NI 43-101Technical Report Life of Mine Plan and Mineral Reserves for the Florida Canyon Gold Mine Pershing County, Nevada, USA

Prepared for

Alio Gold, Inc.

Prepared by

SRK Consulting (U.S.), Inc.

NI 43-101 Technical Report
Life of Mine Plan and Mineral Reserves for the Florida Canyon Gold Mine
Pershing County, Nevada, USA

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Important Notice

This report was prepared in accordance with NI 43-101 for Alio Gold Inc. (Alio Gold), and wholly owned subsidiary Florida Canyon Mining, Inc. by SRK Consulting (U.S.), Inc. The quality of information, conclusions, and estimates contained herein is consistent with the level of detail for a prefeasibility study, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Alio Gold and FCMI subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Alio Gold to file this report as a technical report with the United States Securities and Exchange Commission and the Canadian Securities Administrators regulatory authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. The responsibility for this disclosure remains with Alio Gold. The user of this document should ensure that this is the most recent technical report for the property as it is not valid if a new technical report has been issued.

All amounts are expressed in U.S. dollars ($), unless otherwise indicated.

Cautionary Statement

Certain information and statements in this report are "forward looking" in nature. Forward-looking statements include, but are not limited to, statements with respect to the economic and other parameters of the project; mineral resource and reserve estimates; the proposed mine plan and mining methods; dilution and mining recoveries, processing method and rates and production rates; projected metallurgical recovery rates; capital, operating and sustaining cost estimates; the projected LOM and other expected attributes of the project; the net present value (NPV); capital; future metal prices; government regulations and permitting timelines, estimates of reclamation obligations; requirements for additional capital; environmental risks; and general business and economic conditions.

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Abbreviations

The following abbreviations may be used in this report.

Abbreviation	Unit or Term
A	Ampere
AA	atomic absorption
ANFO	ammonium nitrate fuel oil
Ag	Silver
Au	Gold
AuEq	gold equivalent grade
°C	degrees Centigrade
CCD	counter-current decantation
SCIL	carbon-in-leach
COG	cut-off grade
cfm	cubic feet per minute
ConfC	confidence code
CRec	core recovery
CSS	closed-side setting
CTW	calculated true width
°	degree (degrees)
dia.	Diameter
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
FA	fire assay
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	Gram
gal	Gallon
g/L	gram per liter
g-mol	gram-mole
gpm	gallons per minute
g/t	grams per tonne
ha	Hectares
HDPE	Height Density Polyethylene
hp	Horsepower
HTW	horizontal true width
ICP	Inductively coupled plasma
ID2	inverse-distance squared
ID3	inverse-distance cubed
IFC	International Finance Corporation
ILS	Intermediate Leach Solution
kA	Kiloamperes
km	Kilometer
koz	thousand troy ounce
kV	Kilovolt
kW	Kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	Liter
L/sec	liters per second
L/sec/m	liters per second per meter
lb	Pound
LHD	Long-Haul Dump truck
LLDDP	Linear Low Density Polyethylene Plastic
LOI	Loss On Ignition
LOM	Life-of-Mine
MARN	Ministry of the Environment and Natural Resources
MDA	Mine Development Associates
mm	Millimeter

Abbreviation	Unit or Term
MME	Mine & Mill Engineering
Moz	million troy ounces
Mt	million tonnes
MTW	measured true width
MW	million watts
m.y.	million years
NGO	non-governmental organization
NI 43-101	Canadian National Instrument 43-101
OSC	Ontario Securities Commission
oz	troy ounce
oz/ston	Ounces per ton
%	Percent
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
PMF	probable maximum flood
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	rotary circulation drilling
RoM	Run-of-Mine
RQD	Rock Quality Description
SEC	U.S. Securities & Exchange Commission
sec	Second
SG	specific gravity
SPT	standard penetration testing
ston	short ton (2,000 pounds)
t	tonne (metric ton) (2,204.6 pounds)
t/h	tonnes per hour
t/d	tonnes per day
t/y	tonnes per year
TSF	tailings storage facility
TSP	total suspended particulates
µm	micron or microns
V	Volts
VFD	variable frequency drive
W	Watt
XRD	x-ray diffraction
y	Year

1 Summary

1.1 Introduction

Florida Canyon is an operating open pit and heap leach gold recovery mining operation 100% owned by Alio Gold Inc, through its subsidiary Florida Canyon Mining, Inc. (FCMI). Florida Canyon's production history dates to 1986. Following a rehabilitation period, the mine re-started production in April 2017 and achieved commercial production in December 2017. In July 2018, SRK Consulting (US) Inc. was retained by FCMI to prepare a life of mine (LOM) plan at a prefeasibility study (PFS) level for the Florida Canyon Gold Mine. In the preparation of this technical report, SRK reviewed and used information in the amended preliminary economic assessment (PEA) report dated January 27, 2017 and prepared by Mine Development Associates (MDA, 2017). The PEA is only relevant as a historical reference and for descriptive geological information that has not changed and is used in this report. An updated mineral resource was prepared by SRK Consultants (US) "The Independent Technical Report, Mineral Resource Update for the Florida Canyon Mine, Pershing County Nevada, report date, November 29, 2018" (SRK, 2018a). This report incorporates that updated mineral resource, discloses the outcome of the LOM plan and includes the required analysis to report mineral reserves.

1.2 Property Description, Location and Ownership

The Florida Canyon Gold Mine is an active mining operation, operating continuously with sporadic periods of interrupted production since 1986. Florida Canyon is located approximately 45 miles southwest of Winnemucca, Nevada, adjacent to Interstate Highway 80.

The land package owned or leased by FCMI covers a total of 29,370 acres (including Alio Gold's adjacent Standard Mine Project, which is not included in this technical report). Fee lands total 5,520.4 acres, while 19 patented claims total 359.9 acres. FCMI maintains 877 unpatented claims that total 23,875 acres. Two patented claims are also leased. The fee lands and patented claims, and most of the unpatented claims, are surveyed. This report only considers the Florida Canyon Gold Mine area.

Alio Gold is a publicly traded company listed on both the NYSE American and the Toronto Stock Exchange under the ticker symbol, ALO. The company is focused on exploration, development and production in Mexico and the USA. In addition to the Florida Canyon Mine, its principal assets include its 100%-owned and operating San Francisco Mine in Sonora, Mexico, and its 100%-owned development stage Ana Paula Project in Guerrero, Mexico. Alio Gold also has a portfolio of other exploration properties located in Mexico and the USA.

FCMI is a 100% owned subsidiary of Alio Gold. Alio Gold acquired FCMI through its acquisition of Rye Patch Gold Inc on May 27, 2018.

1.3 Geological Setting and Mineralization

The Florida Canyon Gold Mine area is situated in northwestern Nevada within the Basin and Range physiographic province, which is typified by a series of northward-trending elongate mountain ranges separated by alluvial valleys.

The region was subjected to three major pre-Cenozoic periods of deformation, characterized by large-scale folding and thrust faulting (Johnson, 1977), with intervening periods of substantial carbonate and clastic sedimentation. The late Devonian to early Mississippian Antler orogeny shed sediment westward into a marine transgressive environment (Taylor et al., 2002). At the end of the Paleozoic era (late Permian) and into the early Triassic period, the Sonoma orogeny resulted in deep-water strata thrust eastward tens of miles over rocks of the Antler highlands (Johnson, 1977). During this period, thick sequences of greenstone and rhyolitic flows, tuff, and breccia of the Koipato Group were deposited in a shallow marine setting. Continuing sedimentation in the Triassic period was characterized by shallow-water marine carbonate deposition (Prida and Natchez Pass formations) grading westward to deeper-water clastic sedimentation, predominantly mudstones. During the late Triassic to early Jurassic periods, sediments of the Grass Valley Formation, grading from fluvial sandstone in the east to fine-grained mudstone in the west, were unconformably deposited over the Prida and Natchez Pass formation. The last major compressional event was the Sevier orogeny, during the late Triassic period. During this time, sandstone and mudstone of the Grass Valley Formation were weakly metamorphosed to quartzite, argillite, and slate, with a north-northeast metamorphic foliation. The Grass Valley Formation is host to gold mineralization at Florida Canyon. Cenozoic volcanism and later Basin and Range faulting have complicated and, locally, obscured the older structural features.

The Florida Canyon area is dominated by a major regional structural zone, termed the Humboldt Structural Zone, which is interpreted to be a 200-km wide north-easterly-trending structural zone with left-lateral strike slip movement. One of the principal structural features within the Humboldt Structural Zone is the Midas Trench lineament, which abruptly terminates the north end of the Humboldt Range. Mineralization and alteration in the Florida Canyon Gold Mine is localized where the Midas Trench lineament is intersected by the north-south trending Basin and Range frontal faults on the northwest side of the Humboldt range.

There is a strong N30°E to N50°E structural fabric prevalent in and adjacent to the Florida Canyon Gold Mine, as evidenced by the alignment of quartz veining, shear zones, and well-developed joint sets. The north to north-northeast trending Basin and Range fault system limits the western near-surface part of the Florida Canyon Gold Mine oxide gold mineralization.

At Florida Canyon, the location and geometry of the mineralized bodies are a result of structure and the presence of favorable silty argillite, quartzite, and limestone host rocks relative to structural conduits. The higher-grade zones of mineralization tend, in general, to follow the high-angle, northeast and northwest-trending fault and shear zones.

Hypogene mineralization at Florida Canyon consists of native gold and electrum associated with quartz, iron oxides, and minor pyrite, marcasite, and arsenopyrite. Quartz as veins, veinlets and silicification of host rocks is the major gangue mineral.

Locally, pervasive silicification is generally associated with areas of high-density quartz veining and/or intense hydrothermal brecciation. Sericite, adularia, clay, and chlorite occur locally in quartz veins, breccia matrix, and on fracture surfaces. There is extensive argillization and bleaching throughout the deposit area, with pervasive hematization that is largely confined to silty units marginal to the bleached areas.

Florida Canyon is a large, relatively young epithermal gold deposit adjacent to an active geothermal system. The close spatial association with the geothermal system has led to a general belief that Florida Canyon is a hot spring-style, epithermal gold deposit. Hydrothermal alteration assemblages and the mineralogy of both oxidized and unoxidized gold mineralization at Florida Canyon have been interpreted as having formed in a low-sulfidation, epithermal environment.

The deposit type is a large fault/fracture-controlled gold system, the overall extent being defined by alteration and oxidation of host meta-sedimentary rocks. Mineralization is preferentially located along major structural trends, in associated adjacent fracturing and rock foliations, and as disseminations in favorable host lithologies. The overall extent of mineralization, in surface exposures in the pit areas, is approximately 7500 ft east-west by 6200 ft north-south and can be up to 800 ft in vertical thickness.

1.4 Status of Exploration, Development and Operations

Exploration drilling at the Florida Canyon Gold Mine was conducted primarily during the 1980s and 1990s, and the property has been in production as an open pit mine and heap leach gold recovery mining operation since 1986, with a brief period of suspended mining in 2015. Mining and processing are currently active, with exploration typically as targeted drilling in and surrounding the active mine areas.

Mineralization at Florida Canyon has been defined by 4,340 drillholes for 1,946,804 ft of drilling, completed from 1969 through 2017. Most of the drilling occurred in the 1980s and 1990s as reverse circulation (RC) drilling. Of the total number of drillholes, there were 55 historical core holes for 34,522 ft. FCMI drilled 18 RC holes in 2017, for 7,130 ft, ranging from 150 to 890 ft in drill-depth. Three were vertical holes, and the remainder were angle holes predominantly oriented to the east or southeast at -45 to -70° angles, intended to cross the primary mineralized structural control trends in existing mine areas.

This report includes an the latest geological model, mineral resource estimate and mineral reserve estimate based on the inclusion of the holes drilled in 2017.

1.5 Drilling

FCMI drilled 18 RC holes (FCR-010-001 to FCR-017-018) in 2017, for 7,130 ft, ranging from 150 to 890 ft in drill depth. Three were vertical drillholes, and the remainder were angle holes predominantly oriented to the east or southeast at -45 to -70°angles, intended to cross the primary mineralized structural control trends.

Total project drilling in the database is 4,340 drillholes for 1,946,804 ft. Of the total number of drillholes, there were 55 historical core holes for 34,522 ft. The 18 Alio Gold RC holes added additional information for definition of local mineralization continuity but have minimal impact on the mineral resource and mineral reserve.

1.6 Sample Preparation, Analyses, and Security

RC drill samples are collected at the drill rig by the drilling contractor and stored temporarily at the drill rig until delivered to FCMI geology staff. Samples collected at the drill rig and transferred to FCMI are maintained securely within the confines of the FCMI mine site, until the lab contractor picks them up for transportation to the lab for analysis. For the 2017 drilling campaign, samples were collected at the mine site by American Assays Laboratories Inc. (AAL), of Sparks Nevada.

Samples are dried, crushed and pulverized at AAL in Sparks, Nevada. Standard preparation procedure is to crush the entire dried sample to -3/4-inch size and split in a riffle splitter to produce several pounds of coarse crushed material for further crushing and pulverization. The pulverized sub-sample is used for analysis. The pulps are retained for further use or check assays if deemed necessary, and eventually archived. Coarse reject material is typically not saved.

Sample analytical procedures used are fire assay lead-collection methods for a 30-gram sample size, with inductively coupled plasma (ICP-AES) determinations; having a 0.003 ppm or 0.001 ounce per ton (oz/ston) detection limit.

Quality assurance/quality control (QA/QC) procedures are in place at AAL and include insertion of sample blanks, duplicates, and standard reference materials (SRM or standards) into each batch of drill samples collected at the drill rig and transported to the lab. The QA/QC program consists of inserting a minimum of one analytical standard, one blank, and at least four sample duplicates for every batch of 50 samples assayed. Sample duplicates undergo repeat analysis of a second split of the coarse reject material.

1.7 Data Verification

SRK's data verification process consisted of the following: (a) visual examination of the lithologies, alteration, and mineralization as exposed in the active mining areas in relation to geologic data in the database, (b) comparison of the 2017 drilling data with surrounding drill hole data, (c) comparisons of the current geological model with the previous geology model in 3-D visualization software, and (d) comparison of analytical data from AAL assay certificates with the current FCMI drillhole database.

Previous third-party reviewers have completed more in-depth audits of the various drilling programs over the life of the property, comparisons of the various analytical labs used, and audits of the database. SRK has reviewed the previous work and found no significant issues or concerns that would materially affect the mineral resource.

1.8 Mineral Processing and Metallurgical Testing

Ore processing and gold recovery operations commenced at Florida Canyon in 1986. Ore was crushed and stacked on lined heap leach pads between 1986 and 2011. The ore was leached with dilute alkaline cyanide solution, and gold and silver were recovered from solution by carbon adsorption and Merrill-Crowe (zinc precipitation) processing methods. In addition, un-crushed run-of-mine (ROM) material was placed on the heap leach pads and leached between 1989 and 2011. Ore crushing re-commenced in 2016 and continues through the date of publication of this report. The mine-to-date overall gold recovery for all materials placed on the heap leach pads at Florida Canyon averaged 67.4% through June 30, 2018. The overall gold recovery between 1986 and 2015 (before re-starting operations) averaged 68.3%.

Owing to co-mingling of process solutions from the crushed and ROM heap leaching operations, it is not possible to estimate the individual gold recoveries from crushed and ROM ore. An assessment of historical column leach testing data and other operating information indicates that the crushed ore gold recovery has varied between 64 and 74%, increasing with finer particle size. ROM ore gold recovery has varied between 50 and 58%.

Historical processing recovery information is relevant to this technical report on mineral reserves as it is used in the pit optimization process to define the pit shell which is the basis for mineral reserves.

1.9 Mineral Resource Estimate

The Florida Canyon Gold Mine mineral resource estimate is within a $1,350/oz gold sales price pit shape and is reported using the net smelter return (NSR) cut-off in Table 1-1.

Mr. Timothy Carew, P.Geo., an SRK Principal Consultant, conducted the mineral resource estimate, using Geovia GEMS® modeling software for block modeling, Sage2001 for variography, and X10-Geo® for statistical analysis. A standard block model was constructed, using kriging for grade estimation and assignment to the block model.

In summary, SRK:

- Modeled mineralization domains in 3-D, including on the orientation, texture and subsequent continuity of the structures, where applicable
- Applied high-grade caps determined per estimation domain from log-probability and other analysis methods
- Created a block model with block dimensions of 30 x 30 x 20 ft, covering the volume of interest
- Undertaken statistical and geostatistical analyses to determine appropriate interpolation methods for the mineralized domains
- Interpolated grades into the block model attributes
- Visually and statistically validated the estimated block grades relative to the original sample results
- Reported the mineral resource according to the terminology, definitions and guidelines given in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014)

Upon consideration of data quality, drill hole spacing and the interpreted continuity of grades within the deposit, SRK classified the deposit into “Measured”, “Indicated” and “Inferred” mineral resource categories.

SRK applied basic economic considerations to restrict the mineral resource to material that has reasonable prospects for economic extraction by open-pit and underground mining methods. To determine this, the mineral resource was subject to a pit optimization study using Whittle™ software and a set of assumed technical and economic criteria which were selected based on site experience and benchmarking against similar projects.

