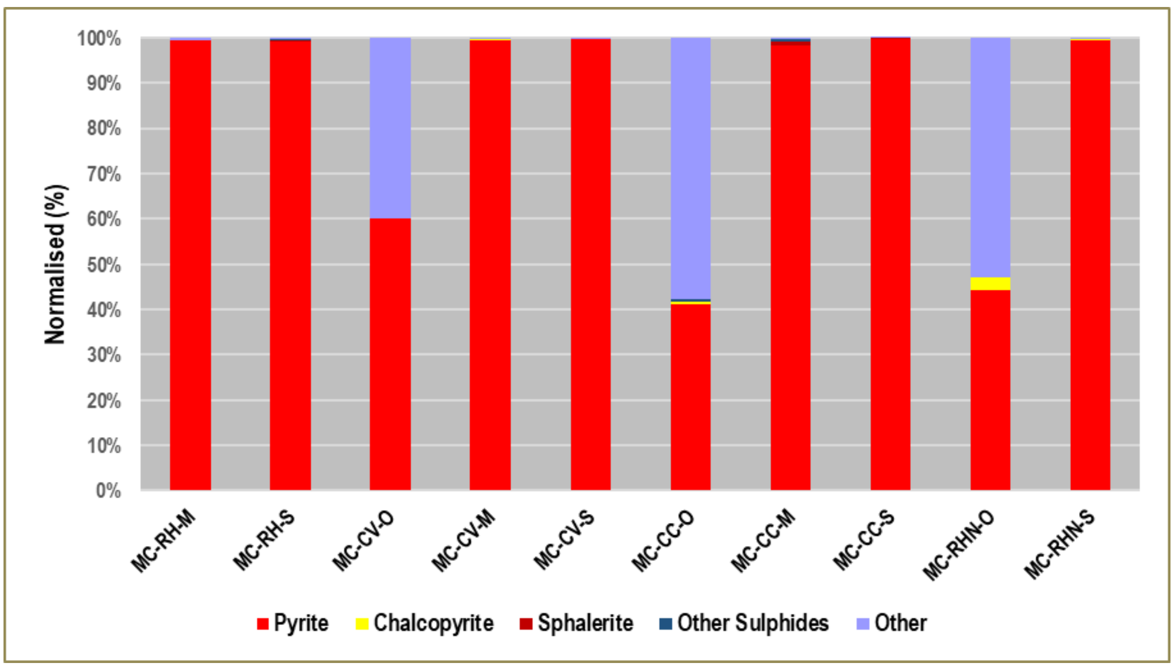


Figure 10-11: Sulfur Mineral Content—BaseMet 2023, BL1346

10.3.3 Comminution

Semi-autogenous grinding (SAG) mill comminution (SMC) testwork was completed on most of the MCs. The SMC test provides the comminution parameters for sizing tumbling mills such as autogenous, SAG, rod, and ball mills. The coarse ore index (Mia) is the energy required for grinding coarser particles greater than 750 µm. The results indicate the material tested is moderately hard. The oxide composites are softer than the mixed and sulfide composites and Turn Around samples were harder than MW3 samples. The BWi test was completed on all MCs at a closing screen of 106 µm, and the results indicate the material is hard. The BWi results ranged from 13.8 kWh/t (moderately hard) to 22.7 kWh/t, with the 75^{th} percentile at 20.4 kWh/t (hard). Figure 10-12 shows the rock breakage parameters Axb relative to the frequency distribution of Axb in the JKTech database and Table 10-12 summarizes the comminution testwork.

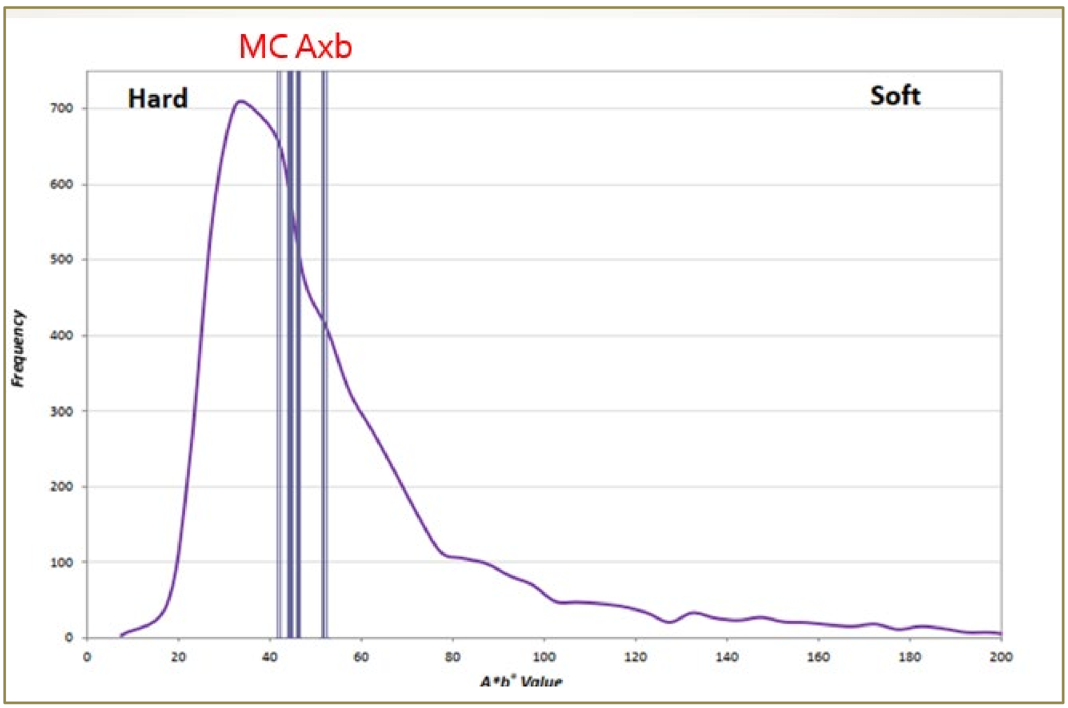


Figure 10-12: Sulfur Mineral Content—BaseMet 2023, BL1346

Table 10-12: Comminution Summary

Master Composite ID	SMC Test											Bond Ball Mill Work Index Test			
	DWi (kWh/m³)	DWi (%)	Mia (kWh/t)	Mih (kWh/t)	Mic (kWh/t)	A	b	A*b	SG	ta	SCSE (kWh/t)	F_{80} µm	P_{80} µm	Gpr	BWi (kWh/t)
MC-TA-M	6.14	43	18.9	13.7	7.1	70.3	0.6	42.2	2.6	0.4	9.5	2,270	78	0.90	19.8
MC-TA-O	4.88	27	16.2	11.2	5.8	68.9	0.8	51.7	2.5	0.5	8.7	2,248	76	1.28	14.7
MC-TA-S	6.34	46	18.1	13.2	6.8	56.9	0.8	43.8	2.8	0.4	9.6	2,408	77	0.85	20.5
MC-TT-M	6.15	43	17.7	12.9	6.7	77.7	0.6	45.1	2.8	0.4	9.5	2,244	78	0.86	20.5
MC-TT-O	4.60	24	16.3	11.2	5.8	63.3	0.8	51.9	2.4	0.6	8.7	2,328	79	1.06	17.4
MC-TT-S	5.81	39	17.6	12.7	6.6	73.0	0.6	46.0	2.7	0.5	9.2	2,286	76	0.92	19.1
MC-MW3-O	4.68	25	16.0	11.0	5.7	68.2	0.8	52.5	2.5	0.6	8.6	2,160	78	1.40	13.8
MC-MW3-M	6.24	44	17.1	12.5	6.4	76.2	0.6	46.5	2.9	0.4	9.6	2,308	82	0.92	20.1
MC-MW3-S	6.48	48	17.0	12.5	6.5	78.8	0.6	46.5	3.0	0.4	9.8	2,261	80	0.97	19.0
MC-RH-O	6.07	42	19.2	14.0	7.2	70.8	0.6	41.8	2.5	0.4	9.5	2,188	77	0.86	20.6
MC-RH-M	5.55	35	18.3	13.0	6.7	71.4	0.6	44.3	2.5	0.5	9.2	2,234	79	0.89	20.1
MC-RH-S	4.43	22	16.5	11.3	5.8	57.8	0.9	51.4	2.3	0.6	8.9	2,241	74	0.91	19.1
MC-CV-O	-	-	-	-	-	-	-	-	-	-	-	2,284	77	0.93	19.1
MC-CV-M	-	-	-	-	-	-	-	-	-	-	-	2,296	76	0.88	19.8
MC-CV-S	-	-	-	-	-	-	-	-	-	-	-	2,353	78	0.86	20.6
MC-CC-O	-	-	-	-	-	-	-	-	-	-	-	2,312	80	1.04	17.9
MC-CC-M	-	-	-	-	-	-	-	-	-	-	-	2,293	83	0.98	19.2
MC-CC-S	-	-	-	-	-	-	-	-	-	-	-	2,399	82	0.93	19.7
MC-RHN-O	-	-	-	-	-	-	-	-	-	-	-	2,332	77	0.99	18.2
MC-RHN-S	-	-	-	-	-	-	-	-	-	-	-	2,271	77	0.76	22.7
Average	5.61	36.5	17.4	12.4	6.4	69.4	0.7	47.0	2.6	0.5	9.2	2,286	78	0.96	19.1
Minimum	4.43	22	16.0	11.0	5.7	56.9	0.6	41.8	2.3	0.4	8.6	2,160	74	0.76	13.8
Maximum	6.48	48	19.2	14.0	7.2	78.8	0.9	52.5	3.0	0.6	9.8	2,408	83	1.40	22.7
75th Percentile	6.22	43.75	18.3	13.2	6.8	75.4	0.8	51.6	2.8	0.5	9.6	2,324	80	0.99	20.4

Notes: CC = Cole Creek; CV = Cleveland; DWi = Drop Weight Index; Gpr = the average grams revolution of the last three cycles ; M = mixed; MW3 = Monitoring Well 3; O = oxide; RH = Richmond Hill; RHN = Richmond Hill North; S = sulfur; SCSE = SAG Circuit Specific Energy. TA = Turn Around; TOC = Total Organic Carbon; TT = Twin Tunnels.

10.3.4 Whole-Ore-Leach Results

Whole-ore-leach tests were completed on the 20 MCs from the different zones to represent the oxide, mixed and sulfide lithologies. A primary grind of P_{80} approximately 50 µm was chosen based on the grind series results from BL1244. The flowsheet included a 2-hour pre-oxidation stage followed by a 48-hour leach with sodium cyanide at a concentration of 1,000 ppm. During the leach the DO was maintained at 20 mg/L and lime was added to maintain a pH of 10.5. The leach results for the oxide MCs ranged from 70.7% Au to 91.1% Au and averaged approximately 87% Au with relatively low sodium cyanide consumption (i.e., <0.61 kg/t). Silver extraction averaged approximately 65% Ag. The oxide MC kinetics were fast, and most of the leaching was complete in the first six hours with low cyanide consumption. The mixed and sulfide MCs did not perform as well, with gold extraction ranging from 13.7% to 80.6% after

48 hours of cyanide leaching. Silver extraction averaged 63% and 44% for the mixed and sulfide composites, respectively. The results are listed in Table 10-13 and leach kinetics by layer shown in Figure 10-13.

Table 10-13: Gold Extraction vs. Time

Zone	Lithology	Condition	Test	Au Extraction (%) at t (h)				Ag Ext'n	Leach Residue Assay			Consumption (kg/t)	
				2	6	24	48	48 (h)	Au (g/t)	Ag (g/t)	S (%)	NaCN	Lime
MC-TA	Oxide	Baseline	2	61.3	75.9	77.9	87.9	88.2	0.19	0.2	0.03	0.42	2.75
	Mixed	Baseline	3	23.2	24.8	26.4	38.2	55.8	0.64	1.6	3.30	1.22	3.98
		NaCN	45	30.0	35.5	39.3	41.3	59.2	0.50	1.4		3.21	2.29
		72 h	50	22.6	31.4	38.6	44.3	57.5	0.48	1.6		1.61	3.08
		$Pb(NO_3)_2$	55	24.6	28.6	28.8	29.0	60.0	0.82	1.4		1.49	2.94
	Sulfide	Baseline	4	13.5	15.3	15.4	17.2	32.2	0.74	3.2	5.40	1.40	4.40
MC-TT	Oxide	Baseline	5	42.0	46.4	62.3	71.2	46.7	0.12	0.4	0.21	0.61	3.95
		NaCN	41	63.5	64.4	65.2	70.3	49.3	0.11	0.4		1.38	4.27
		72 h	46	69.1	74.0	79.1	85.3	50.9	0.06	0.4		0.39	3.92
		$Pb(NO_3)_2$	51	65.4	66.3	67.1	81.1	49.3	0.07	0.4		0.29	3.27
	Mixed	Baseline	6	7.6	9.5	17.2	23.4	45.4	0.61	2.4	5.46	1.29	4.60
	Sulfide	Baseline	7	8.0	9.6	17.6	22.8	56.2	0.73	2.4	6.72	2.18	5.77
MC-MW3	Oxide	Baseline	8	84.6	87.0	89.4	90.6	65.8	0.11		0.13	0.54	2.21
	Mixed	Baseline	9	10.1	11.3	12.5	13.7	50.4	1.14		3.75	1.31	1.58
	Sulphide	Baseline	10	10.8	22.7	42.3	50.1	38.4	2.76		7.11	2.00	1.58
MC-RH	Oxide	Baseline	11	65.2	79.1	80.2	85.5	41.3	0.10		0.07	0.33	3.15
	Mixed	Baseline	12	75.6	77.3	78.9	80.6	74.2	0.26		0.97	0.44	4.44
		NaCN	43	72.1	72.5	73.0	78.5	80.8	0.26	0.6		2.28	2.80
		72 h	48	68.6	70.4	74.8	77.1	81.0	0.26	0.6		0.77	2.50
		$Pb(NO_3)_2$	53	75.5	77.3	79.1	79.6	81.3	0.24	0.6		0.73	2.90
	Sulfide	Baseline	13	21.5	28.1	36.9	43.6	40.5	0.40		5.29	2.24	9.32
MC-CV	Oxide	Baseline	14	47.4	67.5	71.2	75.2	75.0	0.14	0.2	0.88	0.35	4.17
		NaCN	42	62.1	62.9	67.4	68.2	75.6	0.13	0.2		0.91	3.98
		72 h	47	59.4	72.1	73.0	74.9	76.4	0.10	0.2		0.35	3.68
		$Pb(NO_3)_2$	52	63.3	64.1	65.0	69.3	76.5	0.13	0.2		0.32	3.71
	Mixed	Baseline	15	39.4	51.8	55.2	63.2	55.6	0.19	0.6	2.55	0.59	2.60
		NaCN	44	55.7	56.1	56.5	56.8	54.3	0.15	0.6		1.83	2.32
		72 h	49	48.8	49.1	53.9	59.1	55.5	0.14	0.6		0.57	3.05
		$Pb(NO_3)_2$	54	59.1	59.5	65.3	65.7	64.0	0.10	0.4		0.81	2.56
	Sulfide	Baseline	16	41.8	51.8	60.7	61.5	55.1	0.90	0.9	4.78	0.75	4.37
	Oxide	Baseline	17	85.8	88.7	89.9	91.1	90.6	0.08		0.20	0.30	2.31
MC-CC	Mixed	Baseline	18	55.4	60.0	62.5	65.1	71.5	0.25		2.75	1.08	1.54
	Sulfide	Baseline	19	9.2	16.8	20.0	27.7	39.7	0.73	4.6	6.32	1.16	2.12
MC-RHN	Oxide	Baseline	20	87.6	88.8	82.9	91.0	45.5	0.04		0.01	0.57	3.75
	Sulfide	Baseline	21	8.9	10.5	12.0	22.9	44.2	0.82		5.12	0.90	2.14

Notes: CC = Cole Creek; CV = Cleveland; MW3 = Monitoring Well 3; RH = Richmond Hill; RHN = Richmond Hill North; TA = Turn Around; TT = Twin Tunnels.

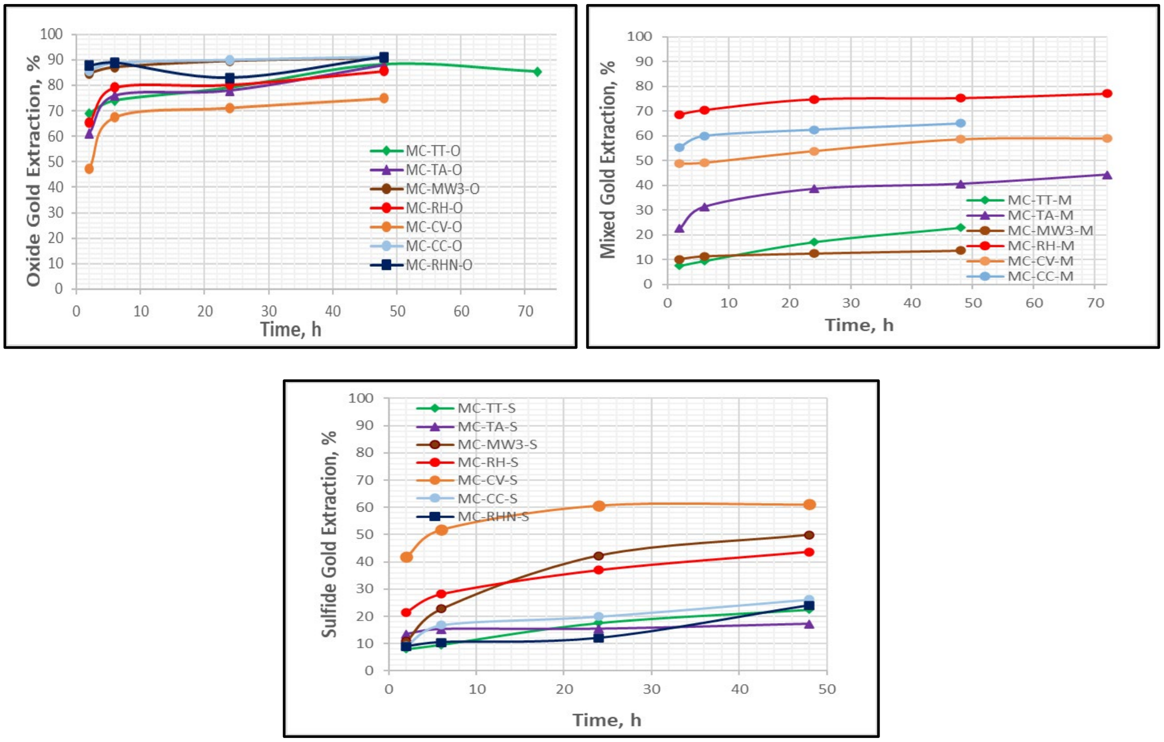


Figure 10-13: Gold Extraction vs. Time—BaseMet 2023, BL1346

There does not appear to be a relationship between gold extraction and head grade. In contrast, a correlation between gold extraction and sulfur head grade appears to exist for most samples (Figure 10-14) and will be investigated further when variability composite testing is completed.