Table 1-1: Mineral Resource statement, Florida Canyon Gold Mine, Pershing County, SRK Consulting, effective date July 31, 2018

Mining Area	Category	Quantity (ston 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Total	Measured	115,817	0.012	1,371
	Indicated	30,652	0.011	339
	Measured and Indicated	**146,469**	**0.012**	**1,711**
	Inferred	1,550	0.014	22
Central	Measured	51,200	0.012	597
	Indicated	10,756	0.011	115
	Measured and Indicated	**61,956**	**0.011**	**712**
	Inferred	560	0.011	0.1
Main	Measured	30,846	0.011	331
	Indicated	10,031	0.010	100
	Measured and Indicated	**40,877**	**0.011**	**431**
	Inferred	521	0.019	10
Jasperoid Hill	Measured	5,945	0.011	68
	Indicated	2,255	0.009	21
	Measured and Indicated	**8,200**	**0.011**	**89**
	Inferred	170	0.010	2
Radio Towers	Measured	27,826	0.013	375
	Indicated	7,610	0.014	103
	Measured and Indicated	**35,436**	**0.013**	**478**
	Inferred	299	0.016	5

Source: SRK, 2018

Notes:

1. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that any part of the Mineral Resources estimated will be converted into a Mineral Reserve estimate.
2. Gold recovery is based on a non-linear relationship to gold fire assay grade and is evaluated on a block by block basis in the resource model. To account for this variability, a NSR value was calculated for each block and cut-offs were then applied to the NSR.
3. The resource model was constructed in US units for quantities and grades.
4. Resources are reported using a NSR cut-off grade of US$3.99/ston for the Central area, US$4.09/ston for the Central N. and Jasperoid Hill areas, US$3.94/ston for the Main and Radio Towers areas, US$4.04/ston for the Radio Towers N. area, and US$3.99/ston for the Radio Towers2 area. The variable NSR cut-offs reflect differences in haulage cost.
5. Resources in the table above are grouped by major mining area. Central and Central N. were combined, as were all Radio Towers mining areas.
6. Resources stated as contained within a potentially economically minable open pit; pit optimization parameters are: US$1,350/oz gold, an average gold recovery of 61% for Radio Towers area and 67% for the Central/Main area, US$2.80/oz gold sales cost, US$1.26/ston base waste mining cost, variable haulage costs by mining area, US$3.99/ston base ore processing cost, 45° pit slopes for in-situ rock, and a 37° pit slope for fill/dumps.
7. Numbers in the table have been rounded to reflect the accuracy of the estimate and may not sum due to rounding.

1.10 Mineral Reserve Estimates

Mineral reserves are estimated from pit designs based on optimization results, access and LOM considerations. 3-D mine designs were completed using MineSight software. The pit design process resulted in reserves of 94.6 Mt with an average grade of .011 ounce per ton as presented in Table 1-2.

Table 1-2: Mineral Reserves statement for the Florida Canyon Mine, Pershing County, Nevada, effective date November 1, 2018

Category	Quantity (st 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Proven	80,739	0.011	876
Probable	13,896	0.010	137
Proven and Probable	**94,634**	**0.011**	**1,013**

Source: SRK, 2018

Notes:

1. The Qualified Person for the estimate is Mr. Justin Smith, P.E., SME-RM.
2. The Mineral Reserves and Resources in this report were estimated using the CIM Definition Standards (2014).
3. Reserves are reported within a designed pit using a cut-off of 0.006 oz/ston for the radio towers mining area and 0.005 oz/ston for all other areas.
4. The Mineral Reserves are based on a pit design which in turn aligns with an ultimate pit shell selected from a Lerchs-Grossmann pit optimization exercise. Key inputs for the reserve cut-off calculation are:
   A metal price of $1,250/oz Au;
   Ore mining costs by area ranging from $1.42 to $2.67/ston;
   Waste mining costs by area ranging from $1.24 to $1.83/ston;
   Crushing and processing costs of $2.85/ston ore;
   General and administration costs of $1.02/ston milled;
   Pit slope angles varying from 32.5 to 45°; and
   Process recoveries of 70%.
5. Mining dilution is assumed to be 5% at zero grade;
6. Ore loss is assumed to be 5%;
7. The ultimate pit design includes 97.9 Mston of waste, resulting in a stripping ratio of 1.0 tons waste to 1.0 ston of ore.

8 All figures are rounded to reflect the relative accuracy of the estimate. Totals may not sum due to rounding.

Table 1-3: Florida Canyon Mine Reserves by mining Area, Pershing County, Nevada, effective date November 1, 2018

Mining Area	Cut-off (oz/ston)	Category	Quantity (ston 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Main	0.005	Proven	22,593	0.010	217
		Probable	5,437	0.009	49
		Proven and Probable	**28,029**	**0.010**	**267**
Central	0.005	Proven	31,188	0.011	331
		Probable	2,872	0.010	27
		Proven and Probable	**34,060**	**0.011**	**358**
Central North	0.005	Proven	6,311	0.011	68
		Probable	2,225	0.011	24
		Proven and Probable	**8,536**	**0.011**	**92**
Jasperoid Hill	0.005	Proven	2,205	0.011	25
		Probable	915	0.009	8
		Proven and Probable	**3,120**	**0.011**	**34**
Radio Towers	0.006	Proven	18,443	0.013	235
		Probable	2,446	0.011	28
		Proven and Probable	**20,889**	**0.013**	**263**

Source: SRK, 2018

Notes:

1. Mineral Reserves have an effective date of November 1, 2018. The Qualified Person for the estimate is Mr. Justin Smith, P.E., SME-RM.
2. The Mineral Reserves and Resources in this report were estimated using the using the CIM Definition Standards (2014).
3. Reserves are reported within a designed pit using a cut-off of 0.006 oz/ston for the radio towers mining area and 0.005 oz/ston for all other areas.
4. The Mineral Reserves are based on a pit design which in turn aligns with an ultimate pit shell selected from a Lerchs-Grossmann pit optimization exercise. Key inputs for the reserve cut-off calculation are:
   - A metal price of $1,250/oz Au;
   - Ore mining costs by area ranging from $1.42 to $2.67/ston;
   - Waste mining costs by area ranging from $1.24/to $1.83/ston;
   - Crushing and processing costs of $2.85/ston ore;
   - General and administration costs of $1.02/ston milled;
   - Pit slope angles varying from 32.5 to 45°; and
   - Process recoveries of 70%.
5. Mining dilution is assumed to be 5% at zero grade;
6. Ore loss is assumed to be 5%;
7. The ultimate pit design includes 97.9 Mston of waste, resulting in a stripping ratio of 1.0 ston waste to 1.0 ston of ore.
8. All figures are rounded to reflect the relative accuracy of the estimate. Totals may not sum due to rounding.

1.11 Mining Methods

Florida Canyon is an active open pit mining operation currently utilizing 150-ton haul trucks and front-end loaders to mine and haul material. Rock is drilled and blasted; and then hauled to a waste rock facility, or crusher. The mine plan uses the same fleet size to mine approximately 96 Mt of ore per annum over an 8-year mine life. Detailed phasing of pits is used in conjunction with haul profiles to generate the mine schedule and equipment requirements.

1.12 Recovery Methods

Florida Canyon processing is comprised of primary and secondary crushing, agglomeration, stacking, leaching and solution processing. All process unit operations are standard in the industry and proven to be appropriate and cost effective at Florida Canyon.

1.13 Project Infrastructure

Florida Canyon has well-established project infrastructure, being located immediately adjacent to Interstate Highway 80 and within relatively close distance of service companies and suppliers to the active gold mining industry in Nevada. Water and electricity services are in place supplying mining, processing and administration facilities.

1.14 Market Studies and Contracts

Gold and silver are the products of the mine. Silver is not modeled, so no value is assigned for silver in the economic analysis. Doré bars are sent from the mine to a gold refinery and sold at market prices.

The price assumption used in economic analysis in this study is $1,300 per ounce of gold with sensitivity analysis at various other prices.

1.15 Environment, Permitting and Social Impact

Since the Florida Canyon Mine is partially located on public lands administered by the U.S. Department of the Interior, Bureau of Land Management (BLM), approval of the mine Plan of Operations (PoO) or any amendment thereto, requires an assessment and disclosure of potential environmental and limited social impacts as part of the BLM's obligations under the National Environmental Policy Act (NEPA). Baseline data collection and impact assessment have been completed on the property in accordance with NEPA, including an assessment of cumulative impacts. Given our extensive experience with EA development for mining projects in Nevada, and specifically for the BLM, it is SRK's opinion that the environmental studies and baseline data collected for the project (specifically APO 20) are appropriate and have adequately identified the environmental impacts associated with project implementation. Comprehensive environmental management plans are required as part of the state and federal permitting efforts.

SRK is not aware of any known environmental issues that could materially impact the FCMI's ability to extract the mineral reserves. However, at least one environmental issue is significantly relevant to the operations, and merits inclusion herein: Identified during routine site monitoring in 2000, the migration of nitrate from beneath the Florida Canyon Heap Leach Pad (HLP) has been an issue with the Nevada Division of Environmental Protection – Bureau of Regulation and Reclamation (NDEP-BMRR) since that time, this facility is identified as the North HLP in this document. Several Findings of Alleged Violation (FOAV) and Administrative Orders have been issued on this matter. A trust fund has been established to financially deal with this issue.

SRK was provided a comprehensive list and copies of current permits and authorizations for the Florida Canyon Mine. A review of the permits indicated that FCMI is fully permitted for the current operations, though several minor "expired" permits are undergoing renewal as of the publication of this report. FCMI also has water rights and appropriations, as well as monitor well waivers issued by the Nevada Division of Water Resources (NDWR) for 25 production and monitoring wells.

SRK understands that FCMI intends to implement a slightly modified schedule and footprint for pit development at Florida Canyon, which would push outside several of the pit footprints identified in the current PoO and previous amendments. An increase in disturbance will require the approval of both the NDEP-BMRR (Reclamation Branch) under Reclamation Permit #0126 and the BLM under Plan of Operations N64628. This will require additional regulatory review and NEPA analysis, expected to be on the order of six to 12 months.

Both the BLM and State of Nevada's mine reclamation regulations require closure and reclamation for mineral projects, and both authorizations must include a financial surety to ensure that reclamation will be completed. FCMI has a reclamation surety to fund short-term closure and reclamation of the disturbance associated with mining operations and is currently permitting for reclamation under the state Reclamation Permit #0126, and by the BLM under approval of the PoO and EA. The regulatory-required, third-party conducted, reclamation bond cost estimate for the Florida Canyon Mine (as calculated for the December 2017 submittal) was approximately $30M. The first-party (FCMI-conducted) closure cost estimate, provided by FCMI and used in the technical economic model, is $16.8M, and considers the reduced labor and equipment rates of self-implementation over state/federal rates used for bonding, and has taken credit for partial, concurrent cash bond releases during the first few years of reclamation when the majority of the earthworks are customarily completed. SRK did not verify the assumptions or validate the closure cost estimate used and recommends that the calculation be revisited when more accurate labor and equipment rates are available from the site.

1.16 Cost Estimates

1.16.1 Capital Costs

Capital is required to replace current high-hour equipment, construct leach pads, replace aging process equipment and improve crusher production. A summary of the capital expenditures is shown in Table 1-4.

Capital costs were derived from direct quotes, budgetary supplier quotations and estimates developed from first principles. Supplier quotes were used for most mining equipment. Process equipment installation cost was factored as a percentage of the purchase price. Leach pad capital costs were developed from first principles. Contractor and material costs from 2018 leach pad construction quotations for a similar northern Nevada project were used as the cost basis.

Table 1-4: LOM capital costs estimates

Item	LOM Total ($ 000)	2019 ($ 000)	2020 ($ 000)	2021 ($ 000)	2022 ($ 000)	2023 ($ 000)	2024 ($ 000)	2025 ($ 000)	2026 ($ 000)	2027 ($ 000)
Mine	39,286	0	8,072	5,397	6,717	6,698	6,534	3,231	2,019	617
Process	7,319	875	1,100	2,811	2,533	0	0	0	0	0
Leach pad	24,577	7,869	5,511	5,686	5,511	0	0	0	0	0
Owner and infrastructure	1,980	0	330	330	330	330	330	330	0	0
Total capital	73,163	8,744	15,013	14,225	15,091	7,028	6,864	3,561	2,019	617
Total contingency	8,739	1,531	1,978	1,984	1,960	466	433	246	109	32
Total capital and contingency	**81,901**	**10,275**	**16,991**	**16,209**	**17,052**	**7,494**	**7,296**	**3,807**	**2,128**	**649**

The purchase of mine equipment is assumed to be through a leasing agreement. Only the capital portion of the equipment lease was included in the capital cost estimate. The interest portion of the lease payments was excluded. Total cost of the interest over the life of the leases total $6.7M.

1.16.2 Operating Costs

Operating costs were estimated for the LOM Plan based partially on first principles and partially on actual operating data from the mine site. LOM unit costs are shown in Table 1-5.

Table 1-5: LOM unit cost estimates

Cost Category	LOM Total ($M)	Unit Rates
Mining	332.5	$1.75/ston moved
		$3.55/ston processed
Crushing & Processing	274.4	$2.93/ston processed
Site General & Administrative	56	$0.60/ston processed
Total Operating Costs	662.9	$7.08/ston processed

Mining costs were developed based on the existing owner mining unit operations and estimated truck haulage schedules and distances. As the existing truck fleet is expected to be replaced, maintenance costs were based on first principals for new equipment. Processing costs were estimated based on current operations, with adjustments to the operating cost following capital improvements to eliminate re-handling of ore ahead of the crusher.

Unit costs were applied to the mine plan, resulting in expected LOM cash cost expenditures of $663M, or $903/oz of gold produced as outlined in Table 1-6.

Table 1-6: LOM cash cost estimates

Cost Category	Life-of-Mine ($M)	$/oz
Mining	333	453
Crushing & Processing	274	374
General & Administrative	56	76
Total cash costs	663	903
Refining Charges	3	4
Royalties	44	60
Sustaining capital	68	92
All-in Sustaining Costs	777	1,058

In addition to cash costs, $3.48 per ounce of gold has been allowed for charges from the refinery to refine doré into saleable gold. This cost is based on the current precious metals refining contract. In addition, Florida Canyon production is subject to two royalties payable to third parties based on gold revenues: a 2.5% Net Smelter Return royalty 3.25% and a royalty based on Net Smelter Return less allowable deductions. The two royalties equate to 4.6% of net revenues at $1,300/oz gold price, or $60/oz.

1.17 Economic Analysis

Annual cash flows were estimated for the LOM based on revenues projected at a long-term gold price of $1,300/oz and totalled $954M LOM. Historically, Florida Canyon has produced approximately 0.88 ounces of silver for every ounce of gold. Silver has not been modeled in the mineral reserve estimate and as such, no credit has been taken in this study for silver revenue. In 2018, Florida Canyon generated approximately $0.5M in revenue from silver.

Expected AISC totalling $777M as described above were deducted from the revenues. In addition, closure cost net of future bond releases was estimated based on forecast disturbances at the end of the mine life totalling $16.8M.

Estimates for taxes payable include the Nevada Net Proceeds tax of 5% of taxable income, US Federal tax at 21% of taxable income, and property taxes.

Free cash flow is defined as revenues less AISC, non-sustaining capital, taxes and closure costs and totals an expected $138M LOM. Discounting these cash flows using a 5% discount rate results in a net present value of $105M for the LOM.

A summary of KPI's and economic analysis is shown in Table 1-7.

Table 1-7: Economic analysis summary results

Project Metric	Units	Value
Pre-Tax NPV @ 5%	$M	111.8
After-Tax NPV @ 5%	$M	104.5
Undiscounted After-Tax Cash Flow (LOM)	$M	137.6
LOM Sustaining Capital Expenditure	$M	67.7
LOM Cash Costs	$/oz Au	903
Nominal Process Capacity*	Mtpa	9.6
Mine Life	years	9.8
LOM Process Feed*	Mt	93.7
LOM Grade	ounces Au/ston	0.0107
LOM Waste Volume*	Mt	96.6
LOM Strip Ratio (Waste:Ore)	ratio	1.03
LOM Average Annual Metal Production	ounces Au (000s)	75
LOM Average Process Recovery	% contained metal	71

*Note: mass reporting units are in short tons

Pre-finance free cash flows exclude the interest component associated with $37.5M of proposed equipment leases which total approximately $6.7M based on current rates and terms available from CAT Financial. The pre-finance free cash flow also excludes both the interest and principal payments on $3.7M of existing leases. The inclusion of these finance charges would decrease the after-tax NPV of the project from $104.5M to $93.9M at $1300/oz gold.

The net present value and LOM expected free cash flow is sensitive to the long-term price of gold, as shown in Table 1-8.

Table 1-8: Sensitivity of net present value and LOM free cash flow to gold price

Gold Price ($/oz)	NPV (5%) ($M)	LOM Cashflow ($M)
1,200	51	71
1,250	78	105
1,300	**105**	**138**
1,350	131	170
1,400	156	202
1,450	181	233
1,500	205	263

1.18 Risks and Opportunities

The main opportunities identified for the project include:

- Silver credit in the economic analysis
- Mine and process equipment optimization
- Increased slope angles may be possible in some pits with further geotechnical studies

- Refinement of the mine production schedule to further optimize haul cycles
- Potential to increase Resources with more drilling in oxide and sulfide targets

Risks noted with the LOM plan assumptions include:

- Gold prices may not be consistent with the assumptions made in this study
- Capital costs may be higher
- Crusher throughput may not reach the average rate in this study
- Unforeseen geotechnical issues in pit highwalls
- Higher closure costs if contractors are used or self performed closure costs are higher than included in the economic model

1.19 Conclusion and Recommendations

Mineral reserve estimates in this report convert a large portion of the Florida Canyon mineral resources to mineral reserves. Approximately, 700,000 gold ounces are not converted from the Resource to the Reserve and the primary opportunity to convert these ounces is a higher gold price. Development of more oxide resources around the mine area may allow a portion of the 700,000 gold ounces to be classified as reserves.

SRK concludes that geotechnical work is sufficient for a prefeasibility study, however further geotechnical technical and hydrological work is necessary to refine pit designs. A geotechnical firm must evaluate the Central, Radio Tower and Main pit designs. The Main pit is mined below the water table, therefore a hydrology model is required to meet final pit design and permitting requirements.

Significant pit phasing design work is done in this report and is sufficient for a prefeasibility level of study. Additional work is recommended to refine the ultimate pit designs, phase designs and mine schedules.

The Florida Canyon Mine is a fully permitted and authorized operation in a mining jurisdiction that is heavily regulated and overseen. Appropriate environmental studies and impact assessments have been completed as part of the state and federal permitting processes; however, additional efforts will be necessary for the currently proposed expansion plans. SRK does not believe that these modifications constitute a material change to the mine plan of operations, and therefore should not take more than 12 months to acquire once submitted, accepted, and deemed complete by the regulatory agencies involved.

SRK is not aware of any known environmental issues that could materially impact the FCMI's ability to extract the mineral reserves. However, at least one environmental issue is significantly relevant to the operations, and merits consideration; the migration of nitrate in groundwater beneath the Florida Canyon HLP has been an issue with the Nevada Division of Environmental Protection – Bureau of Regulation and Reclamation (NDEP-BMRR) since the year 2000. Several Findings of Alleged Violation (FOAV) and Administrative Orders have been issued on this matter. A trust fund has been established to financially deal with this issue.