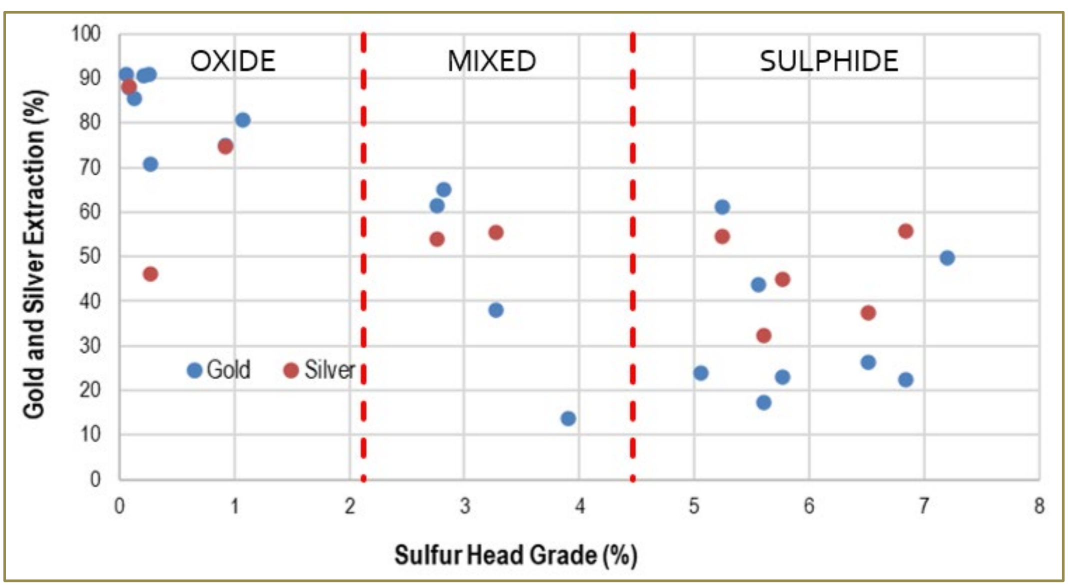


Figure 10-14: Gold and Silver Extraction vs. Sulfur Head Grade—BaseMet 2023, BL1346

10.3.5 Three-Stage Diagnostic Leach

Three-stage diagnostic leach tests were completed on the WOL tailings for three MCs: MC-TT-O, MC-RH-M, and MC-CV-O to get a better understanding of gold deportment. The results indicate that the gold remaining in the tailings for all three MCs was locked with sulfides and gangue, as observed in the previous program, BL1244. Additional sulfide oxidation treatment such as Biox, POX, or Albion will likely be required on the lower-performing samples to achieve better recoveries. The diagnostic leach test results are shown in Table 10-14.

Table 10-14: Three-Stage Diagnostic Leach Tests

Sample ID	Gold Extraction (%)	Gold Deportment—%		
		1. Direct Cyanidable	2. Locked in Acid Digestible Minerals*	3. Silicate [Gangue] Encapsulated
Test 05 CNTI (MC-TT-O)	70.7 (extended leach 85.3%)	87.5	2.5	10.0
Test 12 CNTI (MC-RH-M)	80.6	82.0	15.1	2.9
Test 14 CNTI (MC-CV-O)	74.9 (no improvement with additional optimization)	81.5	11.1	7.4

Notes: M = mixed; O = oxide; RH = Richmond Hill; TA = Turn Around; TT = Twin Tunnels; CV = Cleveland.

10.3.6 Preliminary Whole-Ore-Leach Optimization

Initial WOL testing for MC-TT-O achieved 71% Au extraction over 48 hours. Kinetic curves indicated that leaching was still occurring at the 48-hour test termination. To evaluate possible improvements in gold extraction, three additional leach tests were performed: increase sodium cyanide concentration (from 1,000 to 3,000 ppm); extend leach time to 72 hours; add lead nitrate.

The increase in cyanide concentration had little to no impact on the gold extraction. The biggest increase was seen from the extended leach time, which achieved 85% Au extraction. The test evaluating the addition of lead nitrate also had an increase in gold extraction to 81%. Future testing warrants further investigation of both lead nitrate addition and leach residence time. Similar or better results from the baseline were noted for the other four MCs tested. The results for the additional tests completed on MC-TT-O, MC-CV-O, MC-RH-M, MC-CV-M, and MC-TA-M are listed in Table 10-13.

10.3.7 Flotation Grind Series

Three initial rougher flotation tests were performed on the sulfide MC-TT-S to investigate primary grind. The sample was ground to target primary grind sizes of P_{80} 50, 75, and 106 µm. Flotation was conducted at natural pH for a total flotation time of eight minutes. PAX was used as a nonselective gold and sulfide collector at a total dosage of 80 g/t feed. A primary grind targeting P_{80} 75 µm provided the best results for both gold and silver, with approximately 21% of the feed reporting to the rougher concentrate. The rougher concentrate results are listed in Table 10-15. Figure 10-15 illustrates gold recovery versus mass recovery.

Table 10-15: Rougher Flotation Grind Series MC-TT-S

Test No.	Grind Size (P_{80} µm)	Weight		Assay				Distribution (%)			
		%	g	Au (g/t)	Ag (g/t)	Fe (%)	S (%)	Au	Ag	Fe	S
BL1346-22	50	27.9	557.1	1.93	11.4	17.2	17.9	60.3	65.7	53.5	72.5
BL1346-23	75	21.1	419.1	2.87	15.1	22.9	25.6	65.8	68.1	55.6	78.4
BL1346-24	106	16.7	330.3	3.04	15.5	24.3	26.6	54.0	56.4	46.9	64.6

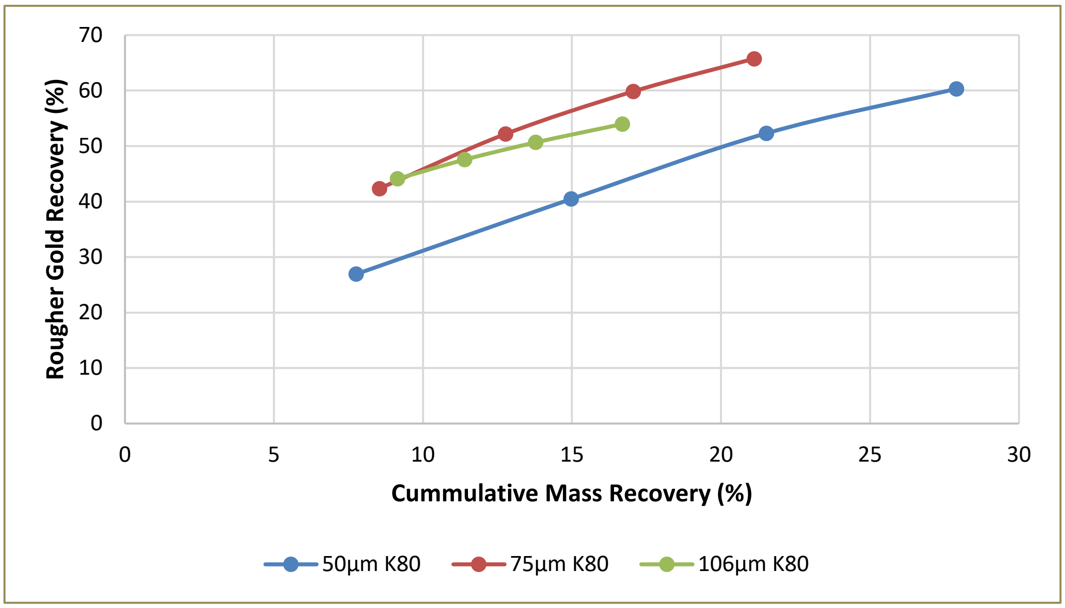


Figure 10-15: Gold Rougher Concentrate Recovery vs. Mass Recovery—BaseMet 2023, BL1346

10.3.8 Preliminary Flotation Optimization

To further optimize the flotation recovery tests on MC-TT-S, a longer rougher flotation time (10 minutes), higher PAX dosage (200 g/t), and lower density were incorporated. The results indicate a combination of the changes has an impact on the recovery to the rougher concentrate. With the higher PAX dosage, the highest recovery and highest mass pull was noted. The lower density, between 25% and 27% appears to reduce mass recovery. Figure 10-16 illustrates the gold recovery to the rougher concentrate versus mass recovery for the additional tests completed on MC-TT-S.

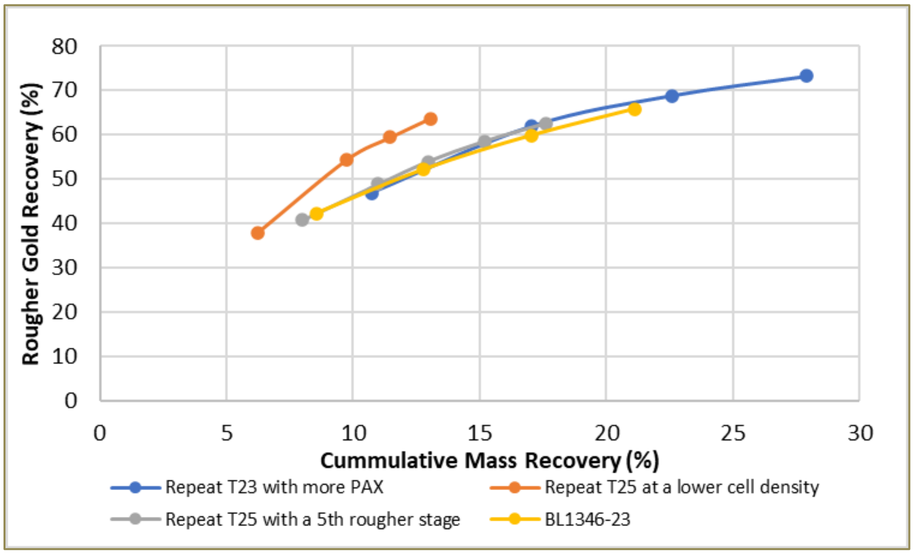


Figure 10-16: Gold Rougher Concentrate Recovery vs. Mass Recovery—BaseMet 2023, BL1346

10.3.9 Mixed and Sulfide Master Composite Flotation

The final rougher flotation flowsheet that was tested on the 13 mixed and sulfide MCs included a primary grind size of P_{80} 75 µm, 200 g/t PAX, and 10-minute residence time at a lower density. The results ranged from 31.5% to 94.0% Au recovery to the rougher concentrate. The overall results are in Table 10-16. The MC with higher sulfur content appears to perform better, as demonstrated in Figure 10-17. The head grade did not seem to correlate with recovery of gold to the rougher concentrate, as shown in Figure 10-18.

Table 10-16: Rougher Flotation Results

Zone	Lithology	Test	Head Grade		Recovery to Rougher Concentrates (%)				
			Au (g/t)	S (%)	Mass	Au	Ag	Fe	S
MC-TA	Mixed	28	0.9	3.3	8.6	61.6	50.9	34.5	82.8
MC-TA	Sulfide	29	0.8	5.6	16.2	80.9	75.2	53.3	89.3
MC-TT	Mixed	30	0.7	5.8	15.8	67.0	64.8	44.5	79.4
MC-TT	Sulfide	31	0.9	6.8	12.2	52.4	60.9	47.6	74.7
MC-MW3	Mixed	37	1.5	3.9	13.0	84.9	75.3	37.3	89.0
MC-MW3	Sulfide	38	4.2	7.2	17.5	94.0	87.9	39.9	91.1
MC-RH	Mixed	39	1.2	1.1	2.7	31.5	36.5	8.0	88.5
MC-RH	Sulfide	40	0.6	5.6	11.3	50.0	55.8	37.5	73.0
MC-CV	Mixed	32	0.4	2.8	10.3	59.4	44.6	26.6	85.8
MC-CV	Sulfide	33	2.3	5.2	9.5	50.7	35.5	23.3	74.0
MC-CC	Mixed	34	0.6	2.8	7.4	60.4	54.9	33.6	92.1
MC-CC	Sulfide	35	0.7	6.5	24.4	88.1	73.1	50.0	93.1
MC-RHN	Sulfide	36	0.9	5.1	21.2	73.4	78.4	50.0	84.7

Notes: CC = Cole Creek; CV = Cleveland; MW3 = Monitoring Well 3; RH = Richmond Hill; RHN = Richmond Hill North; TA = Turn Around; TT = Twin Tunnels.

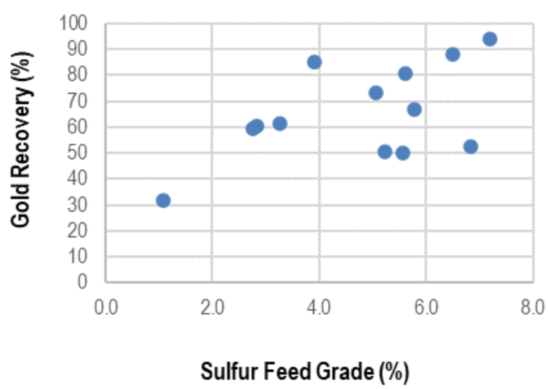


Figure 10-17: Gold Recovery vs. Sulfur Head Grade—BaseMet 2023, BL1346

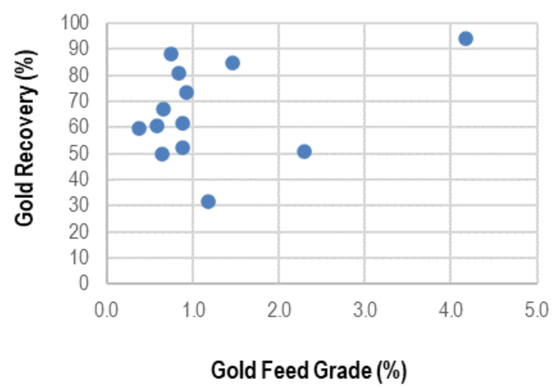


Figure 10-18: Gold Recovery vs. Gold Head Grade—BaseMet 2023, BL1346

10.3.10 Flotation Leach

The products from the flotation tests, rougher concentrate, and rougher tailings were leached to determine the overall gold and silver extraction. The MC rougher concentrates were ground to target P_{80} approximately 10 µm, followed by 24-hour pre-oxidation and 48-hour leach. The rougher concentrate leach was carried out at 10,000 ppm sodium cyanide; oxygen sparged; DO >20 maintained throughout the leach; 250 g/t lead nitrate; and pH 10.5. The MC rougher tailings were leached at the primary grind of P_{80} 75 µm, a lower sodium cyanide concentration of 2,000 ppm, and 24-hour pre-oxidation followed by a 72-hour leach at a DO >20. The testwork flowsheet is shown in Figure 10-19. The recovery to the mixed rougher concentrate averaged 60.8% Au at a grade of 7.0 g/t Au with an average mass pull of 9.6%. The average concentrate gold leach extraction, after regrinding, resulted in approximately 47.8% and 59% for the rougher tailings. The overall extraction averaged 51.3% Au and 64% Ag. The average recovery to the sulfide rougher concentrates was 69.8% at a grade of 8.1 g/t Au and an average mass pull of 16.0%. The leach extraction of the rougher concentrate was 38.1% for gold and 58.1% for silver. The rougher tailings average extraction was 34% for gold and 45% for silver. The overall gold extraction averaged 36.6% and 53.8% for silver The flotation and leach results are summarized in Table 10-17 and in Figure 10-21.

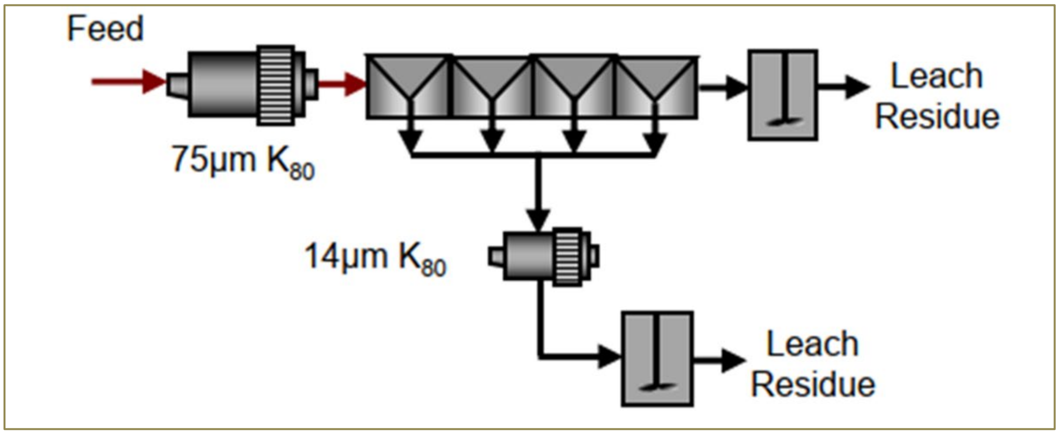


Figure 10-19: Float/Leach Flowsheet—BaseMet 2023, BL1346

Table 10-17: Rougher Flotation Leach Results

Zone	Test	Head Grade Au (g/t)	Rec to Rougher Conc. %						Ro Conc. Leach Extraction (%)		Ro Tailings Leach Extraction (%)		Overall Extraction (%)	
			Mass Pull	Au Grade (g/t)	Au	Ag	Fe	S	Au	Ag	Au	Ag	Au	Ag
Mixed														
MC-TA	T28	0.88	8.6	6.8	61.6	50.9	34.5	82.8	50.2	52.3	52.9	61.4	51.2	56.8
MC-TT	T30	0.65	15.8	3.2	67.0	64.8	44.5	79.4	21.9	43.4	35.3	44.4	26.3	43.8
MC-MW3	T37	1.46	13.0	9.8	84.9	75.3	37.3	89.0	15.0	69.0	39.6	46.0	18.7	63.3
MC-RH	T39	1.18	2.7	14.0	31.5	36.5	8.0	88.5	76.1	86.3	78.3	83.2	77.6	84.3
MC-CV	T32	0.38	10.3	2.6	59.4	44.6	26.6	85.8	74.3	64.2	68.5	58.5	71.9	61.0
MC-CC	T34	0.58	7.4	5.6	60.4	54.9	33.6	92.1	49.3	82.4	81.0	71.0	61.8	77.3
Sulfide														
MC-TT	T31	0.88	12.2	4.1	52.4	60.9	47.6	74.7	25.0	62.3	32.2	64.5	28.4	63.1
MC-TA	T29	0.83	16.2	4.8	80.9	75.2	53.3	89.3	30.1	46.4	35.8	32.8	31.2	43.0
MC-MW3	T38	4.18	17.5	26.8	94.0	87.9	39.9	91.1	66.6	69.9	51.1	55.8	65.7	68.2
MC-RH	T40	0.64	11.3	3.2	50.0	55.8	37.5	73.0	44.6	57.0	31.2	44.3	37.9	51.4
MC-CV	T33	2.29	9.5	12.2	50.7	35.5	23.3	74.0	75.9	70.0	56.3	55.6	66.3	60.7
MC-CC	T35	0.74	24.4	2.8	88.1	73.1	50.0	93.1	14.3	54.3	8.4	23.8	13.6	46.1
MC-RHN	T36	0.92	21.2	3.3	73.4	78.4	50.0	84.7	10.4	46.6	21.7	36.0	13.4	44.3

Notes: CC = Cole Creek; CV = Cleveland; MW3 = Monitoring Well 3; RH = Richmond Hill; RHN = Richmond Hill North; TA = Turn Around; TT = Twin Tunnels.

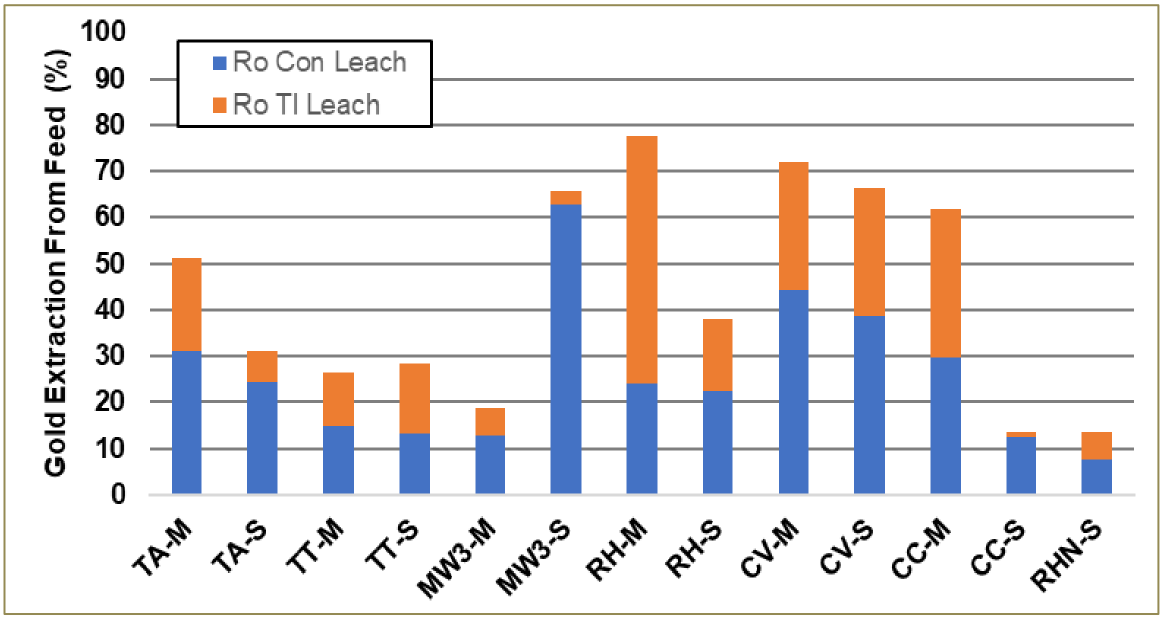


Figure 10-20: Overall Gold Extraction—BaseMet 2023, BL1346

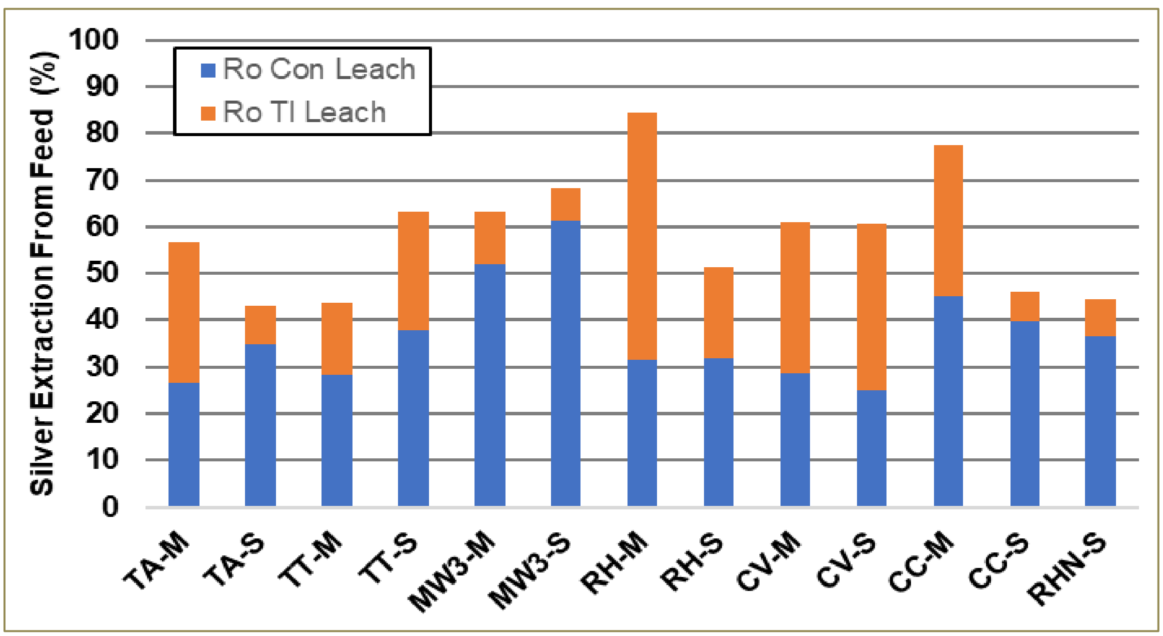


Figure 10-21: Overall Silver Extraction—BaseMet 2023, BL1346

10.3.11 Cyanide Destruction

Cyanide destruction parameters were not evaluated and should be carried out in the next stage of testing.

10.4 Summary and Recommendations

The initial investigation into three flowsheets to recover metals from the oxide, mixed, and sulfide layers of the seven zones included WOL, float/leach and float/POX/leach. The results from BL1244 and 1346 were summarized and the results show that the oxide MCs responded well to WOL, with good results that averaged 87% Au and 69.2% Ag. Most of the mixed and sulfide MCs did not perform well using the WOL flowsheet.

A rougher flotation followed by regrind, rougher concentrate leach, and rougher tailings leach was tested to investigate the potential to improve metallurgical response. The results for the MCs tested averaged 65.4% Au for the mixed and 42.2% Au for the sulfide samples. The diagnostic leach tests from both test programs indicated some of the gold is locked with sulfides and gangue, which is consistent with the lower leach extraction results. To address the lower results a float/POX/leach flowsheet was tested in BL1244 resulting in over 90% of the gold in the rougher concentrate being extracted (91.6% RH22 Mix and 95.9% RH22 Sul). POX was not tested in BL1346, but assuming oxidation using POX prior to cyanide leach and 90% extraction of the rougher concentrate, the average overall gold extraction for the mixed and sulfide MCs could potentially increase on average to approximately 80% Au and 76% Au, respectively. A comparison of the results is shown in Table 10-18.

Table 10-18: Summary of Results

Zone	Flowsheet	Overall Gold Extraction (%)			
		WOL or Float/Leach	WOL	Float/Leach	Float/POX/ Leach
		Oxide			
RH22 Ox	WOL	92.6	92.6	-	-
MC-TT	72 h WOL	85.3	85.3	-	-
MC-TA	WOL	87.9	87.9	-	-
MC-MW3	WOL	90.6	90.6	-	-
MC-RH	WOL	85.5	85.5	-	-
MC-CV	WOL	75.2	75.2	-	-
MC-CC	WOL	91.1	91.1	-	-
MC-RHN	WOL	91.0	91.0	-	-
	Average	**87.4**	**87.4**	**-**	**-**
		Mixed			
RH22 Mix	Float/Leach	82.0	79.7	82.0	82.0
MC-TT	Float/Leach	26.3	23.4	26.3	75.8
MC-TA	Float/Leach	51.2	44.3	51.2	72.0
MC-MW3*	Float/Leach	18.7*	13.7	18.7	82.4
MC-RH	WOL	80.6	80.6	77.6	82.0
MC-CV	Float/Leach	71.9	69.3	71.9	81.3
MC-CC	CIL	80.5	65.1	61.8	86.4
	Average	**65.4**	**53.7**	**55.7**	**80.3**

Zone	Flowsheet	Overall Gold Extraction (%)			
		WOL or Float/Leach	WOL	Float/Leach	Float/POX/ Leach
		Sulfide			
RH22 Sul	Float/Leach	52.1	52.1	48.0	91.0
MC-TT	Float/Leach	28.4	22.8	28.4	79.6
MC-TA	Float/Leach	31.2	17.2	31.2	62.5
MC-MW3	Float/Leach	65.7	50.1	65.7	87.7
MC-RH	WOL	43.6	43.6	37.9	60.6
MC-CV	Float/Leach	66.3	61.5	66.3	73.4
MC-CC	WOL	26.2	27.7	13.6	80.3
MC-RHN	WOL	24.0	22.9	13.4	71.9
	Average	**42.2**	**37.2**	**38.1**	**75.9**

Notes: [1] MC-MW3 mixed result was not included in the average. The result is lower than the sulfide MC extraction and appears to be an anomaly.
The Float/POX/Leach gold extraction is an estimate based on POX BL1244 results.
CC = Cole Creek; CV = Cleveland; MW3 = Monitoring Well 3; RH = Richmond Hill; RHN = Richmond Hill North; TA = Turn Around; TT = Twin Tunnels; CIL = carbon-in-leach; POX = pressure oxidation; WOL = whole-ore-leach.

The POX circuit in the flowsheet is most likely not economical, with lower rougher concentrate grades achieved for gold. Other methods such as Albion, Ecobiome, and Bioleach may provide more economical alternatives and can be considered in the next stage of testwork, as well as some additional optimization.

11 MINERAL RESOURCE ESTIMATES

AKF has been retained by Dakota Gold to carry out a mineral resource estimate (MRE) for the Richmond Hill Property. The MRE described in this chapter was performed by Gregory Z. Mosher, P.Geo.

The MRE is based on gold grades interpolated from five lithological domains; from youngest to oldest these are Tertiary hydrothermal breccia, Tertiary intrusive Cambro-Ordovician Deadwood Formation, Deadwood Formation basal conglomerate-sandstone, and undivided Precambrian. These lithological domains were further partitioned into oxidized, mixed, and hypogene (sulfide) as the state of oxidation was determined to be more significant for metal recovery than host-rock type.

The database used for estimation contained collar, survey, assay, and lithology data for 905 drill holes, including 69,401 assays. The estimate was carried out using ordinary kriging (OK) and blocks measuring 20 x 20 x 20 ft. The estimate was constrained by a conceptual pit to demonstrate reasonable prospects of eventual economic extraction. Conceptual pit parameters are summarized in Table 11-11.

Table 11-1 is a summary of the MRE based on degree of oxidation. The cutoff grade varies according to oxidation domain because the recovery differs for each domain. Tons and ounces of gold have been rounded to the nearest 1,000.

Table 11-1: Richmond Hill Conceptual Pit-Constrained MRE at Variable Cutoff Grades

Cutoff Au oz/ton	Redox	Classification	Au oz/ton	Au g/t	Tons	Tonnes	Ounces Au
0.0062	Oxide	Indicated	0.0190	0.65	16,512,000	14,979,000	314,000
0.0085	Mixed	Indicated	0.0217	0.74	25,187,000	22,849,000	547,000
0.0128	Hypogene	Indicated	0.0304	1.04	15,434,000	14,001,000	469,000
Total Indicated			**0.0233**	**0.80**	**57,133,000**	**51,829,000**	**1,330,000**
0.0062	Oxide	Inferred	0.0142	0.49	30,244,000	27,437,000	429,000
0.0085	Mixed	Inferred	0.0185	0.63	21,999,000	19,957,000	407,000
0.0128	Hypogene	Inferred	0.0252	0.86	11,759,000	10,668,000	296,000
Total Inferred			**0.0177**	**0.61**	**64,002,000**	**58,062,000**	**1,132,000**

Notes: [1] Weighted mean of oxide, mixed, and hypogene totals.
Mineral resources are not mineral reserves and do not have demonstrated economic viability.
There is no certainty that all or any part of the mineral resources estimated will be converted into Mineral Reserves.
Pit-constrained resources are stated at a range of cutoff gold grades depending on oxide state.
Oxide recovery = 87%, mixed recovery = 65%, hypogene recovery = 42%.
Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
Mineral resource tonnage and grades are reported as undiluted.
MRE is current as of October 5, 2023.
Pit-Constrained at $1,900/oz; Royalty = 3.8%; Mill & G&A Cost = $8.00; Mine Cost = $1.80.

11.1 Reasonable Prospects

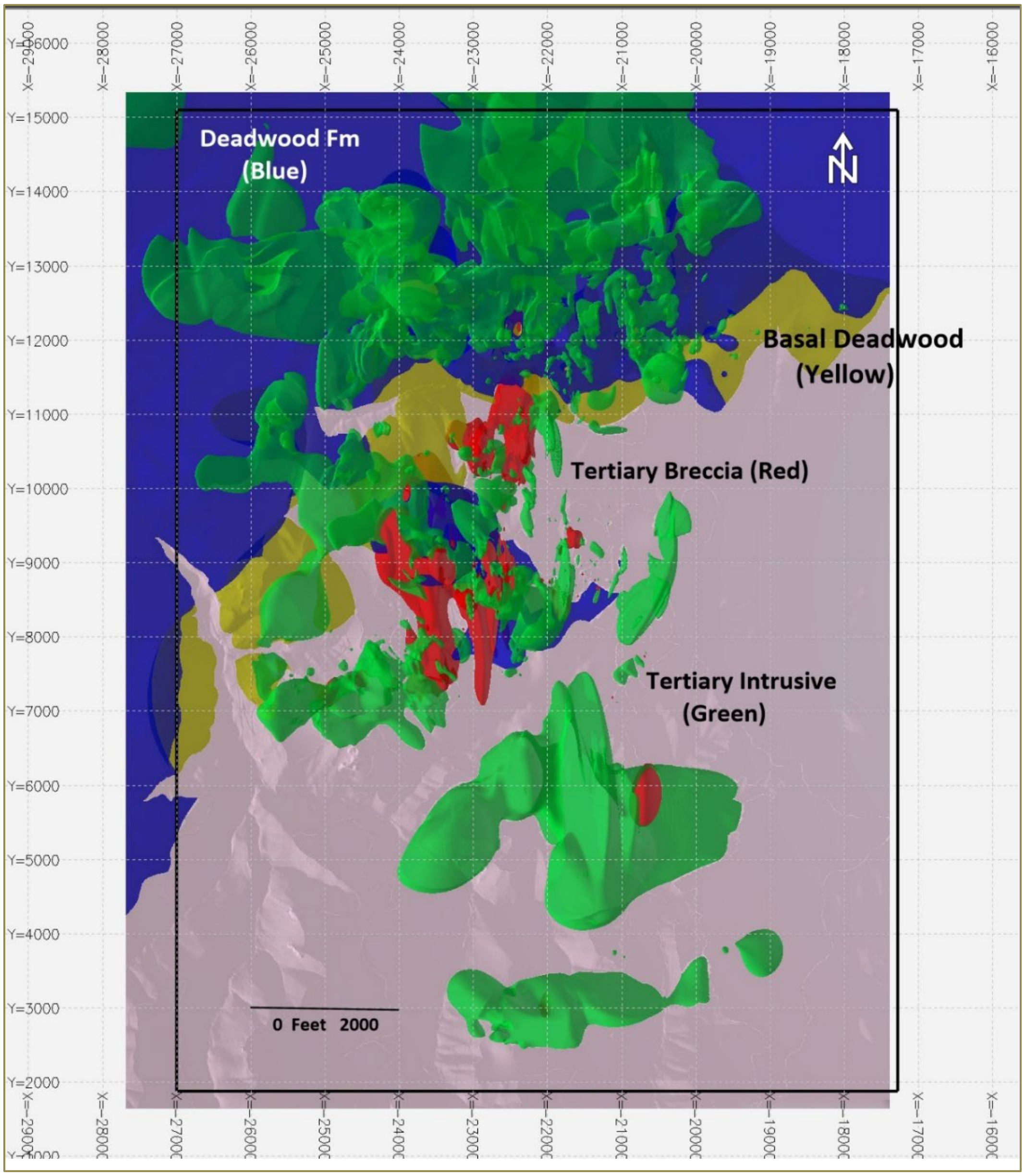
To establish the long-term gold price forecast, AKF used a combination of information derived from:

- Financial institutions
- Pricing used in technical reports filed with Canadian and United States regulatory authorities over the previous 12-month period
- Pricing reported by major mining companies in public filings such as annual reports in the previous 12-month period
- Spot pricing
- Three-year trailing average pricing.

On October 5, 2023, the effective date of this Report, the gold spot price was $1,819/oz, and from January 2024 to the end of March 2024, the gold spot price ranged from $2,032 to $2,328/oz. From this assessment, and concerning prevailing market prices, AKF considers $1,900/oz Au to be a reasonable long-term estimate.

11.2 Geological Interpretation

The MRE is based on grades of gold interpolated from five lithological domains; from youngest to oldest these are Tertiary hydrothermal breccia (Tbx), Tertiary intrusive (Ti), Cambro-Ordovician Deadwood Formation (COd), Deadwood Formation basal conglomerate-sandstone (COdcs), and undivided Precambrian (pC) (Figure 11-1).



Source: GMRS 2024.