The regulatory-required reclamation bond cost estimate for the Florida Canyon Mine (as calculated for the December 2017 submittal) was approximately $30M. The first-party (FCMI-conducted) closure cost estimate, provided by FCMI and used in the technical economic model, is $16.8M, and considers the reduced labor and equipment rates of self-implementation over state/federal rates used for bonding, and has taken credit for partial, concurrent cash bond releases during the first few years of reclamation when the majority of the earthworks are customarily completed. SRK did not verify the assumptions or validate the closure cost estimate used and recommends that the calculation be revisited when more accurate labor and equipment rates are available from the site.

Review of recent metallurgical test work along with historical and current operating data demonstrate that the Florida Canyon ore types are amenable to heap leaching processing methods. Data also supports a median gold recovery of 71 percent at the current feed of 80 percent passing 1.5 inch. Recommendations for additional metallurgical test work and optimization are as follows.

- Develop a heap leach sampling program to determine actual residual gold content after the first leach cycle.
- Develop a detailed stacking and solution management plan.
- Additional metallurgical test work should be done to optimize the following
  - Lift height
  - Lime dosage
  - Leach cycle times
  - Heap leach feed particle size
  - Agglomeration requirements

The Florida Canyon crusher operates two secondary cone crushers in parallel in open circuit. Crusher production has averaged 620 ktpm since the restart in 2017. Changes in operating schedule and improved maintenance planning have resulted in an increase in operating hours, and an increase in the monthly production to approximately 750 ktpm. Balancing of the circuit has also increased throughput to approximately 800 ktpm. It is expected that implementation of the planed modification to the ore feed bin allowing of direct dumping ROM ore will increase the monthly throughput to a steady state operating level of 800 ktpm and reduce operating costs by eliminating the re-handling of ore.

Table 1-9 summarizes the cost estimates associated with proposed work program at the Florida Canyon Mine.

Table 1-9: Proposed work program cost estimates

Program Components	Cost Estimate ($ 000)
Evaluate & Digitize Historic Drillhole Logs	10,000
Review Blast Hole Grade Estimation Techniques	15,000
Detail Pit Access Design	50,000
Review Timing of Radio Tower Move	20,000
Detail Access Design of Central North & Radio Towers	50,000
Pit Geotechnical Central/Radio Towers Drilling & Design	1,200,000
Metallurgical Testing	300,000
Environmental Closure Study	50,000
Permitting Requirements Review	10,000
Total	**1,705,000**

2 Introduction and Terms of Reference

2.1 Introduction

Florida Canyon is an operating open pit and heap leach gold recovery mining operation 100% owned by Alio Gold Inc., through its subsidiary Florida Canyon Mining, Inc. (FCMI). Florida Canyon production history dates back to 1986. The mine re-started production after a rehabilitation period in April 2017 and achieved commercial production in December 2017. In July 2018, FCMI retained SRK Consulting (U.S.), Inc. to prepare a mineral resource estimate update and a mineral reserve estimate for the Florida Canyon Gold Mine for filing in NI 43-101 reports. The mineral resource estimate was updated, and the corresponding report was filed on SEDAR as: “The Independent Technical Report, Mineral Resource Update for the Florida Canyon Mine, Pershing County Nevada, report date, November 29, 2018” (SRK, 2018a).

This report discloses the outcomes of the LOM plan development and includes the reporting of the Mineral Reserve estimate.

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK’s services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by FCMI subject to the terms and conditions of its contract with SRK and relevant securities legislation. Any other uses of this report by any third party is at that party’s sole risk.

Classifications of Resources and Reserves in this report are prepared in accordance with the CIM Definition Standards (CIM, 2014). The document is also prepared in accordance with the Canadian Securities Administrators’ National Instrument 43-101 and Form 43-101F1.

2.2 Responsibility

This report is completed by SRK with contributions from Jeff Woods and Thomas H. Bagan. SRK does not accept liability for the statements, findings and opinions expressed in the portions of the reports authored by other contributors. This technical report is written by the authors shown in Table 2-1.

Table 2-1: QP names and areas of responsibility

Name of the QP	Area of Responsibility
Allan V. Moran, CPG	Sections 1.1 to 1.7, 4.1-4.4,6, 7, 8 ,9, 10, 11, 12, Relevant Portions of 1.18, 1.19, 25, 26
Jeff Woods, PE, SME-RM	Sections 1.8,1.12,13,17, Relevant Portions of 1.18, 1.19, 25, 26
Timothy Carew, P Geo	Sections 1.9, 14, Relevant Portions of 1.18, 1.19, 25, 26
Thomas H Bagan, PE, MBA, SME-RM	Sections 1.14,1.16.2,1.17,3.3, 19, 21.2, 22, Relevant Portions of 1.18, 1.19, 25, 26
Kent W. Hartley, PE	Sections 1.16.1, 21.1, Relevant Portions of 1.18, 1.19, 25, 26
Mark Willow, M Sc, C.E.M. SME-RM	Sections 1.15, 3.2, 4.5, 20 Relevant Portions of 1.18, 1.19, 25, 26
Justin Smith, PE, SME-RM	Sections 1.10,1.11, 1.13, 2, 3.1, 3.4, 4.6, 4.7, 5, 15, 16, 18, 23, 24,27, 28, 29, Relevant Portions of 1.18, 1.19, 25, 26

2.3 Qualifications of SRK and Qualified Persons

The consultants preparing this technical report are specialists in the fields of geology, exploration, mineral resource and mineral reserve estimation and classification, underground mining, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, capital and operating cost estimation, and mineral economics.

None of the consultants or any associates employed in the preparation of this report have any beneficial interest in Alio Gold or FCMI. The consultants are not insiders, associates, or affiliates of Alio Gold or FCMI. The results of this technical report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Alio Gold or FCMI and the consultants. The consultants are being paid a fee for their work in accordance with normal professional consulting practice.

The following individuals, by virtue of their education, experience and professional association, are considered Qualified Persons (QP), for this report and are members in good standing of appropriate professional institutions:

- Allan V. Moran, CPG
- Timothy Carew, P. Geo
- Jeff Woods, PE, SME RM, MMSA
- Tom Bagan, PE, MBA, SME RM
- Kent W Harley, PE
- Mark Willow, MSc, CEM, SME RM
- Justin Smith, P.E., SME RM

2.4 Details of Inspection

In accordance with NI 43-101 guidelines, SRK has visited the Florida Canyon Mine on a number of occasions since 2016 to review geology and exploration protocols.

For the purpose of this reserves update, the QPs listed in Table 2-2 visited the property during the dates indicated to review metallurgical data, mining/production and infrastructure.

Table 2-2: Site visit participants

Personnel	Company	Expertise	Date(s) of Visit	Details of Inspection
Allan Moran	SRK Consulting	Geology	July 12, 2018	Geologic exposures in pits Drillhole database
Jeff Woods	Wood Process Services LLC	Metallurgy	October 8 through October 11, 2018	Review of historical and current Metallurgical testing and results
Thomas Bagan	Thomas H. Bagan, LLC	Economics	June 11-12, 2018, July 25, 2018, September 18, 2018 and December 3-4, 2018	June 11-12: Reviewed Process Stacking Plan and recovery variables. July 25: Review mine operations costs September 18: Review requirements for 800 ktpm. December 3-4: Review unit costs and production schedules.
Kent Hartley	SRK Consulting	Mining	Nov 1, 2018	Capital Cost Review
Justin Smith	SRK Consulting	Mining	July 12, 2018	Open Pit, Waste Rock Storage, Drainage, and Leach Pad Facility Review

2.5 Sources of Information

This report is based in part on internal Company technical reports, previous feasibility studies, maps, published government reports, company letters and memoranda, and public information as cited throughout this report and listed in the References, Section 28.

SRK has reviewed and used in-part certain information for the Florida Canyon Gold Mine, which has not changed from prior public disclosures such as Property Description, History, and Geology. Such information has been derived from the "Amended Technical Report – Preliminary Economic Assessment for the Florida Canyon Gold Mine, Pershing County, Nevada USA" prepared for Rye Patch Gold by Mine Development Associates, dated January 27, 2017 (MDA, 2017) – a recent but historical document. The document is available on SEDAR. The information has been reviewed by QP, Allan V. Moran, and it accurately represents the Florida Canyon Gold Mine property. Minor modifications have been made for formatting and clarification, and where appropriate, information provided by SRK or significantly modified by SRK is so noted in the corresponding sub-section or paragraph.

2.6 Effective Dates

The effective date of this report is November 1, 2018.

2.7 Units of Measure

The US System for weights and units has been used throughout this report. Tons are reported in short tons of 2,000 lb, (st). All currency is in U.S. dollars (US$) unless otherwise stated.

2.8 Declaration

SRK's opinion contained herein and effective November 1, 2018, is based on information collected by SRK throughout the course of SRK's investigations, which in turn reflect various technical and economic conditions at the effective date of this report. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

This report may include technical information that requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, SRK does not consider them to be material.

SRK is not an insider, associate or an affiliate of Alio Gold or FCMI, and neither SRK nor any affiliate has acted as advisor to Alio Gold or FCMI, its subsidiaries or its affiliates in connection with this project. The results of the technical review by SRK are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

3 Reliance on Other Experts

3.1 Ownership, Mineral Tenure and Surface Rights

SRK has not performed an independent verification of land title and tenure information as summarized in Section 0 of this report. SRK did not verify the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties but have relied on Erwin Thompson Faillers as expressed in a legal opinion provided to FCMI on June 29, 2018. The reliance applies solely to the legal status of the rights disclosed in Section 4.3 and 4.4.

3.2 Environmental

The QP's have relied upon the information provided by FCMI for first-party (FCMI-conducted) closure cost estimates. QP's also relied upon FCMI information related to bond payments.

3.3 Taxation

The QP's have relied upon the information provided by FCMI for Federal and State taxation as well as local property taxes.

3.4 Other

SRK was informed by FCMI that there are no known litigations potentially affecting the Florida Canyon Gold Mine.

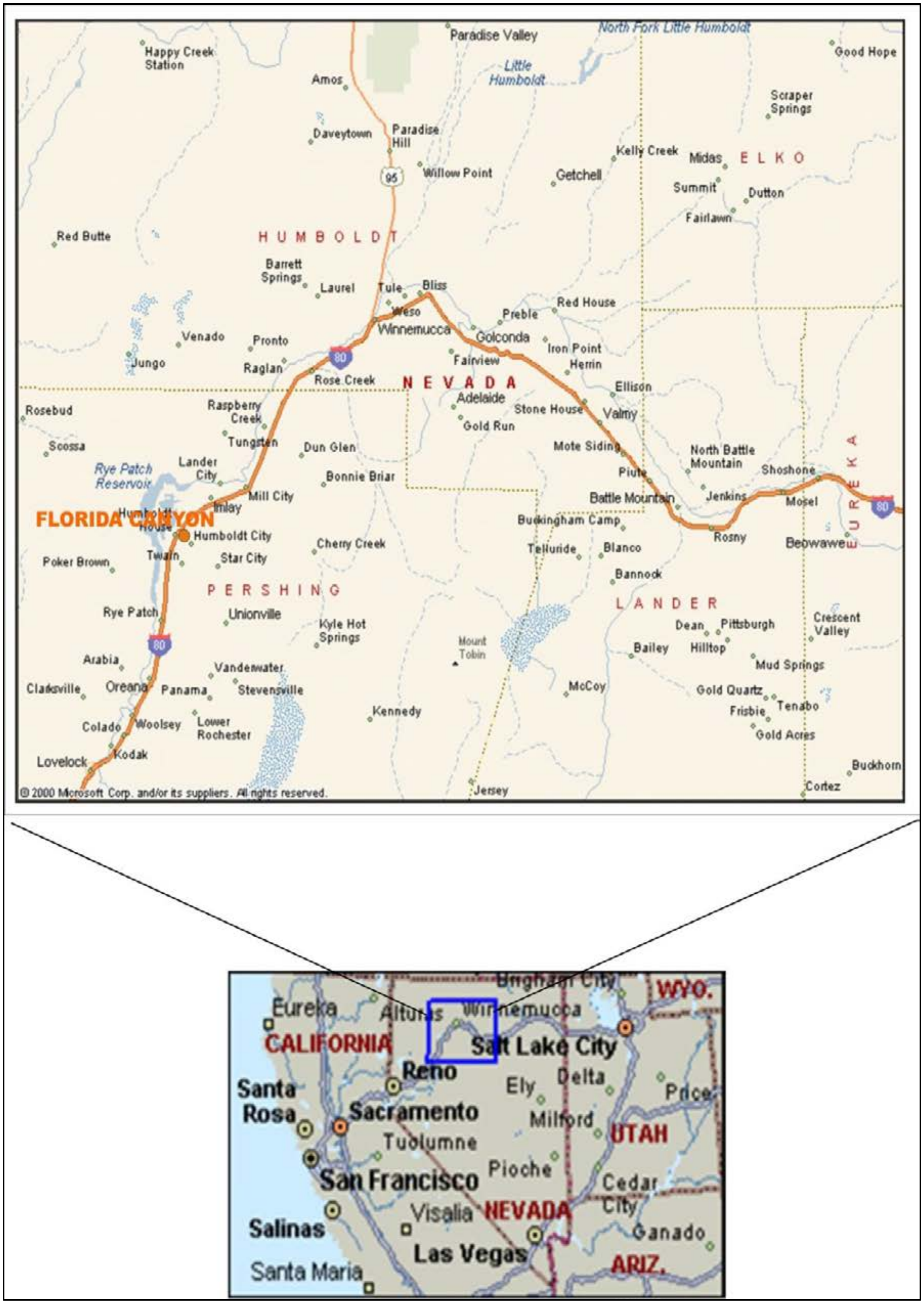
4 Property Description and Location

4.1 Florida Canyon Gold Mine Summary

The Florida Canyon Gold Mine is an active mining property, that has been in nearly continuous operation since 1986. The property is currently owned and operated by Alio Gold Inc. Alio Gold acquired the property when it acquired Rye Patch Gold in May 2018.

4.2 Property Location

The Florida Canyon property is located about 42 miles south of Winnemucca, Nevada, just off Interstate 80 (I-80) at the Humboldt exit (Exit 138). Access to the Florida Canyon offices is from the Interstate at the Humboldt exit, proceeding to the security gate, less than one mile. The leach pad, plant, and offices are visible east of the Interstate. The mine is partially visible east of the leach pad area. The pits, waste dumps, and facilities are in Sections 1, 2, 3, 10, 11, and 12 of T31N, R33E and Sections 34 and 35 of T32N, R33E, Mount Diablo Base & Meridian, Pershing County, Nevada. The approximate location of the Florida Canyon deposit is longitude 118° 14’W and latitude 40° 35’N.



Source: MDA, 2017

Figure 4-1: Florida Canyon Gold Mine location map

4.3 Land Status, Property Agreements, and Operating Permits

The land package owned or leased by FCMI covers a total of 29,370 acres (including Alio Gold's adjacent Standard Mine Project, which is included in this technical report). Fee lands total 5,520.4 acres, while 19 patented claims total 359.9 acres and FCMI maintains 877 unpatented claims that total 23,875 acres. Two patented claims are also leased. The fee lands and patented claims, and most of the unpatented claims, have been surveyed. The area considered for this report contains just the Florida Canyon Gold Mine and includes 643 of the unpatented claims, as outlined in Figure 4-2. Annual unpatented claim maintenance fees of $155 per claim have been paid to the BLM through September 2018. According to FCMI, all county taxes have been paid for the patented claims and fee lands.

Florida Canyon mining operations and facilities are in Sections 1, 2, 3, 10, 11, and 12 of T31N, R33E, Mount Diablo Base and Meridian. The mineralization and facilities extend to the north in Sections 34 and 35 of T32N, R33E, Mount Diablo Base and Meridian. Usually only 36 sections are in each township, however, in T31N, R33E, Sections 37, 38, and 39 are included due to historical government surveying problems that left gaps between the normal sections. Figure 4-2 shows the location of mineralized areas in the Florida Canyon Gold Mine.

4.4 Mineral Titles

Mineral titles are held by a combination of unpatented mining claims, patented mining claims (fee owned lands), fee-simple owned lands, and two leased patented mining claims.

Royalty agreements affecting the project are listed in Table 4-2. All material processed at the Florida Canyon Gold Mine is subject to three royalties: a 2.5% NSR royalty payable to Able and York International Corporation, LLC; a 3.25% royalty payable to Maverix Metals Inc, and the 10.0% McCullough (formerly ASARCO) royalty area of the Florida Canyon deposit as summarized in Table 4-2. Holding costs for the entire land package of patented claims, unpatented claims and fee lands are summarized in Table 4-1.

The 2016 report by Erwin and Thomson LLP indicates that there are no claims in conflict with the patented or unpatented claims.