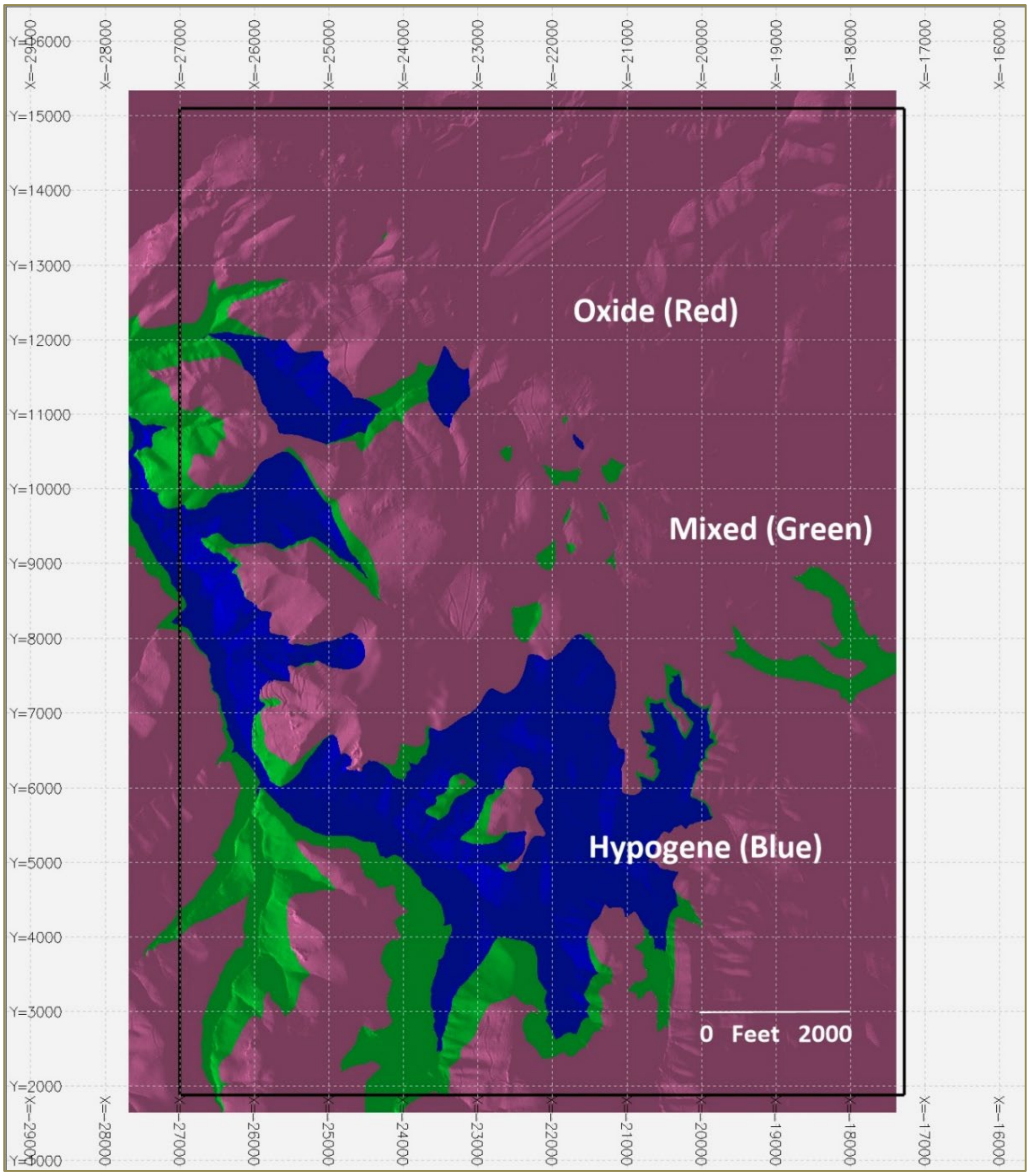
Figure 11-1: Richmond Hill Lithological Domains

The Deadwood Formation (COd and COdcs) comprises two mappable members: the first is a basal conglomerate–sandstone unit that sits on, or a short distance above, the unconformity with the underlying Precambrian basement; the second is the rest of the Deadwood Formation, excluding the basal unit). In addition, the Deadwood domain, as modeled, incorporates several younger, overlying formations—including the Winnipeg Formation—that do not formally belong to the Deadwood Formation. However, it was unnecessary to create separate domains for them as these formations have been tested by relatively few drill holes, are generally unmineralized or weakly mineralized, and represent a minor portion of the Deadwood domain as modeled.

The Precambrian domain includes all strata older than the Deadwood Formation and includes metasedimentary and metavolcanic units, the most prominent of which is the Yates Member greenstone. Although the Yates Member appears to be the principal host of the Richmond Hill Tertiary hydrothermal breccias and probably influenced the development and distribution of those breccia bodies, the distribution of drill-hole intercepts of the Yates Member does not permit a meaningful interpretation of the limits of that unit. Therefore, the Yates Member, or other subunits of the Precambrian strata, have not been modeled as separate domains.

As modeled, the Tertiary hydrothermal breccias are assumed to be the youngest units present, and therefore cut all other units; the Tertiary intrusives are next youngest and cut the COd and pC units; the COd unconformably overlies, and therefore truncates the pC domain; pC is the oldest domain and is cut or constrained by all other units.

Following deposition, Richmond Hill mineralization was variably oxidized, and the state and degree of oxidation is anticipated to have a significant impact on metallurgical recovery. Degree of oxidation was determined visually during Dakota Gold's drill-core logging, and that of predecessor operators, and three stages of oxidation were recorded: oxide, mixed, and hypogene. Although determining the degree of oxidation is subjective, and some variation exists in determinations of oxidation in adjacent drill holes, it is generally possible to subdivide the mineralization into three coherent oxidation domains. These domains are shown in plan view in Figure 11-2 and have been used to partition the MRE for reporting purposes (Section 11.13).



Source: GMRS 2024.

Figure 11-2: Richmond Hill Oxidation Domains

11.3 Exploratory Data Analysis

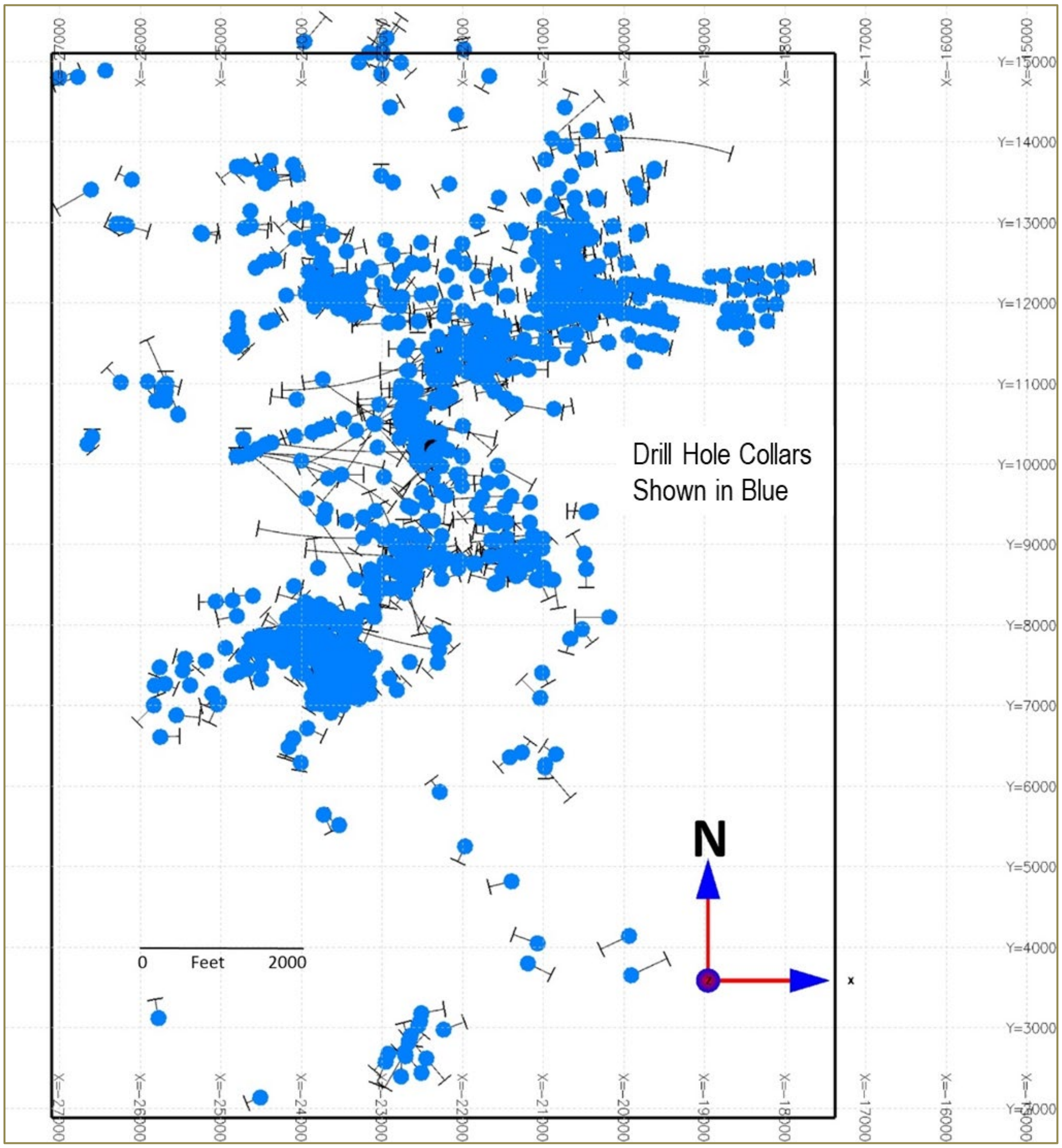
Table 11-2 lists the drill-hole data received from Dakota Gold that fall within the boundaries of the block model and were used to determine the MRE. Gold is the only mineral commodity of interest and is the only metal for which the MRE was carried out. Gold assays are given in troy ounces per short ton (oz/ton), and assay intervals are in feet. Collar locations are referenced to the Homestake mine local grid in feet. Density measurements were received in grams per cubic centimeter (g/cm^3), and have been converted to tons per cubic foot (ton/ft^3) as discussed in Section 11.6. As received, the database included collar, survey, assay, and lithology data for 926 holes. Of those, 21 had collar elevations that differed significantly from the topographic surface. These holes were excluded from the data used for the MRE.

Table 11-2: Data Used for MRE

Item	Number
Drill Collars	905
Surveys	4,308
Assays (Au and Ag)	69,401
Lithology Descriptions	51,739
Density Measurements	8,504
Oxidation Descriptions	47,491

These data were imported into SGS Genesis (Version 2.1.16), a commercial mineral resource modeling and estimation software program; during the process a number of interval values for assays and lithological descriptions contained transposition errors that AKF detected and corrected.

Figure 11-3 is a plan view of the drill holes within the MRE boundaries. The MRE area measures approximately 13,000 ft north–south by 10,000 ft east–west.



Source: GMRS 2024.

Figure 11-3: Richmond Hill Drill Holes Used for MRE, Plan View

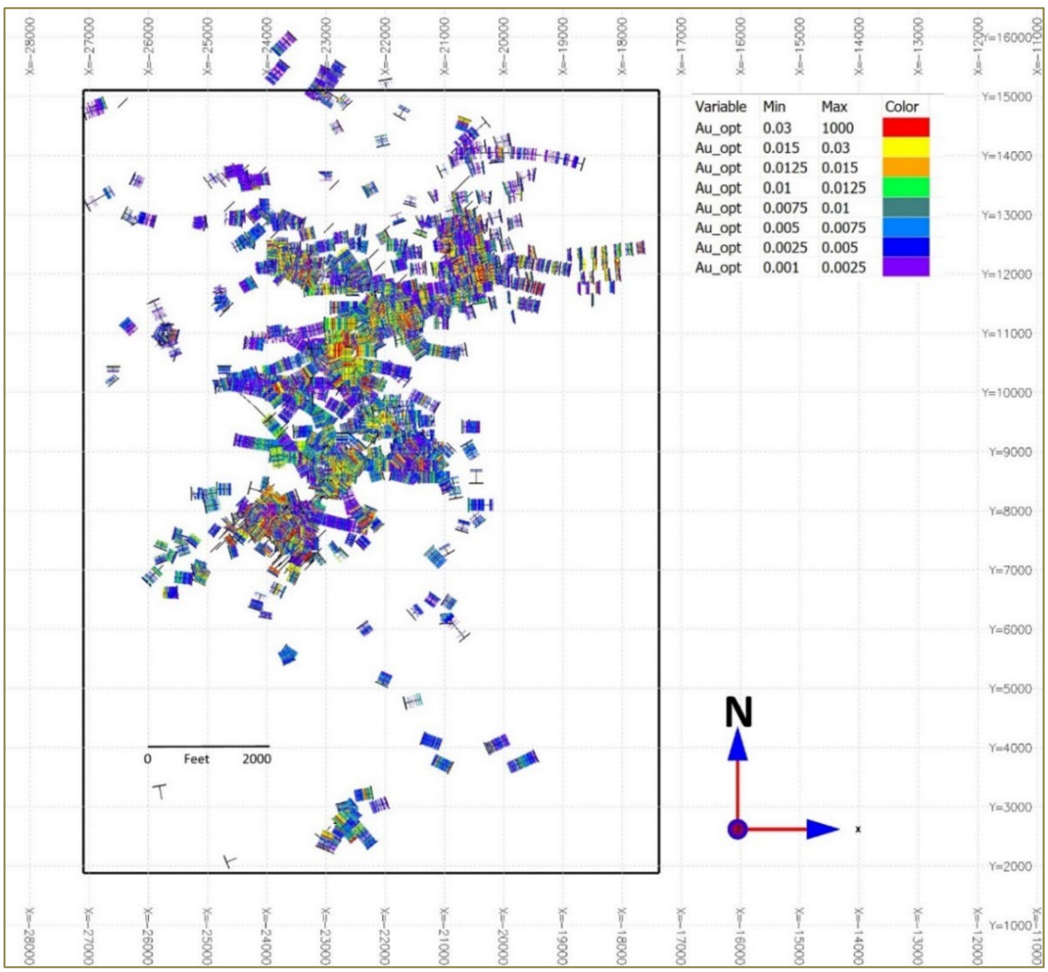
11.4 Assays

The assay data were partitioned into five lithological domains described in Section 11.8. Table 11-3 summarizes major descriptive statistics for gold assays in each of the five domains. Table 11-3 shows that gold grades are relatively evenly distributed through all domains. Figure 11-4 shows, in plan view, the distribution of gold assays by lithological domain.

Table 11-3: Richmond Hill Gold Assay Descriptive Statistics by Lithological Domain

Descriptive Statistic	COd (oz/ton)	COdcs (oz/ton)	pC (oz/ton)	Tbx (oz/ton)	Ti (oz/ton)
Mean	0.01	0.02	0.01	0.02	0.01
Median	0.00	0.01	0.01	0.01	0.00
Std. Dev.	0.02	0.02	0.03	0.03	0.04
Coeff. Var.	1.74	1.13	1.85	1.57	4.44
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	0.62	0.38	0.75	0.65	3.63
Total Data	9,700	5,021	31,493	10,847	10,457
Zero Values	2,297	224	4,514	666	1,720

Notes: COd = Deadwood Formation; COdcs = Basal Deadwood Formation; pC = Precambrian undivided; Tbx= Tertiary hydrothermal breccia; Ti= Tertiary intrusive.

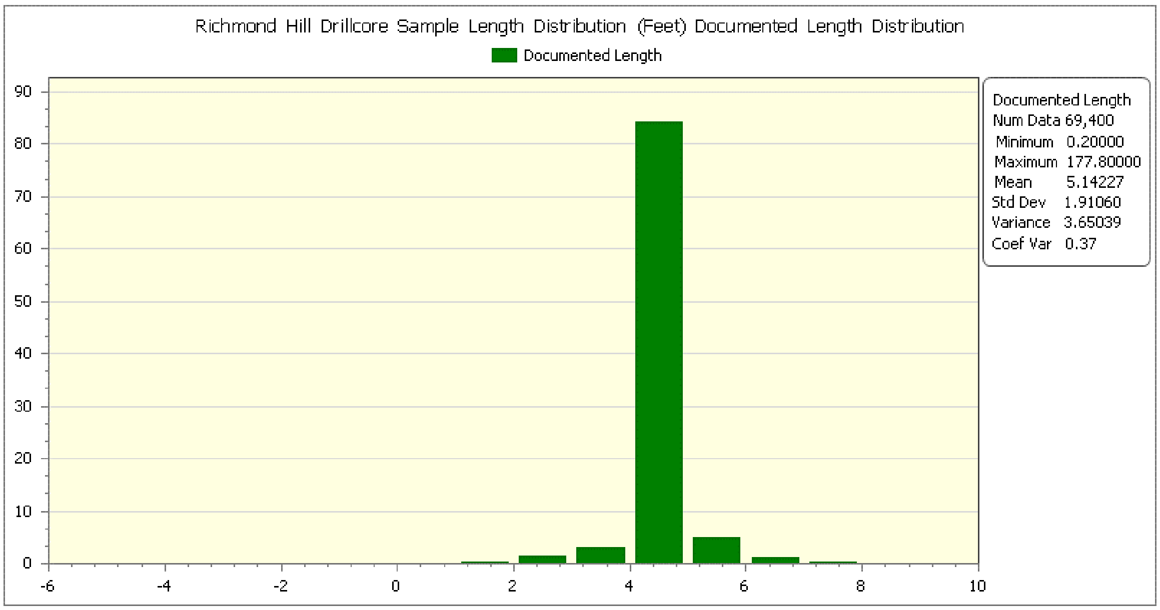


Source: GMRS 2024.

Figure 11-4: Distribution of Gold Assays (oz/ton) by Lithological Domain, Plan View

11.5 Composites

Sample compositing is done to overcome the influence of sample length on the contribution of sample grade (i.e., sample support). Most of the Richmond Hill drill samples—50,717 (73%)—were collected in 5 ft increments, and only 7,423 (11%) are greater than 5 ft long (Figure 11-5); therefore, it was considered appropriate to composite samples to 5 ft lengths. Composites honor domain boundaries, and if the last sample within a domain was less than 1 ft long, it was discarded. Table 11-4 provides descriptive statistics for gold composites by lithological domain. Composite gold values are very similar to the underlying assay values because 84% of the samples are the same length as the composites, so the compositing process left the assay intervals largely intact.



Source: GMRS 2024.

Figure 11-5: Richmond Hill Sample Length Histogram

Table 11-4: Richmond Hill Gold Composite Descriptive Statistics by Lithological Domain

Descriptive Statistic	COd (oz/ton)	COdcs (oz/ton)	pC (oz/ton)	Tbx (oz/ton)	Ti (oz/ton)
Mean	0.01	0.017	0.014	0.016	0.009
Median	0.003	0.011	0.005	0.008	0.004
Std. Dev.	0.018	0.019	0.025	0.026	0.04
Coeff. Var.	1.713	1.143	1.796	1.617	4.394
Minimum	0	0	0	0	0
Maximum	0.621	0.381	0.658	0.65	3.629
Total Data	10,939	5,670	33,819	11,642	11,324
Zero Values	2,844	446	6,622	1,650	1,937

Notes: COd = Deadwood Fm; COdcs = Basal Deadwood Fm., pC = Precambrian undivided; Tbx = Tertiary hydrothermal breccia; Ti = Tertiary intrusives.

11.6 Capping

In a sample population comprising many low grades and a few, very-high grades that are atypical of the overall sample population, capping the anomalously high grades is commonly used both to overcome the influence of the high-grade samples on sample statistics that otherwise would be disproportionate to their number, and to limit their potential to overstate the grade of the resulting resource estimate. In this instance, the capping level was determined by plotting composites on a log-scale cumulative frequency plot. If no outliers were present, the plot would form a relatively straight line. Offsets in the line's trend are indicative of potentially distinct subpopulations—in this case a subpopulation of uncharacteristically high grade.