Table 4-1: FCMI Land holding costs

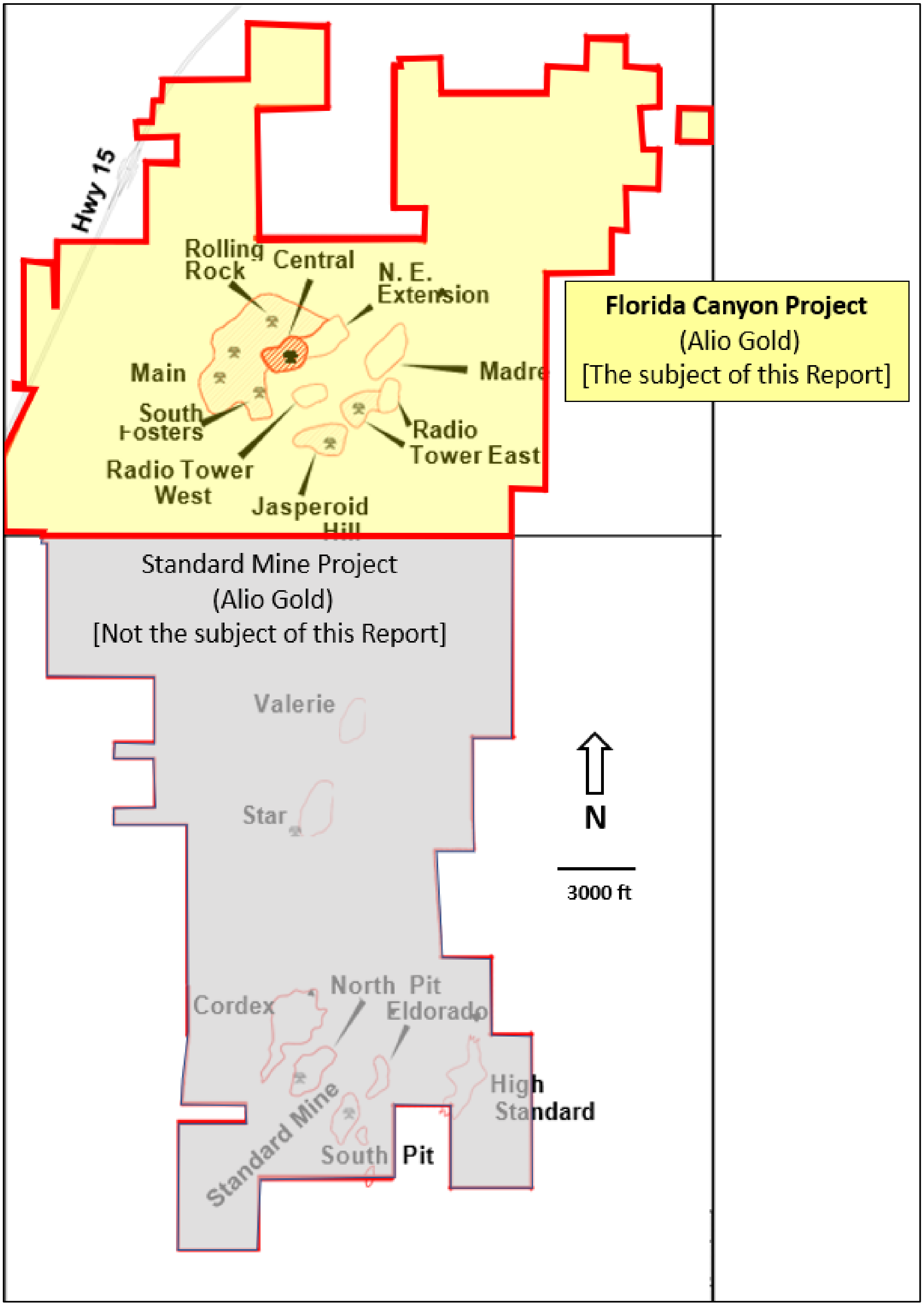
Property	Annual Cost ($)	Royalty
Unpatented Claims	145,144	
Patented Claims	294	
Fee Lands	5,498	
Auramet Trading LLC		3.25% NSR
Ranleigh International		2.50% NSR
McCullough		1.00% NP
Total	**150,936**	

Source: MDA, 2017

Table 4-2: Property royalties

Date	Recording Date	Document No.	Document Title	Obligee	Rate	Project
11/18/2015	12/23/2015	494163	Assignment of Royalty Interest	Able & York International, LLC	2.5% NSR	FCMI
10/4/2013	10/8/2013	485690	Memorandum of Net Smelter Returns Royalty Agreement	Maverix Metals Inc	3.25% NSR with allowable dedections	FCMI (ALL) SGMI

Source: MDA, 2017



Source: MDA, 2017; modified by SRK, 2018

Figure 4-2: Florida Canyon land map

4.5 Environmental Liabilities and Permitting

4.5.1 Environmental Liabilities

Both the BLM's 43 CFR § 3809 and State of Nevada's mine reclamation regulations (NAC 519A) require closure and reclamation for mineral projects, and a reclamation permit must include a financial surety to ensure that reclamation will be completed. FCMI has a reclamation surety to fund short-term closure and reclamation of the disturbance associated with mining operations and is currently permitting for reclamation under the state Reclamation Permit #0126, and by the BLM under approval of APO 20 and the FCMI APO 20 EA.

SRK is not aware of any known environmental issues that could materially impact FCMI's ability to extract the mineral reserves. However, at least one environmental issue is significantly relevant to the operations and merits inclusion herein. Identified during routine site monitoring in 2000, the migration of nitrate from beneath the Florida Canyon HLP has been an issue with the Nevada Division of Environmental Protection – Bureau of Regulation and Reclamation (NDEP-BMRR) since that time. Several Findings of Alleged Violation (FOAV) and Administrative Orders have been issued on this matter. A trust fund has been established to financially deal with this issue.

4.5.2 Required Permits and Status

With respect to required permits and their status, SRK was provided a comprehensive list of current authorizations, as this is an established, operating mine in a jurisdiction that is regulatorily advanced and enforced. A review of the permits indicated that FCMI is fully permitted for the current operations, though several minor "expired" permits are undergoing renewal as of the publication of this report. FCMI also has water rights and appropriations, as well as monitor well waivers issued by the Nevada Division of Water Resources (NDWR) for 25 production and monitoring wells at both mines.

4.6 Other Significant Factors and Risks

SRK is not aware of any other significant factors or risks that will potentially affect the Florida Canyon mineral reserve estimate.

4.7 Conclusions and Recommendations

SRK concludes there are no land or title issues or concerns that would affect the potential mineability of the current mineral reserve presented in Section 15 of this technical report.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Summary

Florida Canyon Gold Mine year-round access is available via I-80, with numerous small towns close by. Winnemucca, a city of 8,000 residents, is 42 miles northeast of the Florida Canyon Gold Mine and is a source for labor, fuel, groceries, accommodation, and aircraft services. Lovelock, a city of 1,900 residents, is 31 miles southwest along I-80 and is also a source for labor, fuel, groceries, and accommodation. The major city of Reno is 125 miles southwest via I-80.

The climate in the project area is classified as semi-arid, characterized by low rainfall, low humidity, and relatively large annual and daily temperature ranges. Bright sunny days and cool clear nights frequently occur. Average temperatures range from the 30s (°F) in January to the 70s (°F) in July. Winter minimum temperatures are generally in the teens (°F), and summer maximums in the 90s (°F). Average annual precipitation for 1935 through August 2009, obtained for the nearby Rye Patch Dam weather station from the Western Regional Climate Center, has been 7.8 inches, with most of the precipitation falling as snow in the winter months. The minimum annual precipitation was 3.3 inches, and the maximum was 16.2 inches over this period.

The Florida Canyon Gold Mine is in the northwest portion of the Great Basin and on the western flank of the Humboldt Range. The terrain is a series of alternating mountain ranges and sagebrush covered valleys, with the mine located in the Basin and Range physiographic province. Elevations range from 4,200 ft near the plant and base of the leach pad to over 6,000 ft to the east. Star Peak is located to the southeast of the mine with an elevation approaching 10,000 ft.

5.2 Conclusions and Recommendations

SRK concludes that there are no access or infrastructure issues or concerns that would affect the future potential mineability of the current Mineral Resources and Mineral Reserves stated in sections 14 and 15 of this technical report.

6 History

6.1 Florida Canyon Gold Mine Summary

Gold was discovered in 1860 in Humboldt Canyon, which led to the organization of the Imlay Mining District. Numerous claims were filed in the area, and the population of Humboldt City grew to 500 by 1863. Mining in the district was limited until 1906 when the Imlay Gold Mine and the Black Jack Mercury Mine were discovered. Production from the district was low. However, continued exploration resulted in the production of gold, silver, mercury, and tungsten from small mines. The most productive mine in the district was the Standard Mine which produced more than $1M in gold and silver between 1939 and 1949. The Valerie fluorspar deposit near the head of Black Canyon produced about 723 tons of 44% CaF_2. Kaolin and sulfur were also shipped from the district.

In 1969, Homestake Mining Company obtained a lease on property in the Florida Canyon area. Seven widely spaced rotary holes were drilled with marginal results, and the property was dropped. Cordilleran Explorations (Cordex) next leased the property between 1972 and 1978. A comprehensive program of geologic mapping, geochemical sampling, and trenching was completed. A total of 25 of 37 drill holes completed were in a mineralized zone referred to as the "West Trend", on the site of the present-day Florida Canyon Gold Mine. When Cordex dropped their lease in 1978, Flying J Mines carried out a limited heap leach operation on the "West Trend" material.

Between 1969 and 1982, three major mining companies explored the property and chose not to proceed with development of the deposit. For example, during 1980 and 1981, ASARCO completed a drill program of 69 rotary holes that significantly expanded the known mineralization. ASARCO dropped its interest in the property, except for a portion of Section 11, where a 1% NP royalty, now known as the McCullough royalty, remains in effect.

In 1982, Montoro Gold Company, a subsidiary of Pegasus Gold Corporation, acquired the property. Montoro began an aggressive program to expand resources and enlarge the property position. Detailed geologic mapping and geochemical sampling led to discovery of other anomalous gold occurrences throughout the property. By the end of 1985, 241 drill holes were completed totaling 87,569 ft in the "West Trend" and adjacent deposits. In addition, 46 holes were completed on other exploration targets to the south and east.

Large-scale column-leach tests were completed in conjunction with additional resource delineation. In November 1985, a decision was made by Pegasus to put the property into production. Permitting and project development followed with the start-up of a new mine in 1986. Since the original permit was granted in 1986, a total of 16 amendments to the operating plan have been made. Work on processing facilities began in May 1986, with the first ore crushed and delivered to the leach pad in November 1986. During the years that followed, additional drilling added resources to the project. Most of the known oxide mineralization in the Florida Canyon area has been explored. However, new areas to the south of the current operation present opportunities for future development of the Standard Mine mineralized zones.

Pegasus operated the Florida Canyon Gold Mine until January 1998. Pegasus was an international gold mining company incorporated in Canada, with headquarters located in Spokane, Washington and had gold production of 470,000 ounces from six operations in 1997. Pegasus began having financial problems in 1997 when the price of gold decreased from $370 per oz in January to $283 per oz in December. In January 1998, Pegasus was unable to service $213M in debt and filed for bankruptcy under Chapter 11 of the U.S. Bankruptcy Code.

Under two separate plans of reorganization approved by major creditors and confirmed by the court, certain former Pegasus affiliates emerged from bankruptcy protection during February 1999. The first involved the reorganization of Pegasus Gold International Inc. (the international exploration affiliate of Pegasus), which was reincorporated as Apollo Gold Inc. Apollo Gold Inc. became the holding company for three former Pegasus subsidiaries, including FCMI.

Apollo Gold Inc. was acquired during the second quarter of 2002 by Nevoro Gold, Inc. Nevoro became a publicly traded company on the Toronto Stock Exchange and subsequently changed its name to Apollo Gold Corporation. Apollo operated the Florida Canyon Gold Mine and the Standard Mine through its FCMI and Standard Gold Mining Inc. (SGMI) subsidiaries until Jipangu International, the U.S. subsidiary of Jipangu Inc., acquired the Florida Canyon and Standard properties on November 18, 2005. Jipangu International operated the properties through its wholly-owned subsidiaries FCMI and SGMI.

In September 2015 Jipangu defaulted on debt and the property became majority owned by Admiral Financial Group. Rye Patch Gold. Agreed to acquire the Florida Canyon property and related assets from Admiral Financial Group and Jipangu International through the acquisition of their three subsidiary companies, FCMI, SGMI, and Jipangu Exploration in consideration for payment of $US15.0M and 20 million common shares of Rye Patch Gold at closing. Rye Patch Gold agreed to assume certain liabilities of the acquired companies to a maximum aggregate amount; all obligations and payments have subsequently been satisfied by Alio Gold Inc. since their acquisition of Rye Patch Gold.

In mid-2016, Rye Patch Gold resumed open pit mining operations and heap leach gold recovery. Rye Patch Gold declared commercial production in December 2017. In May 2018, Alio Gold acquired Rye Patch Gold by way of a Plan of Arrangement transaction and now own 100% of the Florida Canyon property, which includes the Florida Canyon and Standard mines, operated by FCMI and SGMI, respectively.

A publicly stated mineral resource estimate was prepared for Rye Patch Gold by Mine Development Associates, dated January 27, 2017 (MDA, 2017). That stated mineral resource is presented in Table 6-1 and is considered a historical mineral resource. It is presented here for historical purposes only.

Table 6-1: Historical Mineral Resource – Florida Canyon – MDA, 2017

Mineral Resource	Tons (000s)	Grade (oz/ston Au)	Pit Shell Price	Cut-off Grade (oz/ston Au)
Measured and Indicated	84,202.1	0.013	$1216	0.006
Inferred	350.8	0.015	$1216	0.006

Source: MDA, 2017; formatted by SRK, 2018

The above stated historical mineral resources are not reliable or relevant; they are historically reported information only. Key assumptions and estimation parameters used in the above estimate are have not been examined by the authors of this report, it is therefore not possible to determine what additional work is required to upgrade or verify the estimate as current mineral resources or mineral reserves. The above tonnage and grade figures are not considered current or CIM complaint Resources, as SRK Qualified Persons have not evaluated the data used to derive the estimates of tonnage and grade; therefore, the estimate should not be relied upon. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources and Alio Gold is not treating the historical estimate as a current mineral resource. The estimate of tons and grade are presented here only as documentation of what was historically reported for the property (MDA, 2017).

7 Geological Setting and Mineralization

7.1 Florida Canyon Gold Mine Geological Setting and Mineralization

Florida Canyon is a large tonnage low-grade gold deposit hosted in Mesozoic age metasedimentary rocks (Triassic-Cretaceous) controlled by a northeast-trending fault-fracture system typical to north-central Nevada, and partially controlled and bounded by north-trending basin-and-range mountain front faults along the northwest edge of the Humboldt Range. Florida Canyon is a relatively young epithermal gold deposit adjacent to an active geothermal system and is generally described as a hot spring-style, low-sulfidation epithermal gold deposit. A large area of faulting and fracturing in host mudstones and siltstones has been hydrothermally altered to exhibit oxidation (hematite) and silicification, along with associated fracture and disseminated gold mineralization. Sulfide mineralization exists below the level of oxidation.

7.2 Regional Geology

The Florida Canyon Gold Mine area is situated in northwestern Nevada within the Basin and Range physiographic province, which is typified by a series of northward-trending elongate mountain ranges separated by alluvial valleys. Rocks exposed in the region range in age from Cambrian to Holocene and comprise thick sequences of sedimentary, volcanic, intrusive, and metamorphic rocks in a complex structural environment (Johnson, 1977).

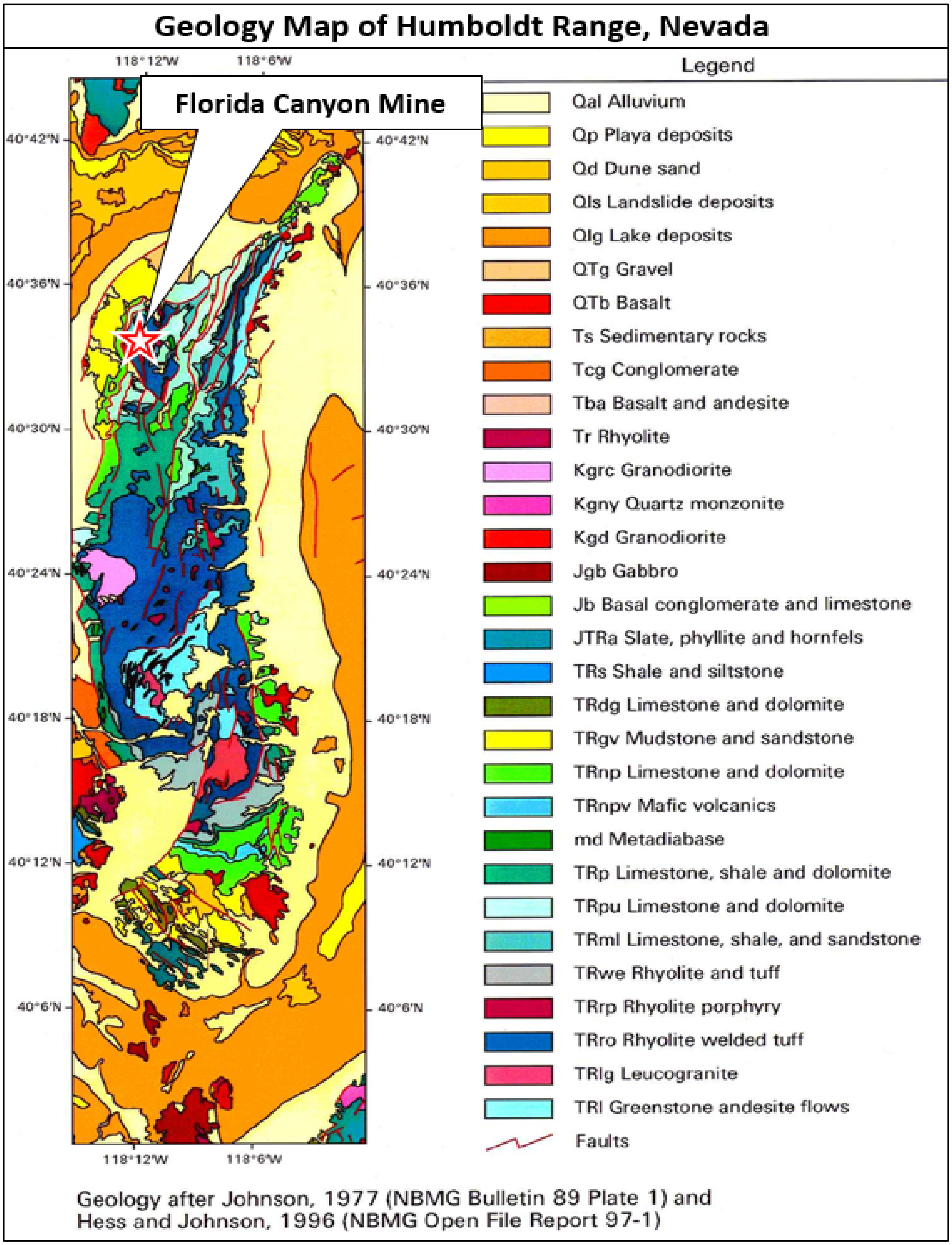
The region was subjected to three major pre-Cenozoic periods of deformation, characterized by large-scale folding and thrust faulting (Johnson, 1977), with intervening periods of substantial carbonate and clastic sedimentation. The late Devonian to early Mississippian Antler orogeny formed the Antler highlands, located in present-day central Nevada, east of the area of study. This uplift shed sediment westward into a marine transgressive environment (Taylor et al., 2002).

At the end of the Paleozoic era (late Permian period) and into the early Triassic period, the Sonoma orogeny resulted in deep-water strata thrust eastward tens of miles over rocks of the Antler highlands (Johnson, 1977). During this period, thick sequences of greenstone and rhyolitic flows, tuff, and breccia of the Koipato Group were deposited in a shallow marine setting. Continuing sedimentation in the Triassic period was characterized by shallow-water marine carbonate deposition (Prida and Natchez Pass formations) grading westward to deeper-water clastic sedimentation, predominantly mudstones. During the late Triassic to early Jurassic periods, sediments of the Grass Valley Formation, grading from fluvial sandstone in the east to fine-grained mudstone in the west, were unconformably deposited over the Prida and Natchez Pass formations (Taylor et al., 2002).