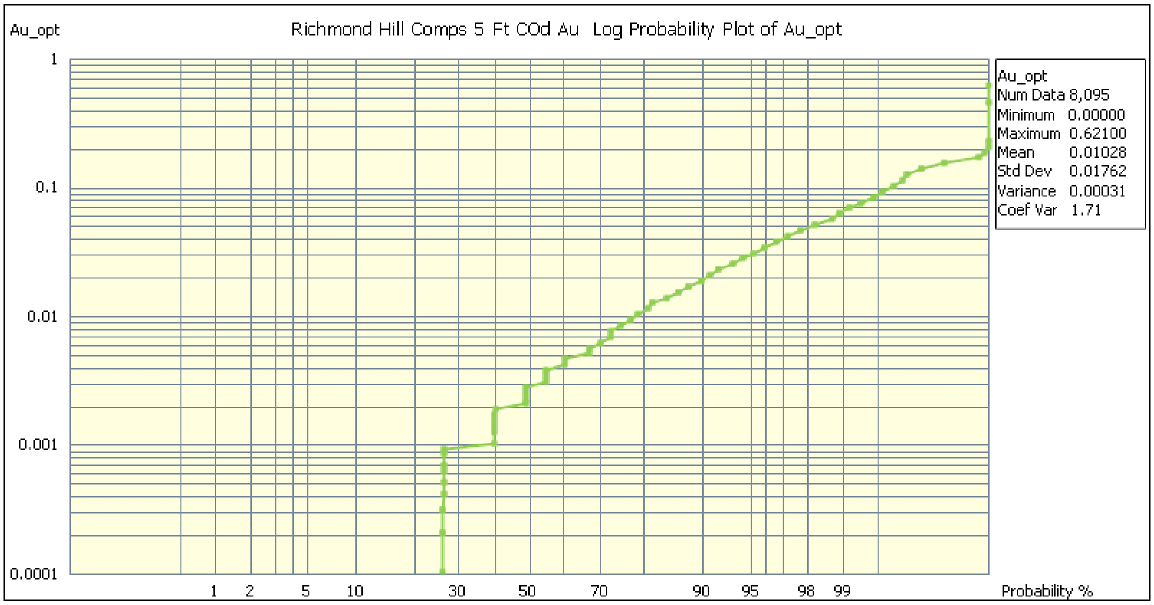
Cumulative frequency plots for gold composites from each of the five modeled domains indicate that most domains contain a small number of outliers.

Table 11-5 summarizes the capping level, number of composites capped, and the percent impact (i.e., the sum of the capped composite values divided by the sum of the uncapped population values x 100). Representative capping curves for the five domains are shown in Figure 11-6 to Figure 11-10. The largest difference between the sum of capped and uncapped assays for gold is 0.8% for the Deadwood Domain. Capped values were used in the MRE, although the impact on the resultant MRE is considered to be minimal.

Table 11-5: Summary of Capping Levels, Number of Samples, and Impact

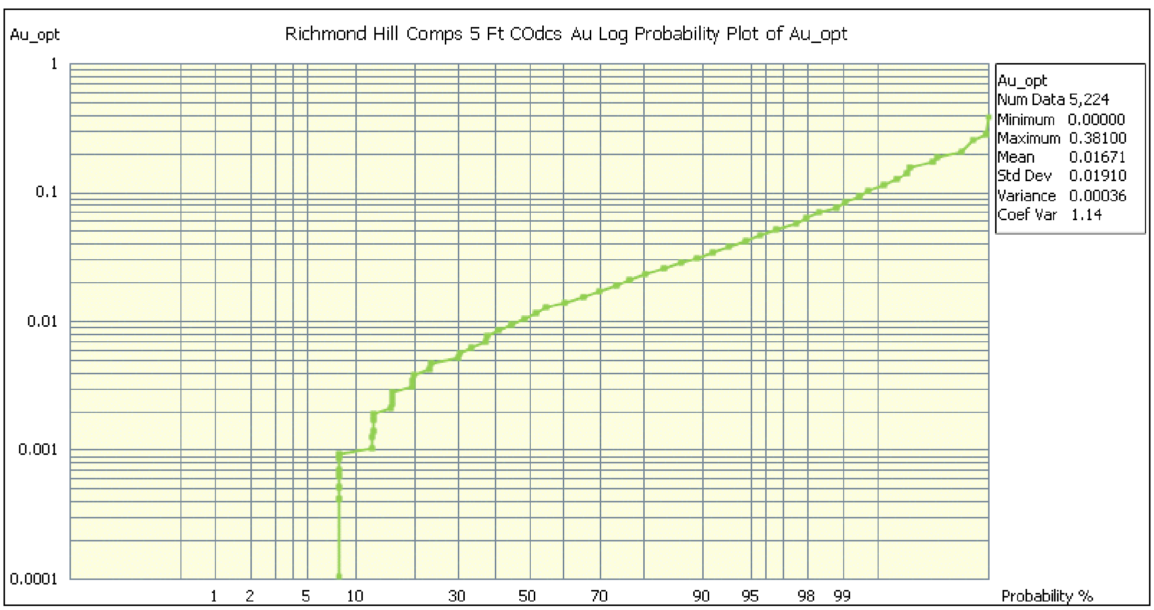
Domain	Au Cap (oz/ton)	Number Capped	% Impact
COd	0.2	4	0.8
COdcs	0.3	2	0.2
pC	0.4	12	0.3
Tbx	0.5	1	0.1
Ti	0.3	4	0.4

Notes: COd = Deadwood Fm; COdcs = Basal Deadwood Fm., pC = Precambrian undivided; Tbx = Tertiary hydrothermal breccia; Ti = Tertiary intrusives.



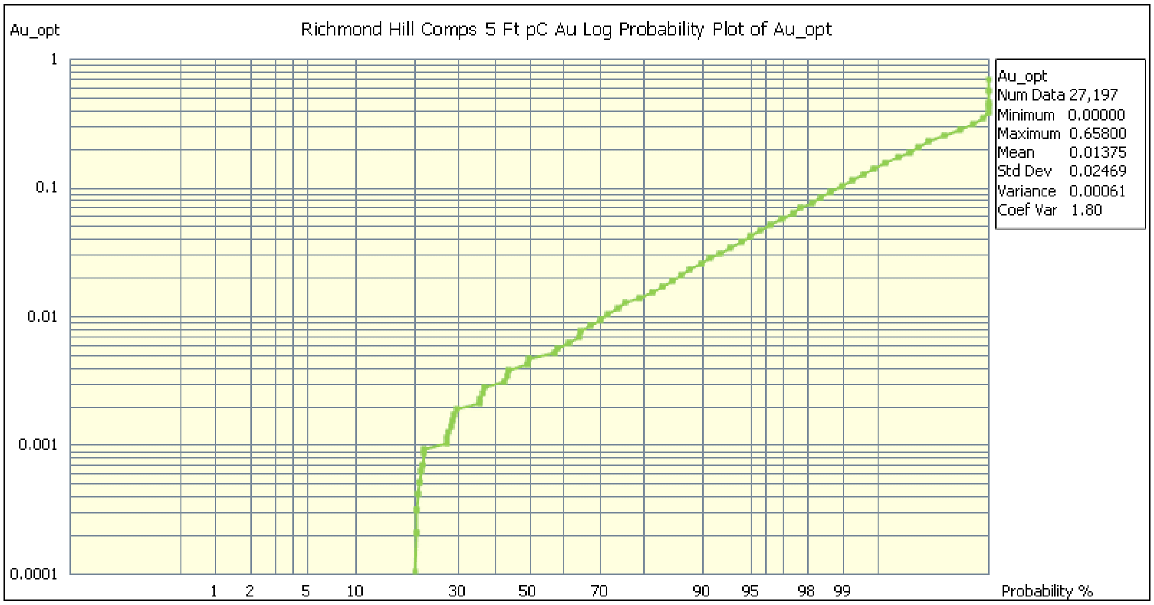
Source: GMRS 2024.
Note: opt = oz/ton

Figure 11-6: Au Capping Curve Deadwood (COd) Domain



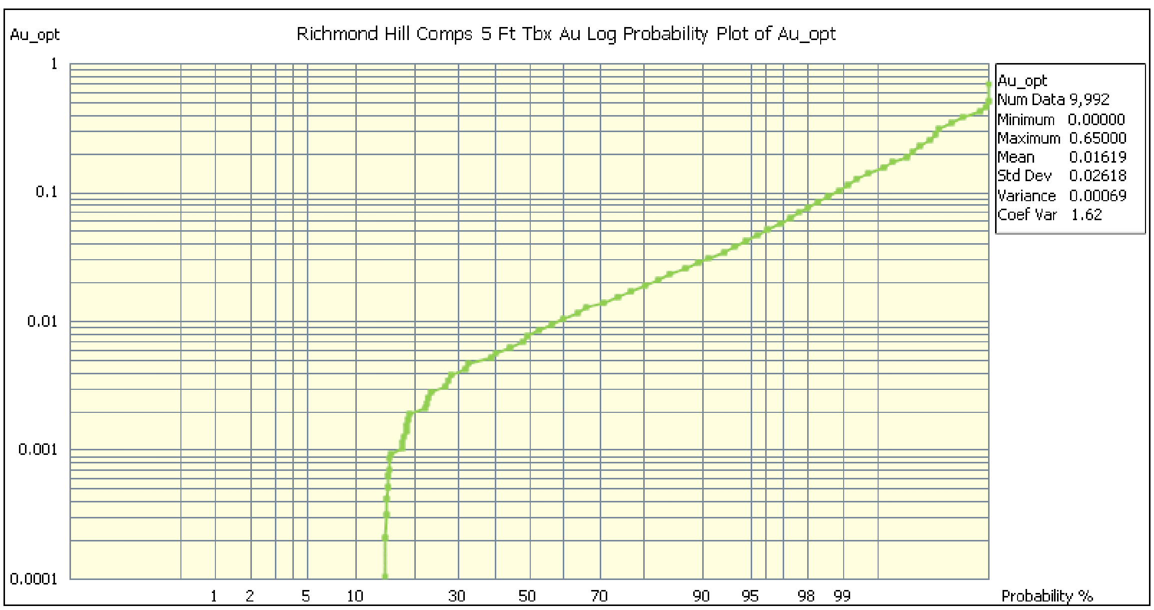
Source: GMRS 2024.
Note: opt = oz/ton

Figure 11-7: Au Capping Curve COdcs Domain



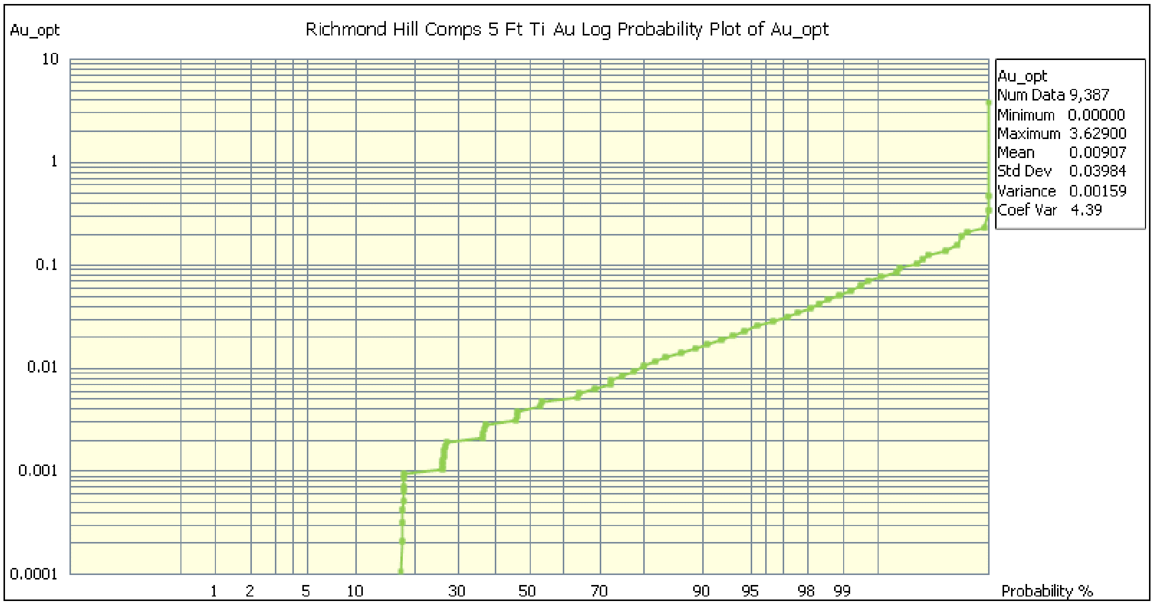
Source: GMRS 2024.
Note: opt = oz/ton

Figure 11-8: Au Capping Curve Precambrian (pC) Domain



Source: GMRS 2024.
Note: opt = oz/ton

Figure 11-9: Au Capping Curve Tertiary Intrusive Breccia (Tbx)



Source: GMRS 2024.
Note: opt = oz/ton

Figure 11-10: Au Capping Curve Tertiary Intrusive (Ti)

11.7 Bulk Density

Dakota Gold provided AKF with an Excel spreadsheet containing 8,899 usable bulk-density measurements, made on core samples from the 2022 and the 2023 drill campaigns. There are no bulk-density measurements from pre-Dakota Gold drilling. The bulk-density data were collected in grams per cubic centimeter and were converted to tonnage factors using the following conversion:

- 1,000,000 g = 1 tonne (t)
- 1,000,000 cm^3 = 1 m^3
- Therefore, 1 g/cm^3 = 1 t/m^3
- 1 tonne = 1.1023 tons
- 1 m^3 = 35.3147 ft^3
- Therefore t/m^3 * (1.1023/35.3147) = ton/ft^3, or ton/ft^3 = t/m^3 * 0.0312.

The bulk-density measurements were imported into Genesis, then partitioned into each of the five lithological domains. Table 11-6 summarizes bulk-density and tonnage-factor values by lithological domain.

Table 11-6: Bulk-Density Average Values by Lithological Domain

Domain	Bulk Density (g/cm³)	Tonnage Factor (ton/ft³)	Number of Values
COd	2.44	0.076	350
Codcs	2.56	0.080	210
pC	2.74	0.086	5,175
Tbx	2.60	0.081	2,221
Ti	2.55	0.080	665

11.8 Analysis of Spatial Continuity

Spatial continuity of mineralization was investigated using Sage 2001 software, a commercial software program that generates 3D variogram models based on least-squares curves fitted to 36 multidirectional variograms of composite values. The variogram ranges and orientations for gold for each of the five domains are set out in Table 11-7.

Table 11-7: Richmond Hill Gold Variogram Parameters

Domain	C0	C1	Strike Y (°)	Plunge Y (°)	Dip X (°)	Dip Azimuth (°)	Major Y (ft)	Median X (ft)	Minor Z (ft)	Lag (ft)
COd_Au	0.240	0.760	310	−5	−5	40	250	130	80	50
COdcs_Au	0.253	0.747	65	0	−20	335	250	200	100	50
pC_Au	0.265	0.735	325	−45	0	-	130	80	145	50
Tbx_Au	0.281	0.719	20	70	5	110	250	170	160	50
Ti_Au	0.244	0.757	0	0	0	-	250	250	150	50

Notes: C0 = Weight of Nugget; C1 = Weight of Remainder of variance; COd = Deadwood Fm; COdcs = Basal Deadwood Fm., pC = Precambrian undivided; Tbx = Tertiary hydrothermal breccia; Ti = Tertiary intrusives.

11.9 Block Model

Block model parameters are set out in Table 11-8. The "Origin" references the centroid of that block.

Table 11-8: Richmond Hill Block Model Parameters

Local Grid Origin (ft)		Block Size (ft)	Discretization	Model Size (No.)		Local Grid Ending (ft)
X	−27,100	20	5	Columns	486	−17,400
Y	1,900	20	5	Rows	661	15,100
Z	3,000	20	5	Levels	175	6,480
Rotation (°)	0	Origin = block centroid				

11.10 Interpolation Plan

Grades of gold were interpolated into the block model in one pass using OK. For a grade to be interpolated into a block, it was necessary that a minimum of 4 and a maximum of 12 composites were found within the volume of the search ellipse. A maximum of two composites per drill hole was permitted to ensure that all blocks were informed by a minimum of two drill holes, and therefore that all interpolated blocks demonstrate continuity of mineralization. The maximum of 12 composites was set to minimize the impact of local grade variations (i.e., equal to a maximum of six holes per block).

All domains were estimated with hard boundaries, and only the composites from a given domain were used to interpolate grades in that domain. Separate search ellipses were used for each of the domains. Table 11-9 summarizes the search ellipse parameters used for the grade interpolation.

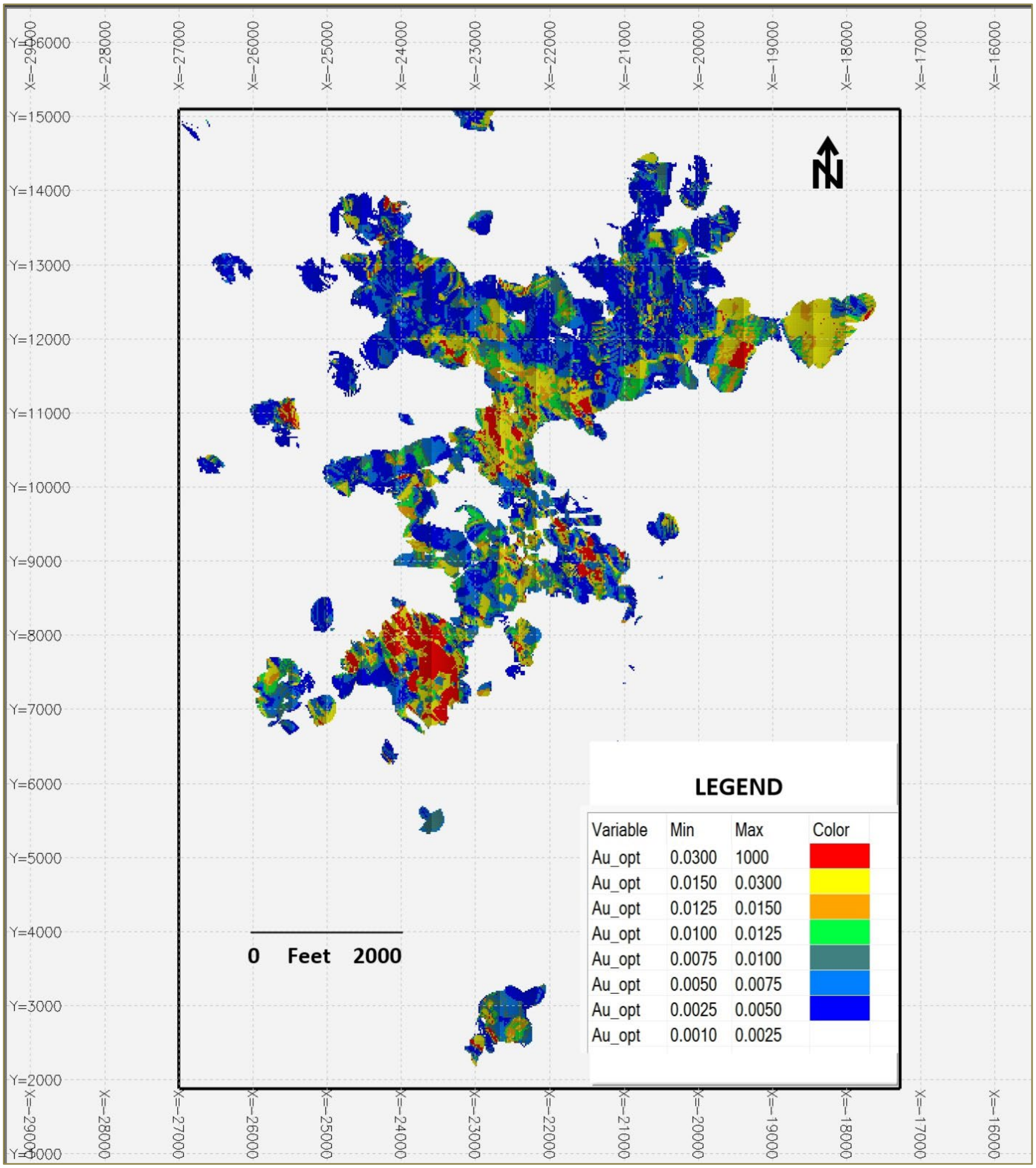
Table 11-9: Richmond Hill Search Ellipse Parameters

Domain	Strike Y (°)	Plunge Y (°)	Dip X (°)	Dip Azimuth (°)	Major Y (ft)	Median X (ft)	Minor Z (ft)
COd_Au	310	−5	−5	40	300	250	150
COdcs_Au	65	0	−20	335	300	150	250
pC_Au	325	−45	0		300	250	150
Tbx_Au	20	70	5	110	300	300	300
Ti_Au	0	0	0		300	300	200

Notes: COd = Deadwood Fm; COdcs = Basal Deadwood Fm., pC = Precambrian undivided; Tbx = Tertiary hydrothermal breccia; Ti = Tertiary intrusives.