The last major compressional event, the Sevier orogeny, was likely well underway during the late Triassic period, with evidence that some mid-Triassic sediments in the region were deposited syntectonically into local troughs formed during the early stages of this tectonic event (Taylor, 2001). During this time, sandstone and mudstone of the Grass Valley Formation were weakly metamorphosed to quartzite, argillite, and slate, with a north-northeast metamorphic foliation (Taylor et al., 2002).

Cenozoic volcanism and later Basin and Range faulting, which commenced about 16 Ma (million years ago), have complicated and, locally, obscured the older structural features (Johnson, 1977).

Figure 7-1 is a geology map of the Humboldt Range, Nevada (Johnson & Hess, 1996), showing the location of the Florida Canyon Gold Mine on the north end of the mountain range – the range being primarily composed of Triassic and Jurassic sedimentary and volcanic rocks – and Cretaceous intrusive rocks.



Source: Hess and Johnson, 1996, edited by SRK, 2018

Figure 7-1: Regional geology map of the Humboldt Range, Nevada (Hess and Johnson, 1996)

7.3 Local Geology

The Florida Canyon gold deposit is located in the Humboldt Range, which is a major north-trending anticlinal structure likely formed during the Sevier orogeny (Hastings et al., 1987). The stratigraphy of the Humboldt Range is summarized from Taylor (2001) and Taylor et al. (2002).

Triassic Koipato Group are the oldest rocks exposed in the range and consist of (from oldest to youngest) the Limerick Greenstone, Rochester Rhyolite, and Weaver Rhyolite members. These units consist of volcanic flows, tuff, and tuffaceous sedimentary rocks that have been tilted to the south and modified by regional block faulting.

The Koipato Group is unconformably overlain by rocks of the mid-Triassic Prida Formation, which are, in turn, overlain by the Upper Triassic Natchez Pass Formation. The Prida Formation grades upwards from coarse clastics to cherty, carbonaceous limestone and massive limestone. Mafic sills and conformable mafic flows are common throughout the Prida Formation. The Natchez Pass Formation is a massive, gray, medium-grained reef limestone that grades into a laminated, silty limestone to the east. The Natchez Pass Formation is separated from the Prida Formation by the regional Humboldt City Thrust. Both carbonate formations are well exposed in the ridges above both the Florida Canyon Gold Mine.

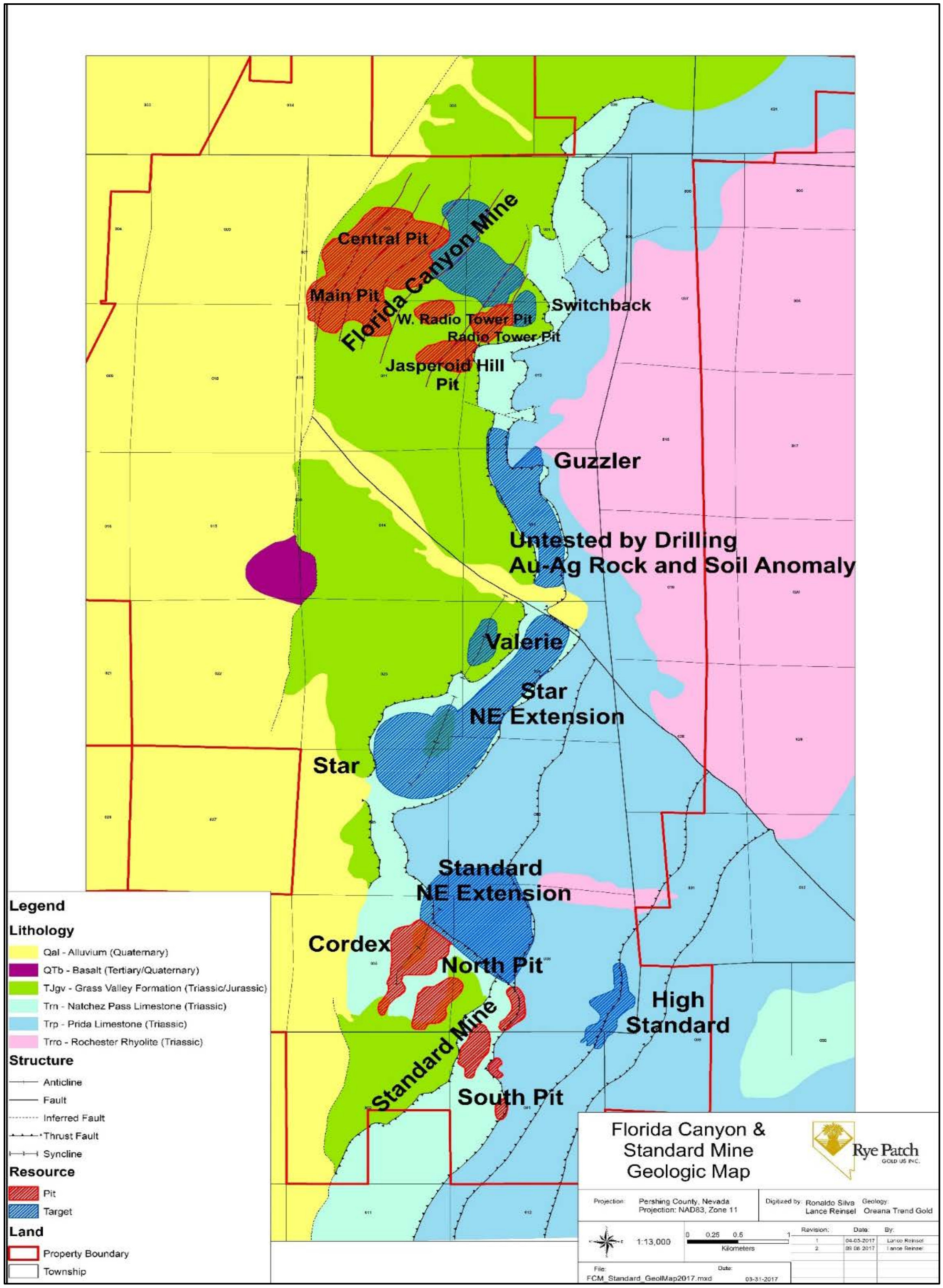
Pelitic rocks of the Grass Valley Formation unconformably overlay the Natchez Pass Formation. FCMI interprets the silty argillite and argillaceous sandstone that comprise the Grass Valley Formation to represent sedimentation related to a delta complex, with a coastal plain to the east and a marine basin to the west. Evidence for a deltaic environment includes channel cut and fill structures and turbidity breccias exposed in the Florida Canyon area.

Small plutons, stocks, dikes, and sills, of Triassic to Tertiary in age, and with compositions ranging from rhyolite and granodiorite to gabbro, are exposed throughout the area. Diabase sills are widespread in the Koipato Group and Prida Formation and, locally, intrude the Natchez Pass Formation.

Westward from the range margin, the region outward from the Humboldt Range is dominated by fluvial gravels and unconsolidated valley fill sediments associated with Cenozoic Basin and Range mountain building and Quaternary alluvium.

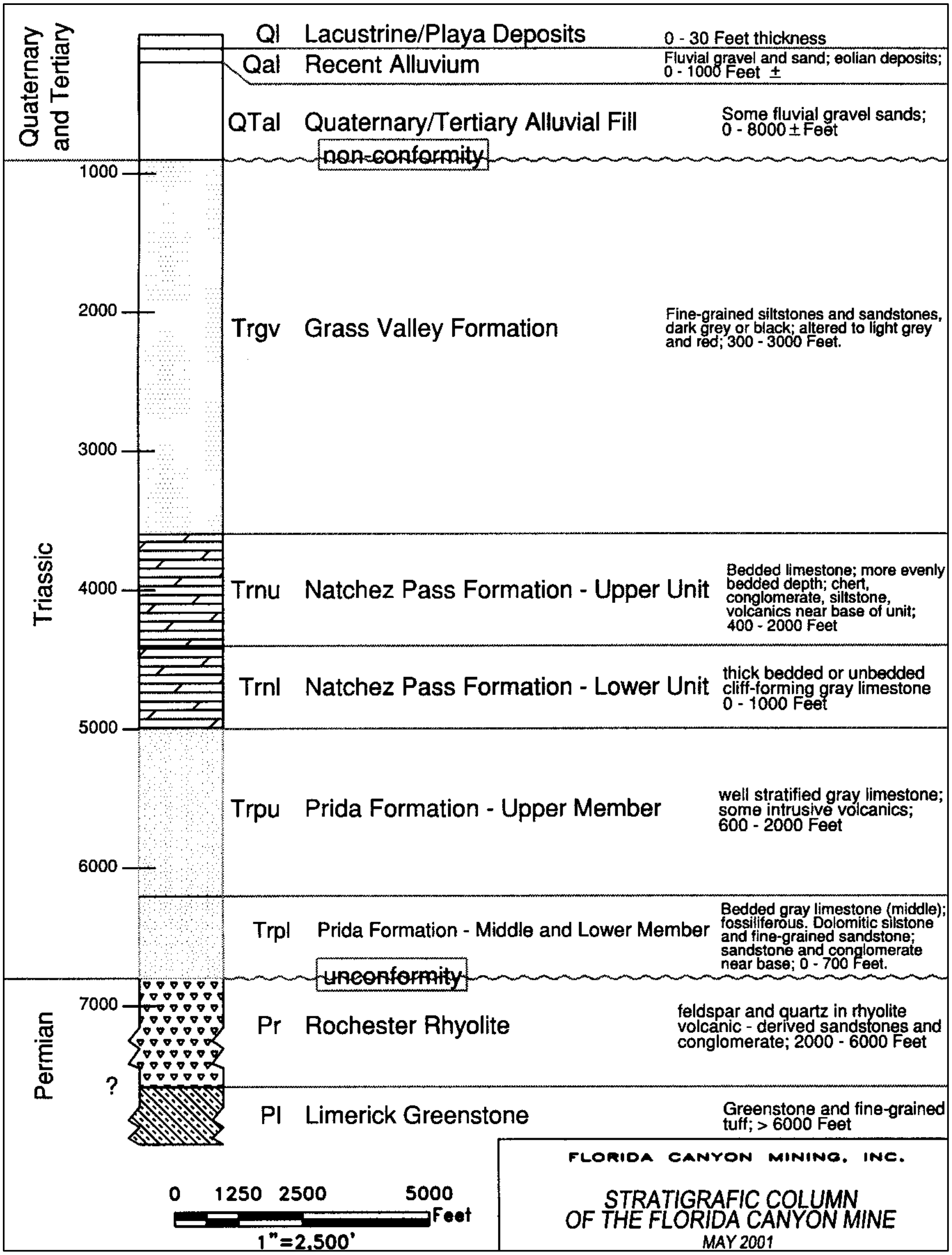
The Florida Canyon area is dominated by a major regional structural zone, termed the Humboldt Structural Zone, which is interpreted to be a 200-km wide northeasterly-trending structural zone with left-lateral strike slip movement (Hastings et al., 1987). One of the principal structural features within the Humboldt Structural Zone is the Midas Trench lineament, which abruptly terminates the north end of the Humboldt Range (Rowen and Wetlaufer, 1981). Mineralization and alteration in the Florida Canyon and Standard Mine deposit areas are localized where the Midas Trench lineament is intersected by the north-south trending Basin and Range frontal faults (Hastings et al., 1987).

A generalized Geology Map of the Florida Canyon and Standard Mine region, showing the locations of known mineralization, is presented in Figure 7-2: Local geology map – Florida Canyon and Standard mine area Figure 7-3 is a stratigraphic column for the area of this study.



Source: FCMI, 2018

Figure 7-2: Local geology map – Florida Canyon and Standard mine area



Source: MDA, 2017

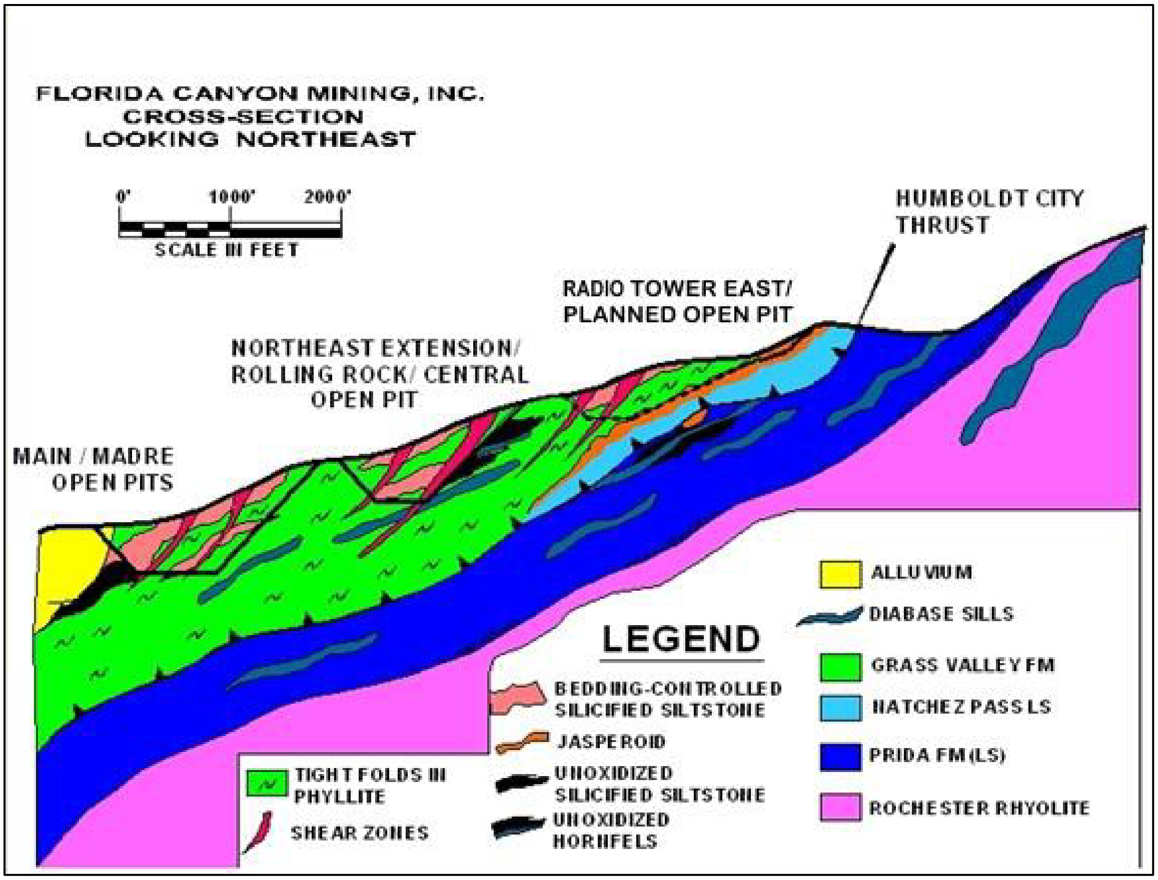
Figure 7-3: Local geology stratigraphic column

7.4 Property Geology

Rocks of the Rochester Rhyolite, Prida Formation, Natchez Pass Limestone, and Grass Valley Formation are exposed in the Florida Canyon Gold Mine area. All of these units are of Triassic age. Sills of mafic composition intrude the Prida Formation and sparse, strongly clay-altered felsic dikes locally cut upward into the Grass Valley Formation. The Humboldt City Thrust Fault separates the Natchez Pass and Grass Valley formations from the underlying Prida Formation, and much of the middle and lower units of the Natchez Pass Limestone have been cut out above the thrust fault. The Florida Canyon gold deposits are hosted by the Grass Valley Formation and Natchez Pass Limestone along with sill/limestone contact zones within the Prida Formation. The general strike of the stratigraphy at Florida Canyon is N30°E with a 30 to 40° dip to the west.

Figure 7-4 is a generalized west-to-east cross section illustrating the general geology of the Florida Canyon gold deposits. Taylor (2001) described the lithologic and structural characteristics of the Grass Valley Formation in the immediate Florida Canyon Gold Mine area. These descriptions have been updated by Larsen (2009, personal communication). The Grass Valley Formation is composed of siltstone with interbedded sandstone lenses, which were metamorphosed to argillite, phyllite, and fine-grained quartzite. At the mine site, the Grass Valley Formation can be separated into layers of silty argillite and quartzite separated by dark gray to black phyllite. The layers of more quartz-rich sediment were more strongly and preferentially fractured and faulted during periods of compressional tectonics relative to the phyllite beds. As well, extensional tectonics during Basin and Range formation also resulted in more fault- and fracture-related permeability in the silty beds relative to the phyllite.