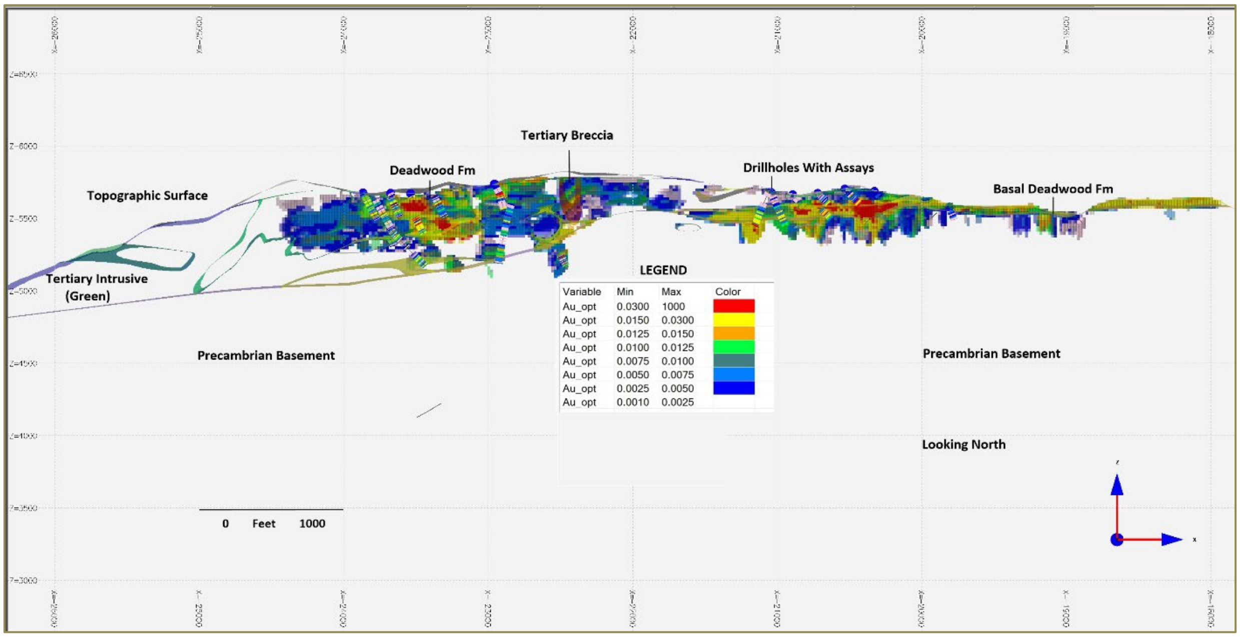
Although the MRE was carried out on the basis of lithological domains, the resource is stated in terms of oxidation states—oxide, mixed, and hypogene—because, from a metal-recovery perspective, the oxidation state is considered to be more significant than variations in host-rock lithology.

Figure 11-11 shows the unconstrained block model, and Figure 11-12 a vertical cross-section through the unconstrained block model.



Source: GMRS 2024.

Figure 11-11: Richmond Hill Block Model, Plan View



Source: GMRS 2024.

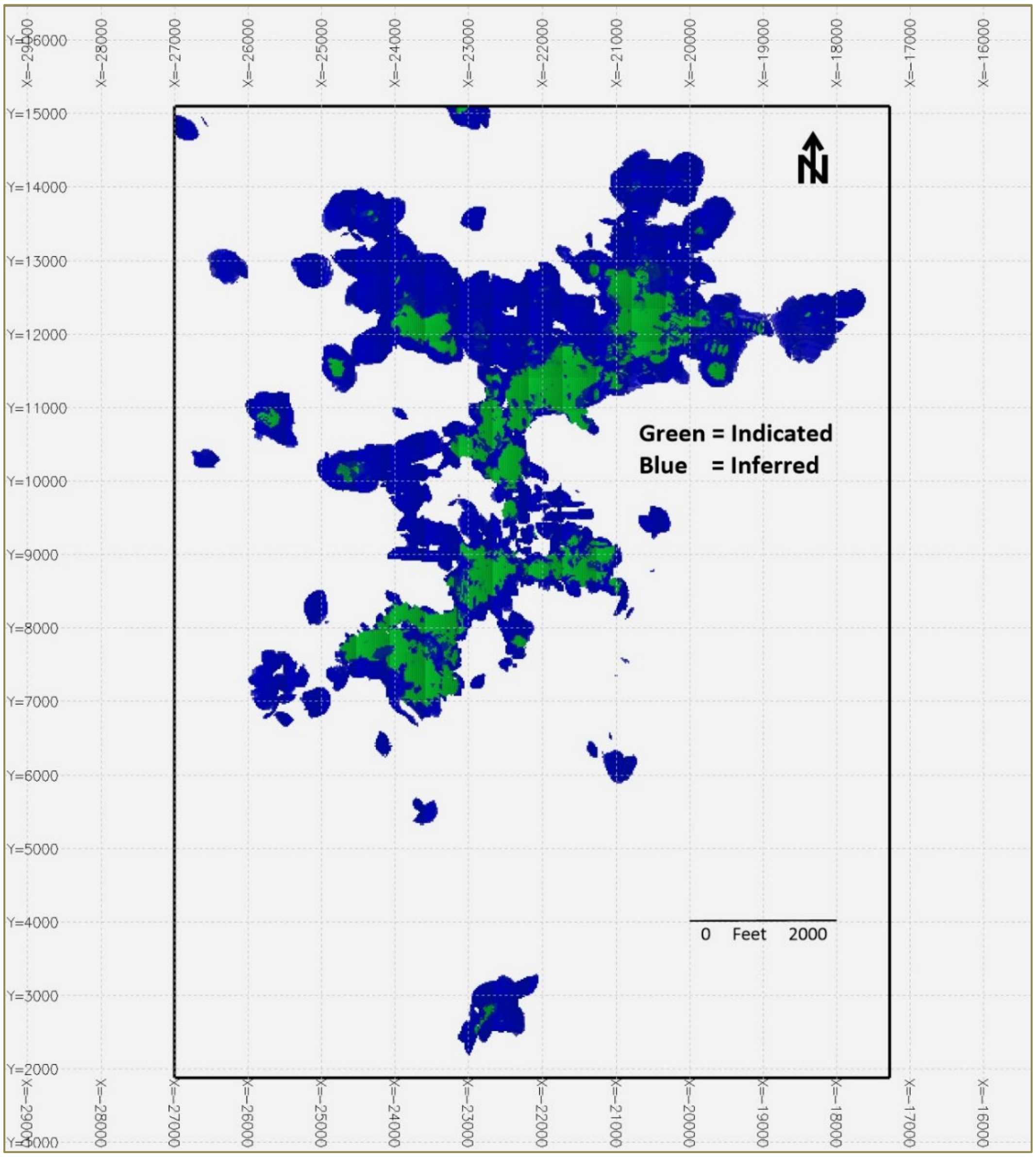
Figure 11-12: Richmond Hill Block Model Vertical Cross-Section 12000 N

11.11 Mineral Resource Classification

Blocks were classified as Indicated or Inferred. Table 11-10 sets out the classification criteria. Classification was done using inverse distance squared (ID²) and the entire composite dataset. The Indicated search ellipse is equal to half the size of the Inferred search ellipse. Figure 11-13 shows the distribution of Indicated and Inferred blocks.

Table 11-10: Richmond Hill Resource Classification Criteria

	Orientation			Axes (Radius in ft)			Number of Composites		
Category	Azimuth (°)	Dip (°)	Spin (°)	Major	Median	Minor	Minimum	Maximum	Max per Hole
Indicated	0	0	0	150	150	150	8	10	2
Inferred	0	0	0	300	300	300	4	10	2



Source: GMRS 2024.

Figure 11-13: Richmond Hill Block Model Classification, Plan View

11.12 Reasonable Prospects

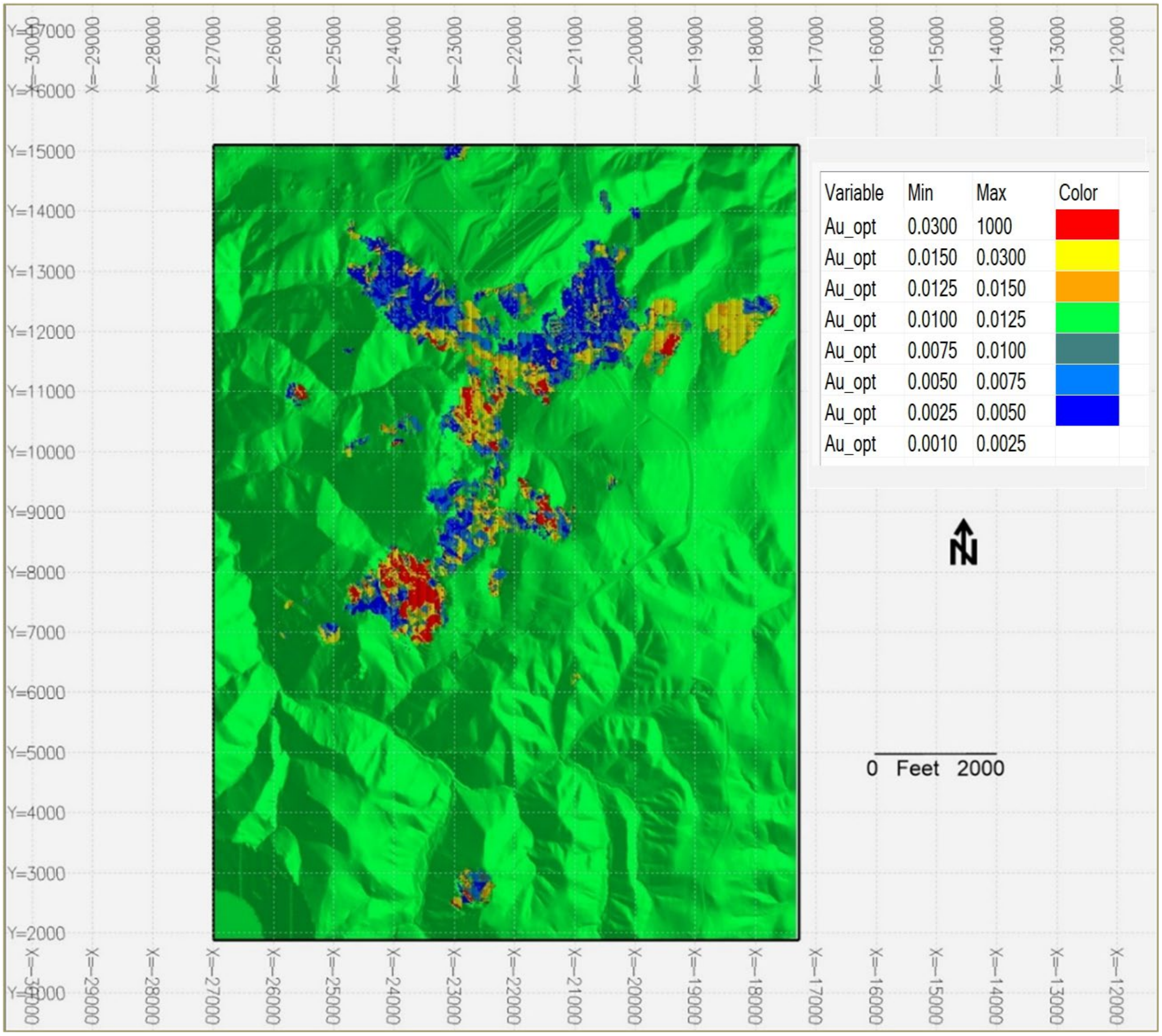
Because Richmond Hill mineralization largely occurs at or near surface, it is necessary to demonstrate reasonable prospects of eventual economic extraction (reasonable prospects) by constraining the block model with a conceptual pit that is based on metal price, mining and recovery costs, recovery factors, and mining parameters that have either been established by testing (or are based on industry norms for this type of deposit and location.

Conceptual pit parameters are set out in Table 11-11; the block model, constrained by the conceptual pit, is shown in Figure 11-14. The parameters are considered to be approximate, as sufficient engineering and economic studies have not been conducted to generate authoritatively accurate values for those parameters, and most or all of those parameters can be expected to change with time. This approach is not considered to represent an abnormal risk with respect to the validity of the MRE, as it meets the definition of "reasonable" in the context of reasonable prospects.

Table 11-11: Richmond Hill Conceptual Pit Parameters

Parameter	Unit	Value
Gold Price (Resource)	$/oz	1,900[1]
Royalties	%	3.8
Au Recovery (Oxide)	%	87
Au Recovery (Mixed)	%	65
Au Recovery (Sulfide)	%	42
Mining	$/ton	1.80
Processing Oxide	$/ton	8.00
Processing Mixed	$/ton	8.00
Processing Sulfide	$/ton	8.00
G&A (included)	$/ton	0.00
Pit Slope	°	50

Note: [1] Gold price is based on the 2024 forecast by 36 US and Canadian financial institutions.



Source: GMRS 2024.

Figure 11-14: Richmond Hill Pit-Constrained Block Model, Plan View

11.13 Mineral Resource Tabulation

In Table 11-12, the estimated gold resources are tabulated at a range of cutoff grades as Indicated and Inferred resources that are further partitioned into oxide, mixed, and hypogene. The base case for each oxidation state is highlighted. The base-case cutoff grades are based on the dollar value of gold divided by the combined costs of production, and vary with the state of oxidation. The general formula is:

Cutoff Grade (Au oz/ton) = (Mining Cost/ton + Processing Cost/ton + G&A Cost/ton) / Gold Price ($/ounce)

The cutoff grade for the base case varies for each oxide domain. The base case is bolded.

To reflect the uncertainty attached to the estimate, tons and ounces have been rounded to the nearest 1,000. Factors that contribute to the uncertainty of estimated tons and grade are those common to all MREs; the uncertainty is an aggregate of potential errors pertaining to spatial location of samples, core recovery, assay values, assumptions of continuity of mineralization and grades between drill holes, and limitations of the representation of lithological domains.