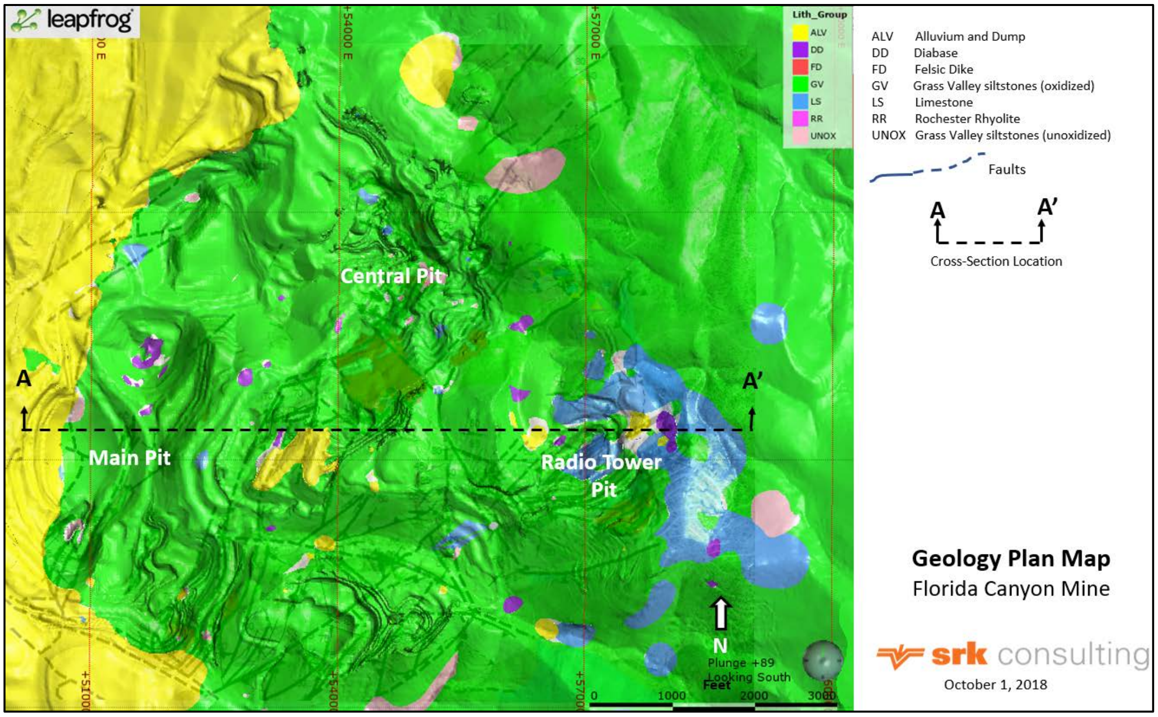
There is a strong N30°E to N50°E structural fabric prevalent in and adjacent to the Florida Canyon deposits, as evidenced by the alignment of quartz veining, shear zones, and well-developed joint sets (Hastings et al., 1987). Byington (1996) also recognized this important structural control to mineralization, particularly in the Main and Madre (aka Brown Derby) deposits. It has also been noted at other locations, specifically the Northeast Extension (aka Central) deposit that the preferentially mineralized structural trend is west-northwest. The north to north-northeast trending Basin and Range fault system limits the western near-surface part of the Florida Canyon oxide deposit. The range-front fault system is a series of subparallel normal faults that “stair step” down to the west, with displacement on individual faults ranging from more than 780 ft near the range front to a few feet on parallel structure further to the west (Hastings, 1987). These range-bounding faults are also listric and flatten with depth, which is an important feature in exploring for downdip blocks of mineralization to the west beneath valley-fill alluvium.



Source: MDA, 2017

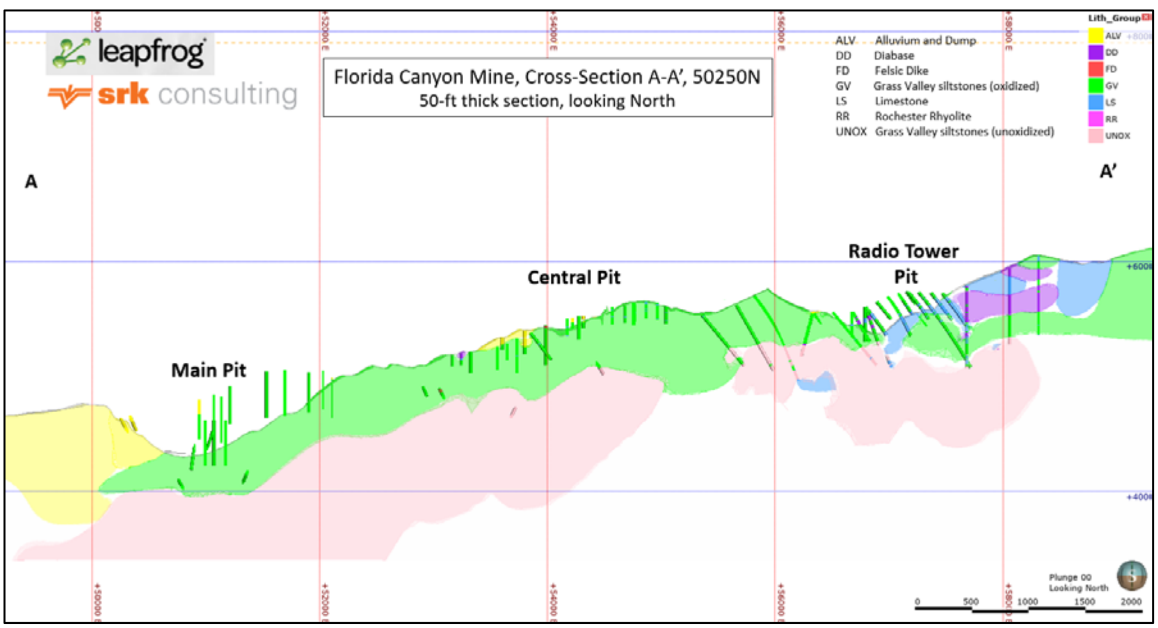
Figure 7-4: Florida Canyon generalized geologic cross section

The project geology previously used for resource estimation purposes was a set of interpreted geologic cross-sections, derived from drillhole data. SRK updated the geology model by using the drillhole log data for lithology and alteration to construct 3-D implicit geological model solids in Leapfrog® software, and those solids were used to code the block model. Logged codes are a mix of lithology and alteration types. Figure 7-5 and Figure 7-6 represent the project geology in plan and a representative cross-section, respectively.



Source: SRK, 2018

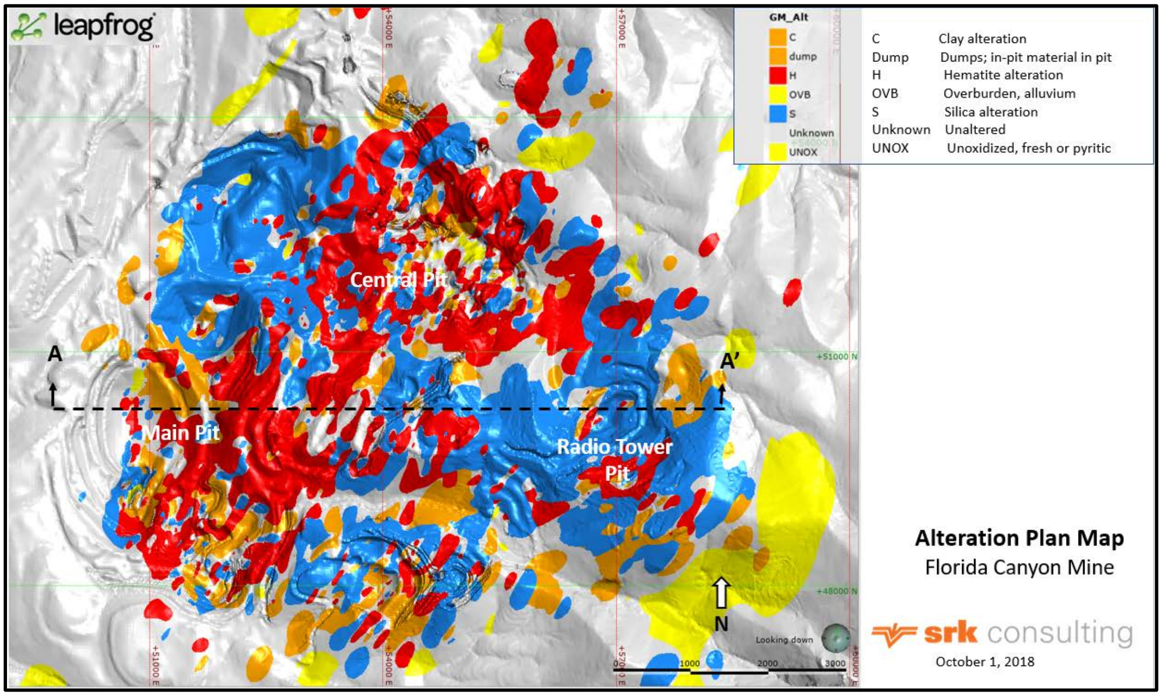
Figure 7-5: Geology plan map, Florida Canyon Gold Mine area



Source: SRK, 2018

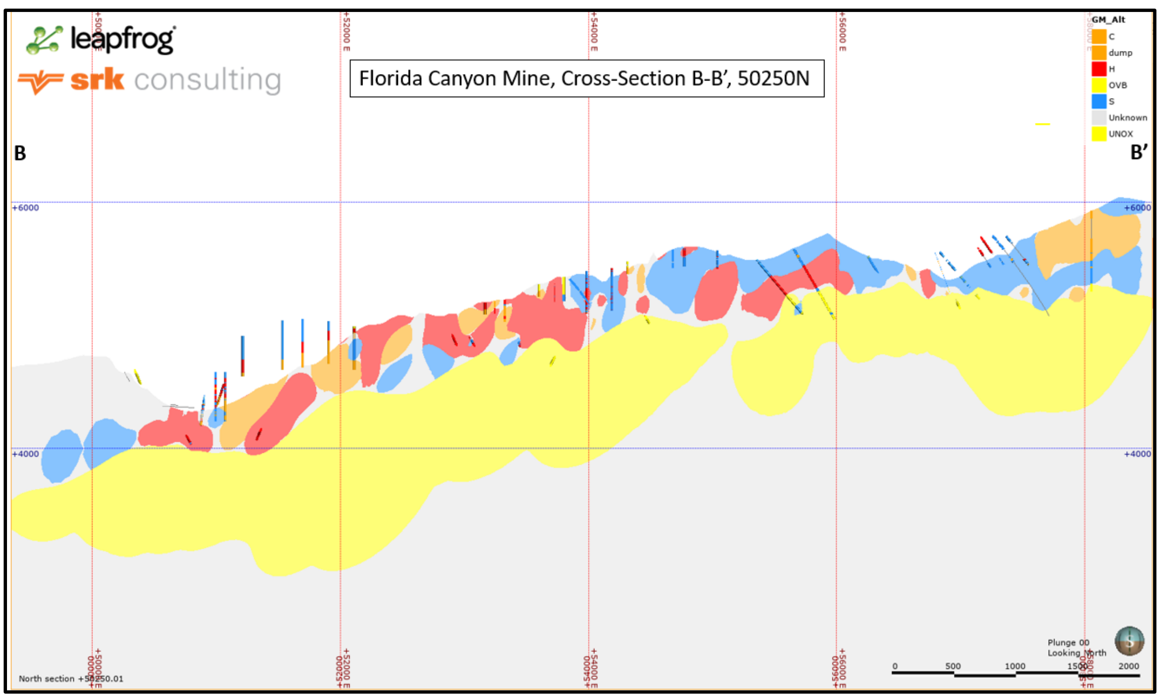
Figure 7-6: Geologic cross-section A-A', Florida Canyon Gold Mine area

An alteration model was also constructed, which identifies unoxidized and oxidized rocks as a primary differentiation, with unoxidized rocks containing sulfides (pyrite primarily). Further differentiation of oxidized rocks defines clay, hematite, and silicification as alteration types, depending upon which alteration type is dominant in the drill logs. Figure 7-7 and Figure 7-8 show the alteration map and section, respectively.



Source: SRK, 2018

Figure 7-7: Alteration plan map, Florida Canyon Gold Mine area



Source: SRK, 2018

Figure 7-8: Alteration cross section, Florida Canyon Gold Mine area

7.5 Significant Mineralized Zones

At Florida Canyon, the location and geometry of the mineralized bodies are a result of structure; the presence of favorable silty argillite, quartzite, and limestone host rocks; and the position of the host rocks relative to structural conduits. The higher-grade zones of mineralization tend, in general, to follow the high-angle, northeast- and northwest-trending fault and shear zones. The more moderate- or lower-grade zones are controlled by favorable host rocks more distal to feeder structures.

Rock units that are more favorable hosts to mineralization include silty argillite, hornfelsed contact zones with mafic sills, karsted limestone, and platy, silty limestone with interbeds of calcareous shale. Local factors that influence the occurrence and geometry of mineralized bodies include variations in folds, foliation, and bedding in favorable units, intersecting structural fabrics, and proximity to low-angle structures (Taylor 2001). Hypogene mineralization at Florida Canyon consists of native gold and electrum associated with quartz, iron oxides, pyrite, marcasite, and arsenopyrite (Hastings et al., 1987). Quartz is the major gangue mineral. Secondary minerals identified in the Florida Canyon deposits to date include gypsum (likely remobilized from the Grass Valley Formation), alunite, barite, native sulfur, calcite, dolomite, fluorite, anhydrite, pyrargyrite, pyrrhotite, and stibnite. There are two types of hydrothermal epithermal quartz veins at Florida Canyon (Hastings et al., 1987). The most important are vein swarms and stockworks that contain most of the gold mineralization. These veins are often randomly oriented, though generally follow a north-northeast trend (Hastings et al., 1987) and are characterized by colorless, euhedral to subhedral quartz, or banded chalcedonic white to colorless quartz that contains limonite after pyrite (Taylor, 2001).

The second type of hydrothermal quartz veining occurs as large, through-going, banded fissure veins that follow the original north-northeast structural fabric (Hastings et al., 1987). These veins are interpreted to represent a late hydrothermal event that overprinted the earlier episode of gold-bearing quartz veining and stockworks. These veins are characterized by bands of coarse, prismatic quartz alternating with bands of cherty chalcedony and only occasionally contain economic gold grades. Milky white bull-quartz veins, considered to be metamorphic in origin, may also be present in the mineralized zones, but they are not gold bearing (Taylor, 2001). Locally, pervasive silicification is generally associated with areas of high-density quartz veining and/or intense hydrothermal brecciation (Taylor, 2001). Sericite, adularia, clay, and chlorite occur locally in quartz veins, breccia matrix, and on fracture surfaces. There is extensive argillization and bleaching throughout the deposit area, with pervasive hematization that is largely confined to silty units marginal to the bleached areas (Hastings et al., 1987).

A different style of mineralization has been recognized at Radio Tower East, where karsted surfaces in Natchez Pass Limestone are replaced by cryptocrystalline silica forming jasperoid and hornfelsed contact zones between mafic sill and limestone are strongly quartz-veined and pyritized. These mineralized zones represent a likely older event relative to the younger, hot-spring style mineralization in the Main Pit.

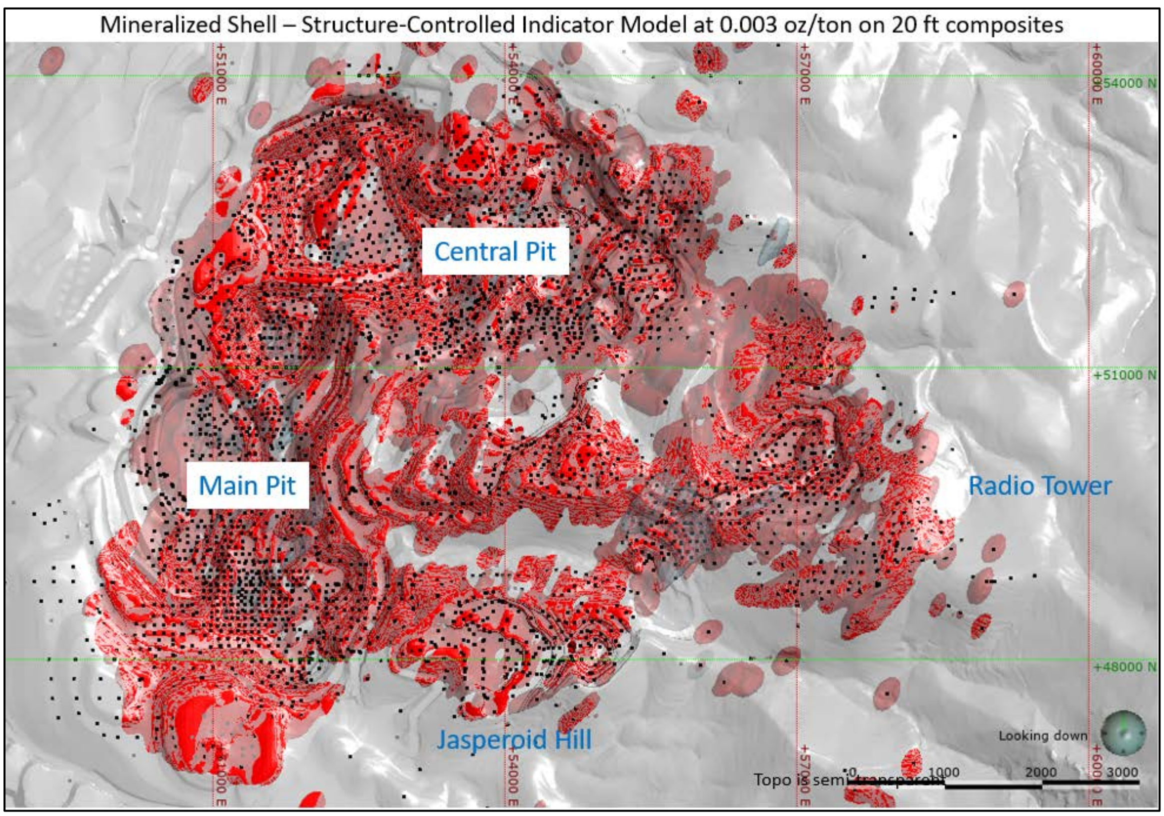
FCMI has previously prepared interpreted geologic sections and linked the sections to create geologic solids for use in coding the resource block model. SRK generated a 3-D interpreted geologic model from drillhole lithology and alteration codes, using Leapfrog® Geo software, to have 3-D rectified lithology and alteration solid shapes for use in resource estimation.

SRK generated a 3-D mineralized shell to define the overall continuity of mineralization at Florida Canyon. Previous work used a 0.005 oz/ston Au indicator grade shell. SRK used mineralized structural information and a 0.003 oz/ston Au cut-off for 20-ft composites to generate a mineralized shape, to provide a structurally oriented mineralized shape, allowing for greater continuity along mineralized structural trends.

Figure 7-9 shows the plan map of the mineralized shell with relation pit topography, and Figure 7-10 shows the structural controls used to control the mineralized shell. And Figure 7-11 is an east-west cross-section through the mineralization and major mineralized structural controls.