Table 11-12: Richmond Hill Conceptual Pit-Constrained MRE

Richmond Hill Pit Constrained Oxide Au ($1,900/ton)						
Cutoff Au oz/ton	**Classification**	**Au oz/ton**	**Au g/t**	**Short Tons**	**Tonnes**	**Ounces Au**
0.0100	Indicated	0.0222	0.69	12,758,000	11,574,000	283,000
0.0100	Inferred	0.0177	0.55	19,336,000	17,541,000	342,000
0.0090	Indicated	0.0213	0.66	13,749,000	12,473,000	293,000
0.0090	Inferred	0.0167	0.52	21,976,000	19,936,000	367,000
0.0080	Indicated	0.0205	0.64	14,688,000	13,325,000	301,000
0.0080	Inferred	0.0158	0.49	24,791,000	22,490,000	392,000
0.0070	Indicated	0.0197	0.61	15,696,000	14,239,000	309,000
0.0070	Inferred	0.0149	0.46	27,822,000	25,240,000	415,000
0.0062	Indicated	0.0190	0.59	16,512,000	14,979,000	314,000
0.0062	Inferred	0.0142	0.44	30,244,000	27,437,000	429,000
0.0060	Indicated	0.0189	0.59	16,703,000	15,153,000	316,000
0.0060	Inferred	0.0140	0.44	30,966,000	28,092,000	434,000
Richmond Hill Pit Constrained Mixed Au ($1,900/ton)						
Cutoff Au oz/ton	**Classification**	**Au oz/ton**	**Au g/t**	**Short Tons**	**Tonnes**	**Ounces Au**
0.0100	Indicated	0.0228	0.71	23,107,000	20,962,000	527,000
0.0100	Inferred	0.0197	0.61	19,590,000	17,772,000	386,000
0.0090	Indicated	0.0220	0.68	24,512,000	22,237,000	539,000
0.0090	Inferred	0.0189	0.59	21,160,000	19,196,000	400,000
0.0085	Indicated	0.0217	0.67	25,187,000	22,849,000	547,000
0.0085	Inferred	0.0185	0.58	21,999,000	19,957,000	407,000
0.0080	Indicated	0.0213	0.66	25,850,000	23,451,000	551,000
0.0080	Inferred	0.0181	0.56	22,881,000	20,757,000	414,000
0.0070	Indicated	0.0207	0.64	27,068,000	24,556,000	560,000
0.0070	Inferred	0.0173	0.54	24,852,000	22,545,000	430,000
0.0060	Indicated	0.0201	0.63	28,288,000	25,662,000	569,000
0.0060	Inferred	0.0166	0.52	26,550,000	24,086,000	441,000

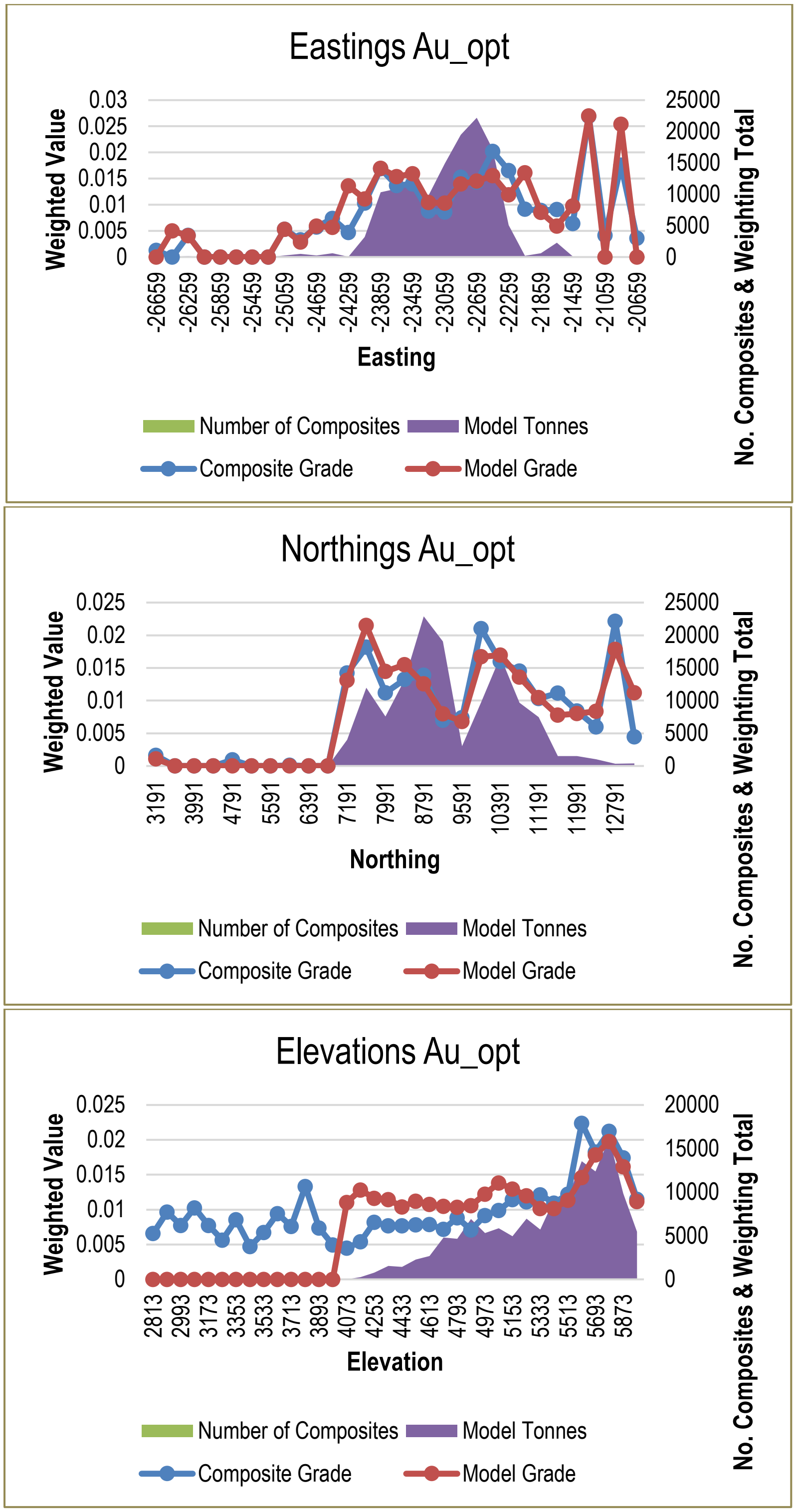
Richmond Hill Pit-Constrained Primary Au ($1,900/ton)						
Cutoff Au oz/ton	Classification	Au oz/ton	Au g/t	Short Tons	Tonnes	Ounces Au
0.0128	Indicated	0.0304	0.95	15,434,000	14,001,000	469,000
0.0128	Inferred	0.0252	0.78	11,759,000	10,668,000	296,000
0.0100	Indicated	0.0281	0.87	17,536,000	15,908,000	493,000
0.0100	Inferred	0.0239	0.74	13,032,000	11,822,000	311,000
0.0090	Indicated	0.0274	0.85	18,224,000	16,533,000	499,000
0.0090	Inferred	0.0234	0.73	13,453,000	12,204,000	315,000
0.0080	Indicated	0.0267	0.83	18,930,000	17,173,000	505,000
0.0080	Inferred	0.0231	0.72	13,791,000	12,511,000	319,000
0.0070	Indicated	0.0260	0.81	19,623,000	17,802,000	510,000
0.0070	Inferred	0.0227	0.71	14,159,000	12,845,000	321,000
0.0060	Indicated	0.0254	0.79	20,303,000	18,419,000	516,000
0.0060	Inferred	0.0221	0.69	14,634,000	13,276,000	323,000

Notes: Mineral resources are constrained within a conceptual pit and stated at gold cutoff grades that vary according to oxide domain.
There is no certainty that all or any part of the mineral resources estimated will be converted into Mineral Reserves. pit-constrained resources are stated at a gold cutoff grade that varies with the state of oxidation.
Oxide recovery = 87%, mixed recovery = 65%, hypogene recovery = 42%.
Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
Mineral resource tonnage and grades are reported as undiluted.
MRE is current as of October 5, 2023.

11.14 Block Model Validation

The block model was validated by three methods:

- A visual comparison made between block grades and the grades of the underlying assays and composites—good correspondence, with minimal smearing of high grades, was noted in all cases.
- Average grades were compared for assays, composites, and block models for each domain—the averages are similar, which indicates that the estimation process honored the underlying data.
- Swath plots generated for the major domains—these compare aggregate block grades with corresponding composite grades in east–west, north–south, and vertical views. Figure 11-15 shows swath plots for the Tbx domain, and the close correspondence between composite and block model grades.



Source: GMRS 2024.

Figure 11-15: Swath Plot, Tertiary Breccia (Tbx) Domain

11.15 Qualified Person's Opinion

The QP is of the opinion that all issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction may be resolved with further work.

12 MINERAL RESERVE ESTIMATES

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

13 MINING METHODS

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

14 PROCESSING AND RECOVERY METHODS

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

15 INFRASTRUCTURE

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

16 MARKET STUDIES AND CONTRACTS

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

17 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

Please note that the information in this chapter will generally change once a new Dakota Gold mine plan is in place.

17.1 Results of Environmental Studies

In the 1980s and 1990s, considerable environmental baseline information was collected to support historical mine permitting and to support reclamation and closure activities. This information, along with new and additional or updated data, will be required to support future mine development and permitting efforts.

Dakota Gold collects select environmental baseline information required to support planned exploration permitting and assist with reclamation of disturbed sites. Key environmental baseline disciplines required to support exploration drilling permitting include: vegetation, wildlife, cultural, archaeology, and historical.

17.2 Requirements and Plans for Waste and Tailings Disposal, Site Monitoring, and Water Management During Operations and After Mine Closure

Since the Richmond Hill Gold mine is closed, requirements and plans during operations are not applicable.

As part of LAC's closure program at Richmond Hill Mine, all material classified as acid generating was removed from the Spruce Gulch waste dump and placed in truck compacted lifts back into the historic Richmond Hill mining area. Following placement of that material, the material was capped with clay to minimize oxygen and water infiltration into the compacted potentially acid-generating material. LAC also used this method to remediate the ore material on the existing heap leach pads, isolating the pads with a similar clay cap. (Note: LAC also added and mixed limestone into portions of Pad 3.)

All solid waste that may be generated at the site will be transported off site and disposed of at permitted facilities in accordance with all local, state, and federal regulations. This includes trash, debris, and building-demolition waste and rubble.

Monitoring activities at the current Richmond Hill site include monthly site inspections of the reclaimed acreage, as well as the water treatment operations and support facilities. Annual visual inspections of the leach pad and backfilled historic Richmond Hill mining area impoundment covers are carried out to monitor for stability, erosion control, and prevention of deep-rooting vegetation through the clay caps. Visual inspections also include observations of potential surface cracking, subsidence, stressed vegetation, and erosion rills or slumping of the impoundment covers.

Fencing and signage along the remaining highwalls and along mine access roads are routinely monitored and maintained, as needed, to restrict access and provide public safety. LAC completes an annual noxious-weed treatment program at the site. Stormwater management structures are monitored and repaired as needed to prevent extensive erosion and sediment loading into surrounding drainages. LAC maintains a Stormwater Pollution Prevention Plan (SWPPP) as part of the surface-water discharge (SWD) permit for the site. The SWPPP ensures roads are graded and sediment-control structures are maintained at the site. Buildings are maintained as needed, and access to them is restricted to LAC employees, their contractors, and upon request, to the SDDANR. Site maintenance would be the responsibility of Dakota Gold once the property is purchased.

Any potentially impacted groundwater from the former process area, pit impoundment, or Spruce Gulch waste dump facility is actively managed by two on-site water management and treatment systems that have continued to operate throughout the post-closure period. The Spruce Gulch water management facility manages water from the former Spruce Gulch waste rock facility and South Gulch. The treated water is released into Spruce Gulch as permitted at the permitted SWD compliance point. The process-area water management facility manages water from the reclaimed leach pads and stormwater pond. This water may be treated in one of three ways before being released to the permitted SWD compliance point. The first treatment option is RO with additional biological treatment. The second option is biological treatment without RO. The third option is biological treatment and chemical precipitation.

Continued water treatment at these sites would be the responsibility of Dakota Gold once the property is purchased. (Note: the associated costs for approximately the next 100 years are included in the post-closure bond cost estimate previously provided to Dakota Gold.)

LAC also performs surface water and groundwater quality monitoring and aquatic biological monitoring consistent with the Hydrologic Monitoring Plan. The Hydrologic Monitoring Plan includes monitoring at 13 groundwater wells and 10 surface-water locations to assess water quality and trends in pH, sulfate, and metal concentrations. “Sentinel” monitoring locations are positioned at surface-water and groundwater flow locations downgradient of the historical operations areas (i.e., backfilled mining area, Spruce Gulch, and leach pads) and are representative of the water quality in those locations. A post-closure Groundwater Quality Contingency Plan has been implemented that identifies site-specific performance criteria that LAC uses for triggering additional actions if water quality at defined sentinel monitoring locations indicates a potential change in groundwater conditions that could potentially cause an exceedance of surface-water quality standards at permitted discharge points. Aquatic biological monitoring continues to be conducted in Cleopatra Creek, Labrador Gulch, and Rubicon Gulch in accordance with the SWD permit. The Aquatic Biological Monitoring Plan has LAC performing this monitoring every five years until 2032, at which time aquatic biological monitoring will be discontinued. All site monitoring would be the responsibility of Dakota Gold once the property is purchased.

The leach pad and backfilled historic Richmond Hill mining area impoundment covers have met or exceeded original design specifications for limiting infiltration.

17.3 Project Permitting Requirements, Permit Application Status, and Requirements to Post Performance or Reclamation Bonds

LAC has posted the required post-performance and reclamation bonds required by the SDDANR, and the SDDANR has updated both bonds as required. The bonds' maintenance would be the responsibility of Dakota Gold once the property is purchased.

SDBME required the face value of the surety bond for 2023 that serves as the post-closure financial assurance to be $40,634,534 , an increase from the $30,838,220 amount submitted in 2022 as part of the five-year review of the bond (SDBME 2023).

Dakota Gold has posted the necessary reclamation bonds for three Exploration Notices of Intent (EXNI) issued by the SDDANR.

17.4 Plans, Negotiations, or Agreements with Local Individuals or Groups

Neither LAC nor Dakota Gold has any current plans, negotiations, or agreements with local individuals or groups.

17.5 Mine Closure, Remediation, and Reclamation Plans, and Associated Costs

The Richmond Hill Gold mine is closed and mostly reclaimed, except for water treatment facilities. As stated above, water treatment has been, and continues to be, conducted at the former Spruce Gulch waste rock disposal site to treat water emanating from Spruce Gulch and South Gulch, and at the former process area to treat seepage from the closed pads. Water treatment will be required at these sites until water quality effluent limits and water quality standards are met pursuant to the Richmond Hill permits and South Dakota laws and regulations. Continued water treatment at these sites would be the responsibility of Dakota Gold if the property is purchased. (Note: the associated costs for approximately the next 100 years are included in the post-closure bond cost estimate previously provided to Dakota Gold).

LAC received a replacement RO unit for the water treatment plant in September 2023 and will be operational in early 2024. The new RO unit is smaller, more efficient, and can treat water at cooler water temperatures.

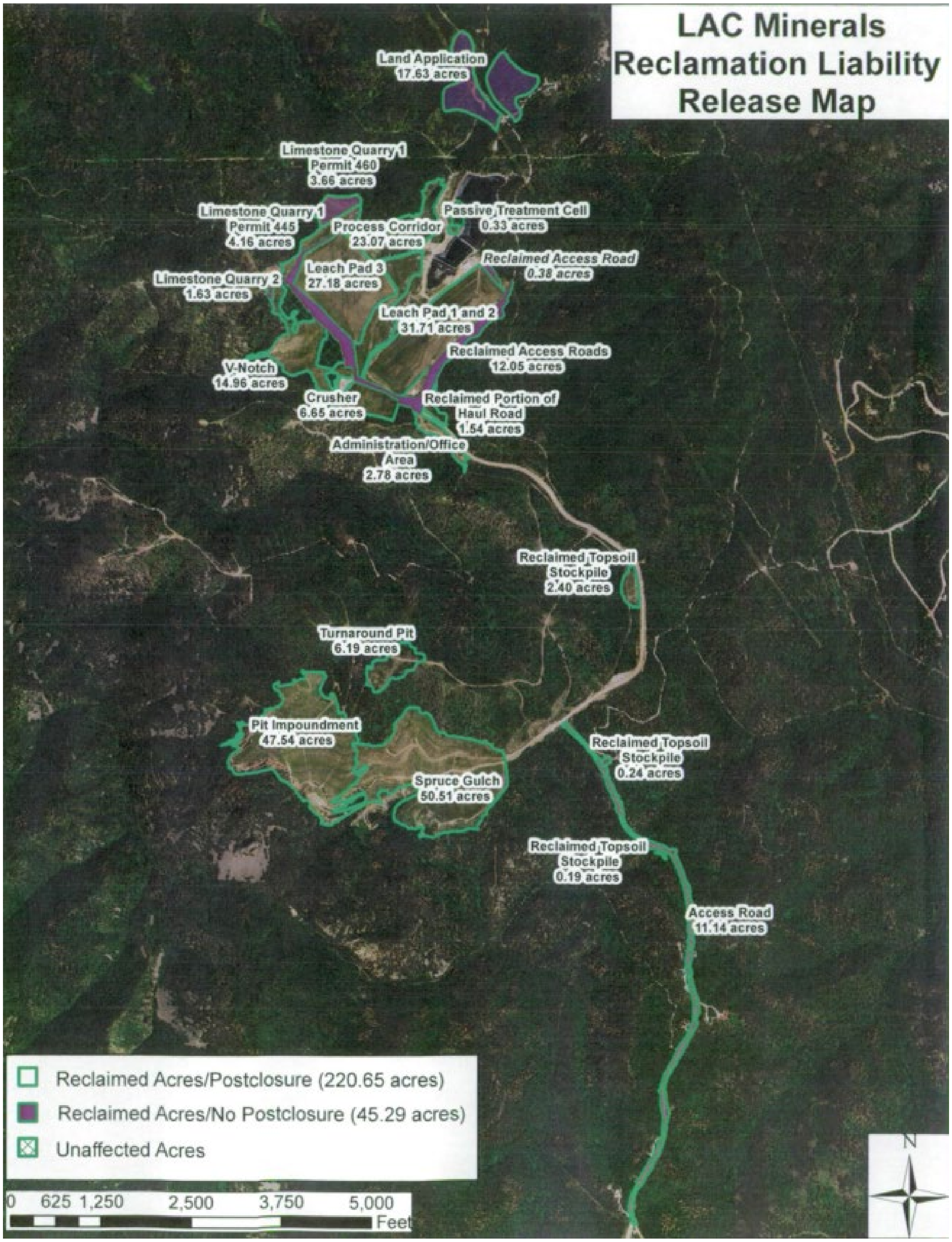


Figure 17-1: LAC's Reclamation Liability Release Map

17.6 Qualified Person's Opinion on the Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals or Groups

It is the QP's opinion that the adequacy of the current plans and any issues related to environmental compliance, permitting, and local individuals or groups should not prevent the Richmond Hill Gold Project from becoming a mine, especially given that Wharf mine operates nearby and the history of mining activity in the local area.

17.7 Descriptions of Any Commitments to Ensure Local Procurement and Hiring

Dakota Gold has stated that it is committed to hiring and procurement from the local community, prioritizing the city, region, and state, followed by out-of-state and out-of-country.

18 CAPITAL AND OPERATING COSTS

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

19 ECONOMIC ANALYSIS

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

20 ADJACENT PROPERTIES

This chapter is not relevant to this Initial Assessment and Technical Report Summary.

21 OTHER RELEVANT DATA AND INFORMATION

Information provided in this chapter does not pertain directly to the Richmond Hill Gold Project; rather, the items discussed may add benefit to the Project should positive exploration results lead to a potential mining scenario.

21.1 Homestake Mine Facilities

Dakota Gold's Homestake Barrick Option is for exclusive access to 145 years of Homestake exploration records throughout South Dakota, and includes Homestake mine data plus surface rights to 4,261 acres and contained facilities, including the Grizzly Gulch tailings management facility.

As the Project was previously disturbed by mining, Dakota Gold believes that a potential exists for Dakota Gold to repurpose the Project and remaining infrastructure for future operations in the event that exploration is successful at one or more Dakota Gold prospect areas that lie close to the Homestake mine. The Grizzly Gulch area holds the potential for reprocessing existing tailings from historical milling operations at the Homestake mine and may provide for a consolidated tailings disposal site for future Dakota Gold operations.

21.2 Sanford Underground Research Facility

At the 4850 level of the former Homestake mine, the Sanford Underground Research Facility (SURF) houses world-leading physics experiments with an aim of achieving a better understanding of the universe. SURF provides sufficient depth and rock stability for experiments that need to escape the constant bombardment of cosmic radiation, which can interfere with the detection of rare physics events. The facility also hosts experiments in biology, geology, and engineering.

SURF maintains underground dewatering to the 4850 level of the mine; should future underground gold mining be contemplated proximal to the SURF Project; certain synergies exist that may provide benefit to both Dakota Gold and SURF with regard to water treatment and the reuse of water pumped from the SURF underground facilities.

22 INTERPRETATION AND CONCLUSIONS

The following interpretations and conclusions are presented by the QPs within their areas of expertise.