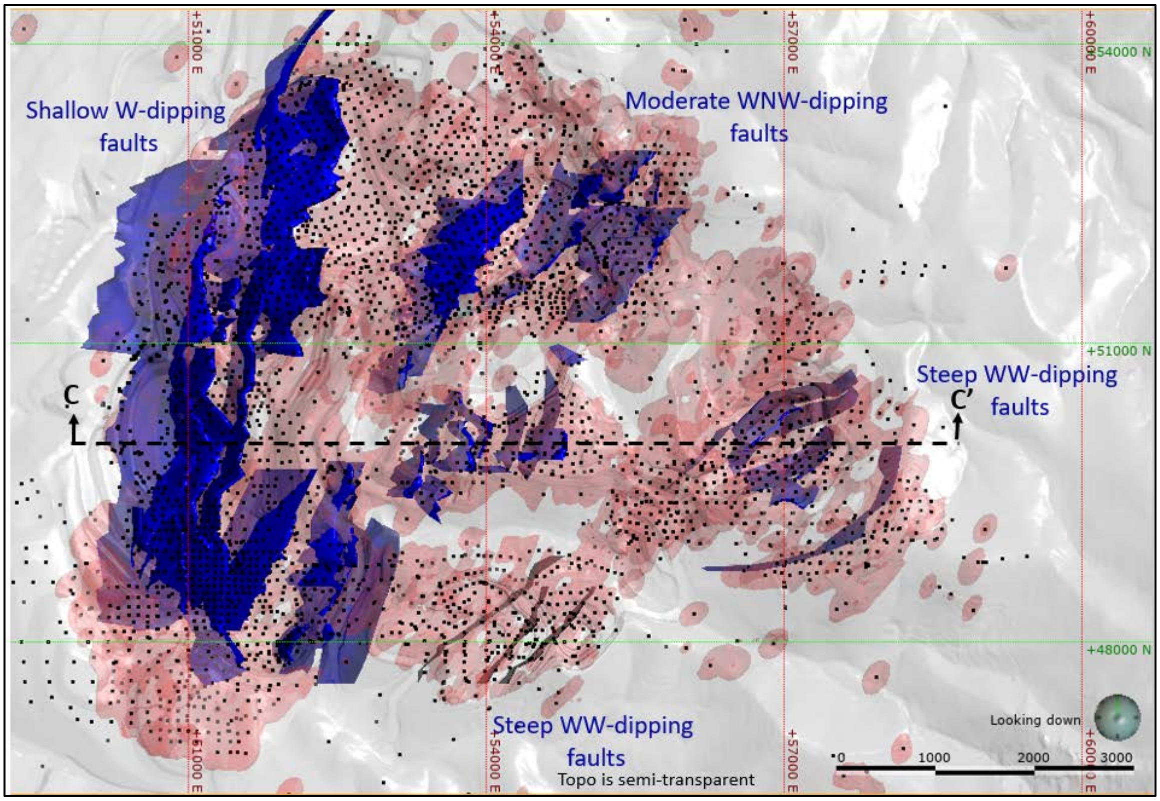
The overall extent of mineralization, in surface exposures in the pit areas is approximately 7,500 ft east-west by 6,200 ft north-south and can be up to 800 ft in vertical thickness. Several areas, as part of the overall mineralized zone have been exploited in adjacent open pits.

Figure 7-12 shows a box plot of the distribution of gold assays by rock alteration type, indicating the gold grade range of values and mean grade in sulfide bearing rocks (UNOX) in relation to altered and mineralized Grass Valley formation rocks; silicified (Sil_GV), clay altered (Clay_GV), hematitic alteration (Hem_GV), and jasperoid (Jasp).



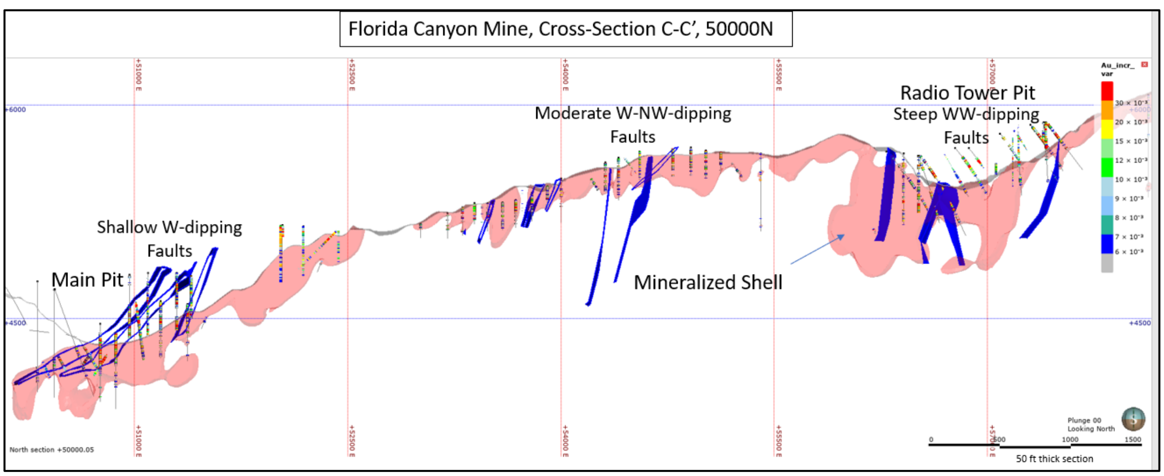
Source: SRK, 2018

Figure 7-9: Florida Canyon Gold mineralized shell and topography



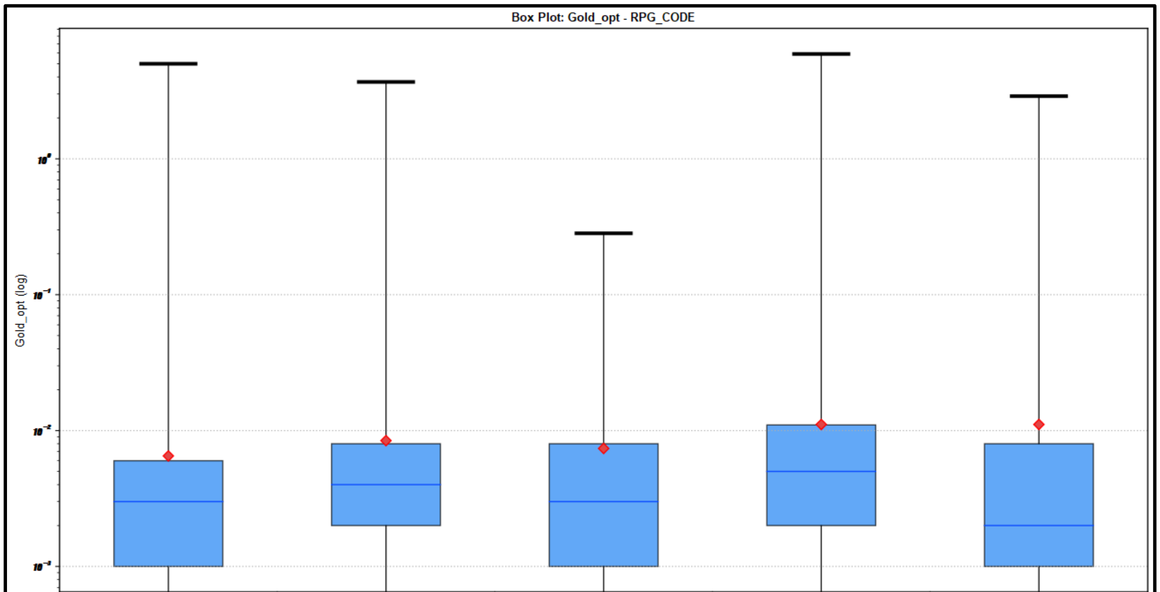
Source: SRK, 2018

Figure 7-10: Florida Canyon Gold mineralized shell and major mineralized structures



Source: SRK, 2018

Figure 7-11: Florida Canyon cross-section C-C', 50000N – mineralized shell and major mineralized structures



	Clay_GV	Hem_GV	Jasp	Sil_GV	UNOX
Min	0	0	0	0	0
Q1	0.001	0.002	0.001	0.002	0.001
Median	0.003	0.004	0.003	0.005	0.002
Q3	0.006	0.008	0.008	0.011	0.008
Max	5.004	3.678	0.283	5.908	2.892
Mean	0.0065021	0.0084282	0.0073861	0.011084	0.011091
SD	0.031655	0.026794	0.014814	0.038216	0.044686
N	44582	93683	2348	92989	51209

Source: SRK, 2018

Figure 7-12: Box plot of gold distribution in altered and mineralized Grass Valley

8 Deposit Types

Florida Canyon is a large, relatively young epithermal gold deposit adjacent to an active geothermal system. The close spatial association with the geothermal system has led to a general belief that Florida Canyon is a hot spring-style, epithermal gold deposit. Hydrothermal alteration assemblages and the mineralogy of both oxidized and unoxidized gold mineralization at Florida Canyon have been described and interpreted by Fifarek et al. (2011) as having formed in a low-sulfidation, epithermal environment. Age dates on adularia from quartz-adularia-sulfide±gold veins in the deposit indicate gold mineralization occurred episodically at about 5 Ma, 4.6 Ma, and between 4.6 and 2.2 Ma along and in the footwall of the north-south, range-bounding fault at the west margin of the Humboldt Range; this mineralization was overprinted by steam-heated alteration and oxidation at various times between 2.2 Ma and 0.9 Ma (Fifarek et al., 2011). There are no known volcanic or intrusive rocks of similar age nearby, and the deposit has been considered to be of the amagmatic subtype of the low-sulfidation epithermal classification.

The deposit type is a large fault/fracture-controlled gold system, the overall extent being defined by alteration and oxidation of host meta-sedimentary rocks. Mineralization is preferentially located along major structural trends, in associated adjacent fracturing and rock foliations, and as disseminations in favorable host lithologies. SRK considers the geological information gathered from the various drilling programs over time, and mapping in the open pits, as sufficient to allow geological and resource modeling of the Florida Canyon deposit type.

9 Exploration

The primary period of historical exploration, through the 1980s and 1990s was by RC drilling by two companies, Pegasus Gold (2445 drillholes), and successor Apollo Gold (987 drillholes up through year 2004). Jipangu was the successor owner after Apollo Gold and they drilled an additional 684 drillholes from 2006 through 2014. Table 9-1 shows the company, the year, and the number of drillholes completed for all historical drilling.

Drilling was the primary method of historical exploration as alteration and low-grade gold mineralization outcropped, and similarly was encountered in shallow drilling. There are 4,273 historical RC/rotary drillholes for 1,905,082 ft and 55 historical core holes for 34,522 ft. Since the Florida Canyon Gold Mine is an active mine, ongoing exploration is primarily targeted as in-fill and peripheral drilling to known mineralized areas. Grassroots exploration targets exist outside the known mineralized areas.

Table 9-1: Florida Canyon historical drilling summary

Year	Company	Rotary or Reverse Circulation Contractor	Number of Drillholes	Feet
1969	Flying J Mine	unknown	7	
1972	Cordilleran Exploration	Garrity & Balrer, Eklund	10	
1973	Cordilleran Exploration	I.ong	22	
1974	Cordilleran Exploration	Eldund	5	
1981-1982	Asarco/Homestake	unknown	69	
1983	Pegasus	Eklund	86	
1984	Pegasus	Eklund	129	
1985	Pegasus	Eklund	77	
1986	Pegasus	Eldund	16	
1987	Pegasus	Eldund	46	
1988	Pegasus	Eklund	181	
1989	Pegasus	Eldund	130	
1990	Pegasus	Eklund	62	
1991	Pegasus	Eklund	123	
1991-1993	Pegasus	Eklund	464	
1994	Pegasus	Eklund	33	
1995	Pegasus	Eklund, DeLong, Lang, O'Keefe	394	
1996	Pegasus	Lang, Eldnnd	259	
1997	Pegasus	Eklund, Delo ng, lang	445	
1998	Apollo	Delo ng, Hackworth	138	
1999	Apollo	Delong	93	
2000	Apollo	Delong	276	
2001	Apollo	DeLong	72	
2002	Apollo	Ek:mn,d Delong	209	
2003	Apollo	Delong	171	
2004	Apollo	Delong	28	
2005				
2006	Jipangu	Delong	11	
2007	Jipangu	Delong	202	
2008	Jipangu	Delong	246	
2009	Jipangu	Delong	9	9,307
2010	Jipangu	Delong	30	18,662
2011	Jipangu	Delong	66	31,130
2012	Jipangu	Delong	63	33,575
2013	Jipangu	Delong		
2014	Jipangu	Delong	54	9,060
Totals			**4,226**	

Source: MDA, 2017, modified by SRK, 2018

10 Drilling

10.1 Summary

A summary of the Florida Canyon Gold Mine drilling programs from inception in 1969 to 2014, are presented in the "*Amended Technical Report – Preliminary Economic Assessment for the Florida Canyon Gold Mine, Pershing County, Nevada USA*" prepared for Rye Patch Gold by Mine Development Associates, dated January 27, 2017 (MDA, 2017). The reader is referred to that document for a more detailed summary of the total project drilling. This section discusses the additional in-fill drilling conducted in 2017 by FCMI.

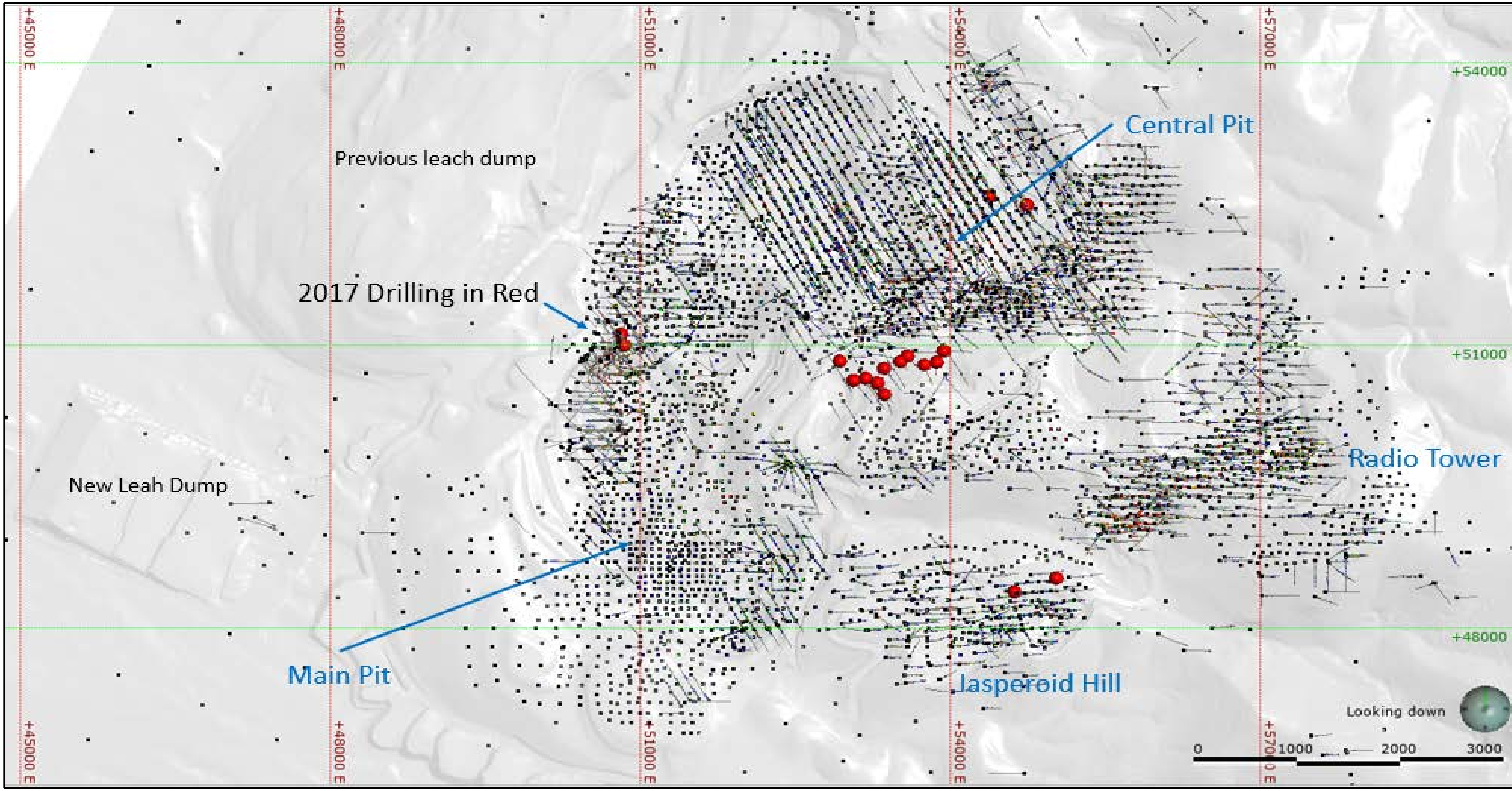
FCMI drilled 18 RC holes (FCR-010-001 to FCR-017-018) in 2017, for 7,130 feet, ranging from 150 to 890 ft in drill depth. Three were vertical holes, and the remainder were angle holes predominantly oriented to the east or southeast at -45 to -70° angles, intended to cross the primary mineralized structural control trends.

Total project drilling in the database is 4,340 drillholes for 1,946,804 ft, completed from 1969 through 2017; most of the drilling occurred in the 1980s and 1990s as RC drilling. Of the total number of drillholes, there were 55 historical core holes for 34,522 ft. Thus, the eighteen 2017 in-fill RC drillholes have added additional information for definition of local mineralization continuity but have minimal impact on the total drillhole database and the mineral resource.

The drilling database, including the 2017 drillholes that were drilled after the previous published Mineral Resource by MDA in 2017, was provided by FCMI, and used by SRK for the current resource estimation.

10.2 Type and Extent

The 2017 RC drilling was conducted by HD Drilling LLC, an independent contractor located in Winnemucca, Nevada. Drillhole collars are shown in Figure 10-1 with large red dots for the collar locations of 2017 drilling. A majority of the total project drilling was conducted on a nominal 100-ft drillhole collar spacing.



Source: SRK, 2018

Figure 10-1: Location map of drillhole collars, identifying 2017 drilling, and all others.

10.3 Procedures

SRK did not observe the drilling procedures for the 2017 drilling; however, it was described by FCMI as standard RC drilling, and the contractor is known to SRK. SRK believes the drilling procedures employed by FCMI are appropriate and follow industry standard practices.

RC drilling is down-hole-hammer wet-drilling with water injections to recover cuttings to a rotary splitter for sample collection. Dill diameter varies from 5 to 6 inches, depending upon the drill bit used.

Collar locations are determined with FCMI mine surveying equipment, by the Mine Engineering department.

RC sampling was done by collection of a split from the rotary splitter at the rig, bagging and labeling the sample, which typically will range from 10 to 15 pounds in weight. Samples are collected at five-foot drill intervals by the drilling contractor. Small samples of the cuttings are collected for geologic logging by FCMI geologists.