22.1 Mineral Tenure, Agreements, and Royalties

Dakota Gold has an option until March 7, 2026, to purchase 2,726 acres of mineral rights, attendant facilities, and patented properties from Barrick's wholly owned subsidiary Homestake for a series of cash payments and stock issues. The agreement also includes the requirement to assume all property liabilities and bonds, and issue Barrick a 1% NSR from any gold production from the property, as well as satisfying all underlying royalty obligations to five original claim owners that range from 1% to 5% NSR or net profit interest (some are capped).

By assuming all property liabilities and bonds upon exercise of the option, Dakota Gold will acquire a significant burden to the company in maintaining the Richmond Hill mine post-closure requirements.

Much of the early Project history has been lost, as the data prior to 1970 could not be found. From 1970 to 2021 the history is somewhat fragmented due to many of the St Joe, Bond Gold, and LAC documents having been destroyed by flood damage. The reader is cautioned that without a complete set of historical records the authors have relied upon personal communications with former employees who recounted events as remembered.

The Project history is one of multiple owners and operators who focused on individual prospective areas until the property was assembled into one fairly coherent set of claims.

22.2 Sample Preparation, Analyses, Security, and Data Verification

St. Joe, Bond Gold, LAC, Coeur Mining, and Dakota Gold completed multiple RC and core drilling programs on the Richmond Hill property from 1981 to 1993, 2019 to 2020, and 2022 to 2023. Programs followed standard industry procedures for sampling; sample shipping and security; sample preparation; and analyzing for gold and silver. Laboratories processed samples through successive stages of reducing particle sizes and weights to obtain representative subsamples. The samples were assayed for gold by standard lead collector fire assay and either a gravimetric or AAS finish; and they were analyzed for silver using an aqua regia digestion and an AAS or ICP-ES finish. Check assays were completed at independent laboratories. Dakota Gold completed a comprehensive QC monitoring program. Analytical laboratory certificates are available and were used for compiling data.

All available historical and current data comprising collars, surveys, assays, and lithologies were entered into spreadsheets and compared to the historical database Dakota Gold provided. Differences were reviewed, investigated, and revised where required. Final data sheets were included into the final database for geological and resource modeling.

The final database is of sufficient quality for geological and resource modeling as the assay and geological data are acceptable based on procedures described in this Report. In addition, the drill-hole collars and traces are reasonably accurately located for 3D plotting and samples are properly assigned to locations along drill holes.

22.3 Mineral Resources

A mineral resource estimate was carried out for the Richmond Hill Property on October 5, 2023.

The mineral resource estimate is based on grades of gold interpolated from five lithological domains; from youngest to oldest these are Tertiary hydrothermal breccia (Tbx), Tertiary intrusive (Ti), Cambro-Ordovician Deadwood Formation (COd), Deadwood Formation basal conglomerate-sandstone (COdcs), and undivided Precambrian (pC). These lithological domains were further partitioned into oxidized, mixed, and hypogene, as the state of oxidation was determined to be more significant for metal recovery than host-rock type.

The database used for the mineral resource estimate contained collar, survey, assay, and lithology data for 905 holes, including 69,401 assays. The estimate was carried out using OK and blocks measuring 20 x 20 x 20 ft. After estimation, the mineral resource estimate was constrained by a conceptual pit to demonstrate reasonable prospects of eventual economic extraction. Table 22-1 is a summary of the pit-constrained mineral resource estimate based on degree of oxidation. The cutoff grade for the base case varies with the state of oxidation: oxide = 0.0062 oz/ton, mixed = 0.0085 oz/ton, and hypogene = 0.0128 oz/ton. Tons and ounces of gold have been rounded to the nearest 1,000.

Table 22-1: Richmond Hill Conceptual Pit-Constrained MRE at Variable Cutoff Grades

Cutoff Au oz/ton	Redox	Classification	Au oz/ton	Au g/t	Tons	Tonnes	Ounces Au
0.0062	Oxide	Indicated	0.0190	0.65	16,512,000	14,979,000	314,000
0.0085	Mixed	Indicated	0.0217	0.74	25,187,000	22,849,000	547,000
0.0128	Hypogene	Indicated	0.0304	1.04	15,434,000	14,001,000	469,000
Total Indicated			**0.0233**	**0.80**	**57,133,000**	**51,829,000**	**1,330,000**
0.0062	Oxide	Inferred	0.0142	0.49	30,244,000	27,437,000	429,000
0.0085	Mixed	Inferred	0.0185	0.63	21,999,000	19,957,000	407,000
0.0128	Hypogene	Inferred	0.0252	0.86	11,759,000	10,668,000	296,000
Total Inferred			**0.0177**	**0.61**	**64,002,000**	**58,062,000**	**1,132,000**

Notes: [1] Weighted mean of oxide, mixed, and hypogene totals.
Mineral resources are not mineral reserves and do not have demonstrated economic viability.
There is no certainty that all or any part of the mineral resources estimated will be converted into Mineral Reserves.
Pit-constrained resources are stated at a range of cutoff gold grades depending on oxide state.
Oxide recovery = 87%, mixed recovery = 65%, hypogene recovery = 42%.
Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
Mineral resource tonnage and grades are reported as undiluted.
MRE is current as of October 5, 2023.
Pit-Constrained at $1,900/oz; Royalty = 3.8%; Mill & G&A Cost = $8.00; Mine Cost = $1.80.

22.4 Mineral Processing and Metallurgical Testing

Two programs were completed at BaseMet to investigate the metallurgical response of the Richmond Hill deposits—BL1244 and BL1346. MCs were created representing oxide, mixed, and sulfide layers within the different areas of the deposit.

WOL tests were completed on the MC at primary grind of P_{80} approximately 50 µm. The leach results for all oxide MCs ranged from 70.7% to 92.6% (mean approximately 87%), with relatively low sodium cyanide consumption. Silver extraction for the oxide samples averaged approximately 69%. The mixed extraction averaged 53.2% Au and 58.8% Ag. In the sulfide leach, extraction averaged 37.2% for gold and 43.8% for silver.

The float/leach flowsheet was investigated for mixed and sulfide master. The MCs extraction averaged 55.7% Au and 38.1% Au for the mixed and sulfide, respectively. POX was tested on a few samples and results were in the 90% range for the rougher concentrate gold extraction. POX in the flowsheet could potentially increase the estimated mixed gold extraction to 80.3% and the sulfide to 75.9%. Although POX or another method of oxidation in the flowsheet could improve the results, it may not be economical based on the low rougher concentrate grades (less than 15 g/t) achieved for gold.

Optimization for the preliminary economic assessment should focus on fine tuning the cyanide consumption and primary grind of the oxide material. Additional leach testwork on the mixed and sulfides is also the recommended.

23 RECOMMENDATIONS

The Project has several areas to consider for the purpose of generating any future resource:

- Incorporating silver in the mineral resource estimate
- Additional drilling where the deposit limits have not been defined or lacked sufficient drill-hole density
- Additional metallurgical testwork to understand the variability and attempt to improve recoveries
- Improving understanding of the geological model with potential to improve metallurgical recoveries.

23.1 Sample Preparation, Analyses, Security, and Data Verification

Silver is present at Richmond Hill; however, silver data sets from historical and current exploration programs have not been included in the S-K 1300 Initial Assessment and Technical Report Summary. It is recommended that the silver grade-assay historical files be investigated further to give silver the same level of resource detail as the gold assays. It is estimated that it would take between four and six months of work and approximately $500,000 to bring the silver grades into Measured, Indicated, and Inferred categories.

It is also recommended that drill-hole database software be incorporated to improve the QA/QC process for data logging. Such software can range from $100,000 to $1 million.

23.2 Resource Estimation

Drilling to date has not defined the limits of mineralization. AKF recommends an additional 40 core drill-holes with an approximate aggregate length of 24,500 ft to test prospective areas for potential mineralization. The location and nominal target of these holes is given in Table 23-1, and their locations are shown in Figure 23-1. The approximate cost of this recommended 2024 drill program is $2.6 million, based on an all-in (direct and indirect costs) drilling cost of approximately $105/ft. If successful, this drilling program will expand the extent of known mineralization and identify areas that warrant additional exploration, including additional breccia bodies and Tertiary replacement mineralization that remain undiscovered beneath the Paleozoic and Tertiary cover in the Carbonate Camp area of the Property.

Table 23-1: Recommended Drill Holes 2024

Easting (ft)	Northing (ft)	Elevation (ft)	Azimuth (°)	Dip (°)	Length (ft)	Target
−19,000	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,800	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,600	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,400	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,200	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,000	12,600	5,600	90	−50	500	Basal COd or unconformity
−17,800	12,600	5,600	90	−50	500	Basal COd or unconformity
−17,600	12,600	5,600	90	−50	500	Basal COd or unconformity
−17,400	12,600	5,600	90	−50	500	Basal COd or unconformity
−18,400	12,800	5,600	90	−50	500	Basal COd or unconformity
−18,200	12,800	5,600	90	−50	500	Basal COd or unconformity
−18,000	12,800	5,600	90	−50	500	Basal COd or unconformity
−17,800	12,800	5,600	90	−50	500	Basal COd or unconformity
−17,600	12,800	5,600	90	−50	500	Basal COd or unconformity
−19,400	12,600	5,600	90	−50	500	Basal COd or unconformity
−19,200	12,600	5,600	90	−50	500	Basal COd or unconformity
−19,400	12,800	5,600	90	−50	500	Basal COd or unconformity
−19,200	12,800	5,600	90	−50	500	Basal COd or unconformity
−19,000	12,800	5,600	90	−50	500	Basal COd or unconformity
−18,800	12,800	5,600	90	−50	500	Basal COd or unconformity
−18,600	12,800	5,600	90	−50	500	Basal COd or unconformity
−19,400	13,000	5,600	90	−50	500	Basal COd or unconformity
−19,200	13,000	5,600	90	−50	500	Basal COd or unconformity
−19,000	13,000	5,600	90	−50	500	Basal COd or unconformity
−18,800	13,000	5,600	90	−50	500	Basal COd or unconformity
−18,600	13,000	5,600	90	−50	500	Basal COd or unconformity
−18,400	13,000	5,600	90	−50	500	Basal COd or unconformity
−18,200	13,000	5,600	90	−50	500	Basal COd or unconformity
−18,000	13,000	5,600	90	−50	500	Basal COd or unconformity
−17,800	13,000	5,600	90	−50	500	Basal COd or unconformity
−17,600	13,000	5,600	90	−50	500	Basal COd or unconformity
−23,200	3,400	5,800	90	−50	500	Gap in drill coverage
−23,200	3,800	5,800	90	−50	500	Gap in drill coverage
−23,200	4,200	5,800	90	−50	500	Gap in drill coverage
−23,200	4,600	5,800	90	−50	500	Gap in drill coverage
−23,200	5,000	5,800	90	−50	500	Gap in drill coverage
−23,200	5,400	5,800	90	−50	500	Gap in drill coverage
−23,200	5,800	5,800	90	−50	500	Gap in drill coverage
−23,200	6,200	5,800	90	−50	500	Gap in drill coverage
−23,200	6,600	5,800	90	−50	500	Gap in drill coverage

Easting (ft)	Northing (ft)	Elevation (ft)	Azimuth (°)	Dip (°)	Length (ft)	Target
−23,200	2,200	5,800	90	−50	500	Gap in drill coverage
−22,800	2,200	5,800	90	−50	500	Gap in drill coverage
−22,600	2,200	5,800	90	−50	500	Gap in drill coverage
−23,,200	2,800	5,800	90	−50	500	Gap in drill coverage
−23,200	3,000	5,800	90	−50	500	Gap in drill coverage
−22,800	3,200	5,800	90	−50	500	Gap in drill coverage
−22,600	3,400	5,800	90	−50	500	Gap in drill coverage
−22,400	3,400	5,800	90	−50	500	Gap in drill coverage
−22,200	3,400	5,800	90	−50	500	Gap in drill coverage
				Total	**24,500**	

Note: Drill-hole locations are referenced to the Homestake grid.

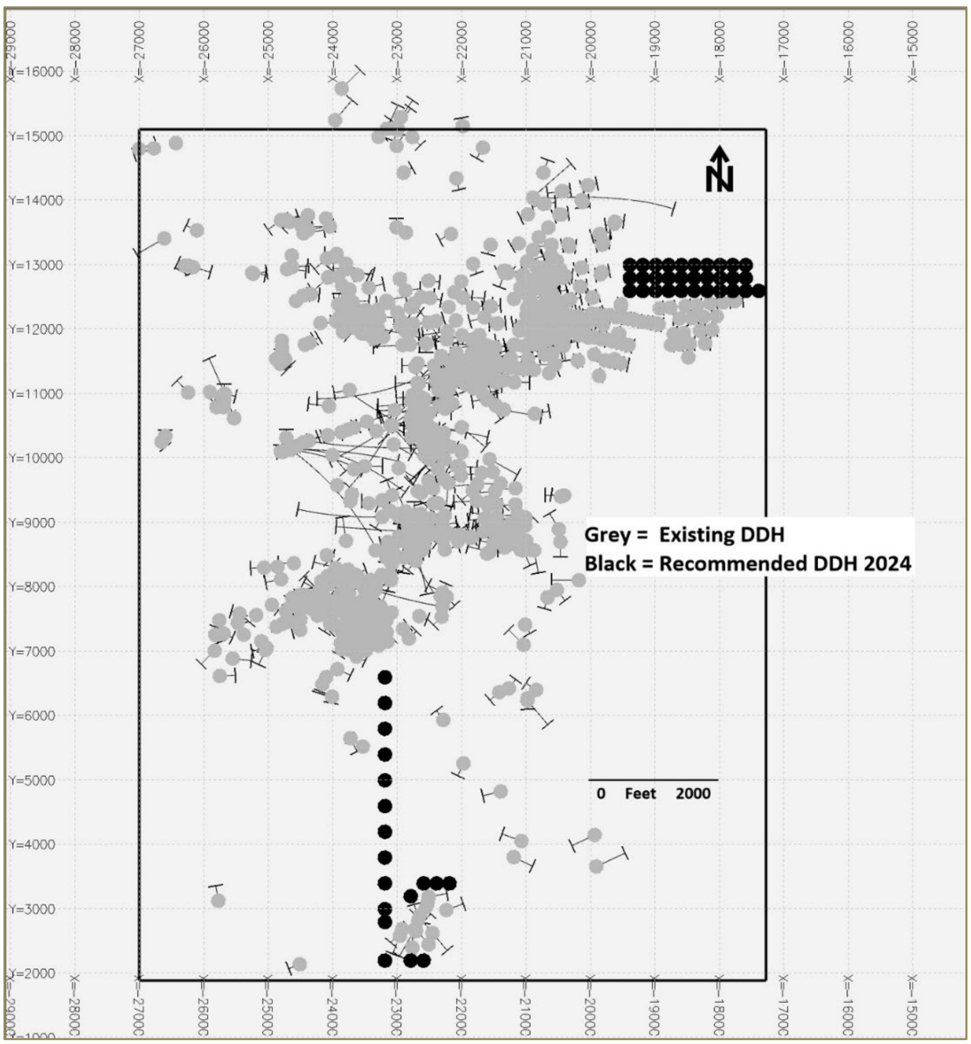


Figure 23-1: Recommended Richmond Hill 2024 Diamond Drill-Hole Locations

23.3 Mineral Processing and Metallurgical Testing

In certain areas of the resource, gold recovery in the mixed and sulfide samples appears to be finely disseminated with sulfide and gangue material, and would require oxidation to improve the results. Other methods such as Albion, Ecobiome, and Bioleach may provide a lower-cost alternative compared to pressure oxidation, but with the low gold recovery to the rougher concentrate and poor tailings leach extraction the sulfide material may not be economical to mine. An economic evaluation is required to determine the best flowsheet for the mixed and sulfide material.

It is recommended that an optimization of the oxide material for the next level of study should focus on fine tuning the cyanide consumption and primary grind, followed by additional leach testwork on the mixed and sulfide. The costs associated with these tests are estimated at $300,000.

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25 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

The QPs have relied upon the Registrant for information for which the QPs were not experts, or where the QPs were unable to independently secure documents describing the Project as noted in the following subsections.t

25.1 Legal Matters

The legal staff at Dakota Gold prepared a summary of the Dakota Gold–Barrick Option Agreement. The QPs did not have access to the complete agreement and are not experts in this discipline; therefore, they have relied wholly upon the Registrant to provide an accurate document summary as described in Sections 3.4 through 3.7 and Table 3-1 and Table 3-2. A comparison with the information provided on the Dakota Gold website agreed with the summary provided.

25.2 Tenure

The QPs have relied upon the Registrant to provide a complete and accurate list of claims comprising the Property, along with the holding costs and royalties associated with certain claims as set out in Section 3.3 and Table 3-1 and Table 3-2. The QPs have not independently verified the claim listing, royalties, and holding costs, but have no reason to doubt the information Dakota Gold's legal department provided.

25.3 Significant Encumbrances and Permitting

The QPs are relying on information provided by the Registrant for this summary of current active permits associated with the potential gold deposit at the Property as discussed in Section 3.8. The required permits seem consistent with those required in other jurisdictions; thus, the QPs have no reason to doubt that these are correct and complete.

25.4 History

Much of the historical documentation detailing the Property's history was lost due to flooding of the container in which they were stored. While the QPs scanned and verified the preserved records, many records were incomplete; as a result, the QPs have relied upon the Registrant to confirm that the memos, notes, and partial reports all describe the Property. The Registrant's expert has worked on the Property since recent records were produced and has confirmed that these documents fairly and correctly describe the Property.

25.5 Exploration

The QPs have relied upon the Registrant for summaries of non-drilling exploration programs carried out on the Property. The Registrant has not made public any results from exploration programs other than drilling; however, the Registrant has stated that while these other exploration results helped target drill-collar locations, they neither contributed nor detracted from the resource estimate reported in this Report.

25.6 Environment

The QPs are relying on information provided by the Registrant for this summary of all environment information private and public, associated with the potential gold deposit at the Property. The QPs have no reason to doubt that the required environmental information is correct and complete.

26 DATE AND SIGNATURE PAGE

This Technical Report titled *S-K 1300 Initial Assessment and Technical Report Summary, Richmond Hill Gold Project, South Dakota, U.S.A.*, dated April 30, 2024, was written by the following QPs:

Qualified Person	Signature	Date
Antonio Loschiavo, P.Eng. (B.C.)	*Original Signed and Sealed*	April 30, 2024
Kelly McLeod, P.Eng. (B.C.)	*Original Signed and Sealed*	April 30, 2024
Gregory Z. Mosher, P.Geo. (B.C.)	*Original Signed and Sealed*	April 30, 2024
Dale A. Sketchley, P.Geo. (B.C.)	*Original Signed and Sealed*	April 30, 2024
Robert G. Wilson, P.Geo. (B.C.)	*Original Signed and Sealed*	April 30, 2024