Downhole surveys for hole deviation were conducted by independent contractor, IDS LLC, using a surface recording gyro instrument, which is a non-magnetic method that determines deviations downhole relative to a surface defined reference azimuth. IDS has an office in Elko, Nevada and has been providing borehole deviation surveys to the mining industry for decades. Surveys at Florida Canyon were performed after completion of the drillholes.

10.4 Interpretation and Relevant Results

SRK has reviewed the 2017 drilling results and considers them consistent with historical drilling. The 2017 drilling procedures are sufficient to include these holes in the drillhole database for use in mineral resource estimation.

SRK has also reviewed previous reports and internal documents on the historical drilling that comprises the drillhole database and concludes the historical drilling procedures at Florida Canyon Gold Mine have been conducted by industry standard procedures and are adequate for use in mineral resource estimation.

10.5 Conclusions and Recommendations

SRK concludes that historical and current drilling at Florida Canyon has been of sufficient type, orientation, and density of drill spacing to adequately define the gold mineralization at Florida Canyon.

11 Sample Preparation, Analyses, and Security

11.1 Summary

This section is applicable to the sample preparation, analysis and security of just the drilling samples of the 18 drillholes completed by FCMI in 2017 and the data generated since the last Mineral Resource estimate in 2016. For a more detailed discussion of historical drilling data analytical procedures and QA/QC, the reader is referred to the Amended Technical Report – Preliminary Economic Assessment dated January 27, 2017, for Rye Patch Gold by Mine Development Associates (MDA, 2017).

11.2 Security Measures

Drill samples are collected at the drill rig by the drill contractor and stored temporarily at the drill rig until delivered to FDMI geology staff. Samples collected at the drill rig and transferred to FCMI are maintained securely within the confines of the FCMI mine site, until picked-up by the contractor lab for transportation to the lab for analysis. For the 2017 drilling the samples were collected at the mine site by AAL, of Sparks Nevada.

11.3 Sample Preparation and Analysis

Samples were dried, crushed, and pulverized at AAL in Sparks, Nevada. Standard preparation procedures is to crush the entire dried sample to -3/4-inch size and split in a riffle splitter to produce several pounds of coarse crushed material for further crushing, and pulverization. The pulverized sub-sample is used for analysis. The pulps are retained for further use or check assays if deemed necessary, and eventually archived. Coarse reject material is typically not saved.

11.4 Sample Analysis

AAL is an accredited analytical lab. AAL has been FCMI's primary analytical lab since 1990, and is a reputable Nevada based analytical lab servicing the mining industry. AAL is an ISO/IEC 17025:2005 accredited analytical lab and is Nevada Department of Environmental Protection approved.

Sample analytical procedures used are fire assay lead-collection methods for a 30-gram sample size, with ICP-AES determinations; having a 0.03 ppm or 0.001 oz/ston detection limit. Analytical certificates from AAL provide the gold assays in both ppm and equivalent oz/ston values. The drillhole database used gold values as oz/ston Au.

11.5 Quality Assurance and Quality Control Procedures

QA/QC procedures are in place at AAL and include insertion of sample blanks, duplicates, and Standard Reference Materials (SRM or standards) into each batch of drill samples collected at the drill rig and transported to the lab. The QA/QC program consists of inserting a minimum of one analytical standard, one blank, and at least four sample duplicates for every batch of 50 samples assayed. Sample duplicated are repeat analysis of a second split of the coarse reject material.

The results of the QQ/QC samples are examined by AAL and FCMI to determine the pass or fail of a particular batch of samples.

There were no issues identified in the QA/QC assay results from the eighteen holes drilled in 2017, consisting of 1,426 five-foot drill samples.

11.6 Opinion on Adequacy

The sample preparation and analytical procedures used by AAL are commonly used by most analytical labs. SRK is of the opinion that the sample preparation and analytical procedures used are adequate to define the gold mineralization at Florida Canyon Gold Mine and are common industry practice. SRK has reviewed the QA/QC procedures in place and the results and concludes that the program in place is adequate to verify the accuracy and precision of the analytical data that is the foundation of the drillhole database.

11.7 Conclusions and Recommendations

SRK concludes that adequate procedures have been in place for drill sample preparation, analyses and security, and those procedures allow for reliability of the drillhole database for use in mineral resource estimation.

12 Data Verification

12.1 Summary

SRK's data verification process consisted of the following:

- Visual examination of the lithologies, alteration, and mineralization as exposed in the active mining areas in relation to geologic data in the database;
- Comparison of the 2017 drilling data with surrounding drill hole data;
- Comparisons of the current geological model with the previous geology model in 3-D visualization software; and
- Comparison of analytical data from AAL assay certificates with the current FCMI drillhole database.

12.2 Procedures

A site visit was conducted on July 12, 2018, including a visit to mining areas and exposures in pit walls for the Central, and Radio Tower pit areas. Mineralized and altered Grass Valley formation siltstone and argillite were observed, along with mineralized structures, quartz veining, silicification, hematite alteration and clay alteration; providing an understanding of the lithology and alteration coding used in the drillhole database.

Upon import into Leapfrog® Geo software, the previous drilling and the new 2017 drilling were visually compared. The new drilling mineralized intervals for all 18 holes average 0.033 oz/ston; higher grade than the existing mineral resource average grade of 0.012 oz/ston, but in line with surrounding drillholes, providing improved continuity to a higher-grade area.

The current geological model compares reasonably well visually to the previous model, with the enhancement of lithology and alteration solids defined directly from the drill data, avoiding some of the sectional rectification problems previously noted.

The previous mineralized shape used to confine mineralization compares with the current mineralized shape, with enhancements along preferred mineralized structural trends providing more continuity of mineralization along the east-northeast to northeast structural fabric. Mineralized intervals were visually checked against logged drillhole lithology and alteration codes, and appears reasonable; for instance, as with higher grades generally correlating with silicified Grass Valley Formation lithology.

For the 2017 drilling, SRK examined copies of the assay certificates for 27% of the assays, or 369 individual five-foot assay intervals, selected randomly, against the drillhole database assays. No errors were found, and only nine rounding differences at 0.001 opt.

12.3 Limitations

SRK did not complete an audit or verification of the entire drillhole database, as it was deemed not necessary. Previous third-party reviewers have completed more in-depth audits of the various drilling programs over the life of the property, comparisons of the various analytical labs used, and audits of the database. SRK has reviewed the previous work and found no significant issues or concerns that would materially affect the mineral resource. (MDA, 2017 and Keech, 2017)

SRK notes that the resource cut-off grade of approximately 0.006 oz/ston Au is nearing the reliable assay detection limit for gold by analytical labs. AAL has a lower detection limit of 0.001 oz/ston gold for the assay method currently in use. And AAL assays accounts for approximately two thirds of the drillhole database. The cut-off grade is at an adequate buffer above the assay lower detection limit of 0.001 oz/ston; however, any future desires to lower the cut-off grade should be done with caution, as values in the 0.001 to 0.003 oz/ston gold range may not be that reliable or should have a degree of uncertainty applied to them.

12.4 Opinion on Data Adequacy

SRK is of the opinion that the drillhole and geological data that support the mineral resource model for Florida Canyon are valid, have been verified, and are sufficient to support mineral resource estimation by current industry standards.

12.5 Conclusions and Recommendations

SRK concludes the Florida Canyon drillhole database that supports mineral resource estimation has been adequately verified.

13 Mineral Processing and Metallurgical Testing

13.1 Historical Metallurgical Performance

Ore processing and gold recovery operations commenced at Florida Canyon in 1986. Ore was crushed and stacked on lined heap leach pads between 1986 and 2011. The ore was leached with dilute alkaline cyanide solution, and gold and silver were recovered from solution by carbon adsorption and Merrill-Crowe (zinc precipitation) processing methods. In addition, un-crushed run-of-mine (ROM) material was placed on the heap leach pads and leached between 1989 and 2011. Ore crushing re-commenced in 2016 and continues through the date of publication of this report. The mine-to-date overall gold recovery for all materials placed on the heap leach pads at Florida Canyon averaged 67.4% through June 30, 2018. The overall gold recovery between 1986 and 2015 (before re-starting operations) averaged 68.3%. The metallurgical performance of the Florida Canyon leaching operations is summarized in Table 13-1.

Owing to co-mingling of process solutions from the crushed and ROM heap leaching operations, it is not possible to estimate the individual gold recoveries from crushed and ROM ore. An assessment of historical column leach testing data and other operating information indicates that the crushed ore gold recovery has varied between 64 and 74%, increasing with finer particle size. ROM ore gold recovery has varied between 50 and 58%.

Historical processing recovery information is relevant to this technical report on mineral reserves as it is used in the pit optimization process to define the pit shell which is the basis for mineral reserves.

Table 13-1: Summary metallurgical leach performance at Florida Canyon between 1986 and 2018 (through June)

Year	Gold-in Crushed-Ore Placed on-Heap (ozs, 000)	Gold-in ROM-Ore Placed on-Heap (ozs, 000)	Gold-in Total ore Placed on-Heap (ozs, 000)	Cumulative Gold Placed on-Heap (ozs, 000)	Annual Actual Gold Production (ozs, 000)	Cumulative Actual Gold Production (ozs, 000)	Calculated Annual Gold Recovery (%)	Calculated Cumulative Gold Recovery (%)
1986	14.8		14.8	14.8	3.4	3.4	23	23
1987	80.1		80.1	94.9	46.2	49.6	57.7	52.3
1988	86.8		86.8	181.7	61.8	111.4	71.2	61.3
1989	92.6	8.6	101.2	282.9	79.3	190.7	78.4	67.4
1990	105.4	22.3	127.7	410.6	83.2	273.9	65.2	66.7
1991	101.7	44.7	146.4	557	80.6	354.5	55.1	63.6
1992	105.6	48.3	153.9	710.9	90	444.5	58.5	62.5
1993	119.5	19.7	139.2	850.1	109.2	553.7	78.4	65.1
1994	123.6	17.7	141.3	991.4	91.9	645.6	65.0	65.1
1995	138.5	27.5	166	1,157.40	111.2	756.8	67.0	65.4
1996	284.5	27.4	311.9	1,469.30	183.2	940	58.7	64.0
1997	178.4	15.4	193.8	1,663.10	163.3	1,103.30	84.3	66.3
1998	176.7	56.6	233.3	1,896.40	152.1	1,255.40	65.2	66.2
1999	142.3	90.6	232.9	2,129.30	150.1	1,405.50	64.4	66.0
2000	143.8	70.3	214.1	2,343.40	167.6	1,573.10	78.3	67.1
2001	77.1	70.2	147.3	2,490.70	121.2	1,694.30	82.3	68
2002	96.6	48.9	145.5	2,636.20	121.5	1,815.80	83.5	68.9
2003	77.1	55.1	132.2	2,768.40	101.8	1,917.60	77.0	69.3
2004	61.8	40.8	102.6	2,871.00	72.6	1,990.20	70.8	69.3
2005		7.2	7.2	2,878.20	29.2	2,019.40	405.6	70.2
2006		25.6	25.6	2,903.80	16.1	2,035.50	62.9	70.1
2007		79.5	79.5	2,983.30	31.9	2,067.40	40.1	69.3
2008	21.7	92.1	113.8	3,097.10	47.1	2,114.50	41.4	68.3
2009	34.1	60.9	95.0	3,192.10	44.8	2,159.30	47.2	67.6
2010	37.9	94.9	132.8	3,324.90	55	2,214.30	41.4	66.6
2011	1.8	23.4	25.2	3,350.10	25.8	2,240.10	102.4	66.9
2012				3,350.10	22.4	2,262.50		67.5
2013				3,350.10	13.4	2,275.90		67.9
2014				3,350.10	7.5	2,283.40		68.2
2015				3,350.10	4.3	2,287.70		68.3
2016				3,350.10	-	2,287.70		68.3
2017	66.2		66.2	3,416.30	23.2	2,310.90	35.1	67.6
2018	41.5		41.5	3,457.80	21.1	2,332.10	50.9	67.4
1986-2005	2,206.90	671.3	2,878.20	2,878.20	2,019.40	2,019.40	70.2	70.2
2006-2015	95.5	376.4	471.9	471.9	268.3	268.3	56.9	56.9
2016-2018	107.7	.	107.7	107.7	44.4	44.4	41.2	41.2

Source: SRK, 2018a

Footnote [1]: Reflects production through end of June 2018

Footnote [2]: Recovery data for 2017 and 2018 represent partial recoveries only as ore placed on heap in 2017 and 2018 was still under leach at June 20, 2018. Recoverable gold remains as leached values in solution inventory and as non-leached values in solids.

13.2 Historical Column Leach Testing Data

Significant column leach testing has been performed on Florida Canyon ore types. The original testwork was used to support processing operations during the period 1986 to 2000 and was focused on the main ore types identified as clay altered, silicified, and hematitic materials. Column testing was conducted on crushed material at various particle sizes, ranging from 80% passing (p80) of 0.5 to 2.0 inches. In addition, testing was performed on material with a range of feed grades. Gold recoveries at a p80 of 0.75-inch crush size were projected to be 83% for clay altered, 64% for silicified, and 74% for hematitic ore types.

During prior operations, column leach tests were conducted on weekly crusher composite samples of heap leach feed between 1988 and 1992. These tests had an average gold extraction of 71.0% for crusher feed with an average feed grade of 0.022 oz/ston. All these leach tests were based on 28 days of leaching in columns using particle feed sizes ranging from a p80 of 0.5 inch to 2 inches. Review of the individual column test data indicates that in general the column test leaching was not complete at 28 days and additional leaching is required to meet maximum gold extraction.

Beginning in 2003, column leach tests were conducted on monthly/biweekly composite samples of crushed and agglomerated heap leach. These column tests indicated gold extractions of 66.2% for material with an average calculated head grade of 0.02 oz/ston. These leach tests were based on 28 days of leaching in columns under standard conditions using particle feed sizes ranging from p80 of 0.65 to 2.0 inches. As noted before, review of the individual test work data indicates that leaching during the 28-day leach cycle was not substantially complete.

For the operating period 2009 through 2011, an additional 88 column leach tests were completed on weekly crusher composite samples. Gold extraction for these columns averaged 59.4% on an average calculated head grade of 0.012 oz/ston. These leach tests were based on 28 days of leaching in columns under standard conditions and feed size p80s ranging from 0.3 to 2.3 inches. Review of the individual column test data indicates that at termination of the 28-day leach cycle, leaching was not complete.

13.3 Previous Study Gold Recovery Assumptions

Metallurgical analysis was completed to support the re-start of the Florida Canyon operation. Work reported by MDA in 2016 considered the following rock types and associated gold recoveries (MDA 2017) (Table 13-2).

Table 13-2: MDA determined metallurgical recoveries by material type

Material Type	Recovery (%)
Clay Altered	68.00%
Silicified	70.50%
Hematitic	73.50%
Jasperoid	70.50%
Overall weighted average gold recovery	**71.10%**

Source: SRK, 2018

Metallurgical evaluation conducted by Rye Patch Gold in 2016 and 2017 identified six mineralized material types, based on litholgy and alteration with associated gold recoveries at a p80 of 0.75-inch crush size projected to be as follows (Keech, 2017) (Table 13-3).

Table 13-3: Rye patch gold metallurgical recoveries by material type

Material Type	Recovery (%)
Clay Siltstone	70.10%
Silicified Siltstone	75.00%
Hematitic Siltstone	73.30%
Limestone	68.00%
Jasperoid	68.80%
Basalt	68.00%
Overall weighted average gold recovery	**72.80%**

Source: SRK, 2018

13.4 Column Leach Testing of 2017 Heap Leach Feed

Column leach tests are currently conducted on monthly crusher composite samples of the crushed ore stacked on the heap. The columns are operated as close as possible to the actual production leaching process with respect to solution chemistry and solution application rate. The pertinent column test data for January 2017 through August 2018 monthly composite column tests are provided in Table 13-4. Summary statistics of column test KPI's for the monthly composites follow as well. At the effective date of this report, the column leach testing of the monthly composite samples from September 2018 thru December 2018 were still in progress and/or results had not been finalized.

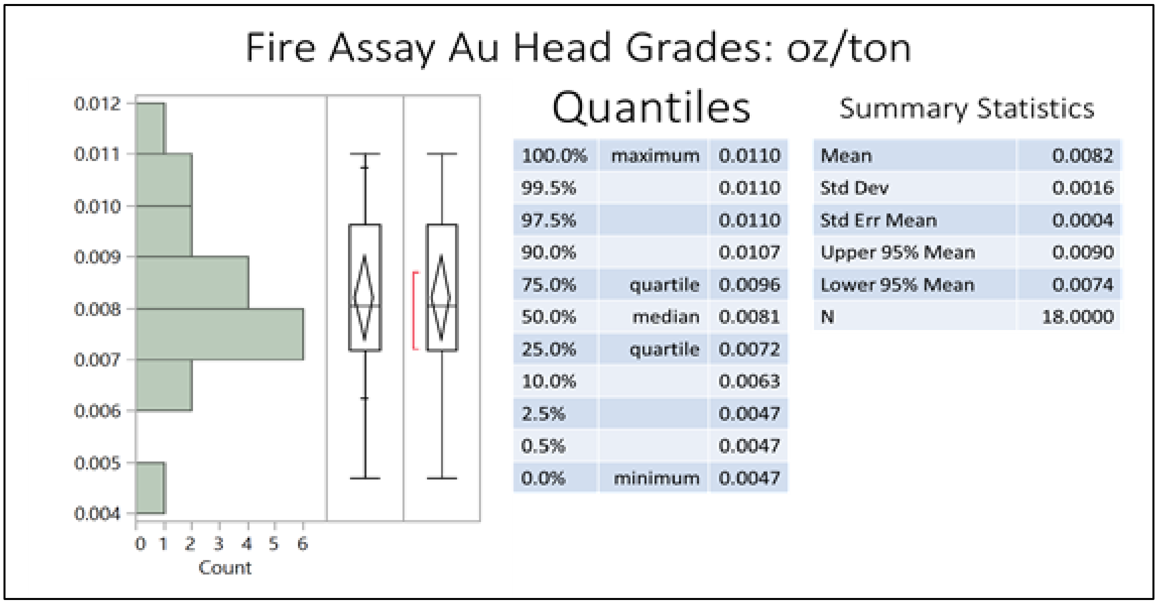
The column results indicated average gold extractions of 69.9% after an average of 107 days of leaching. Median column test gold recovery after the same average leach time of 107 days was 71.1 percent. Since much of the historical column leach testing reported in section 13.2 is based on a fixed 28-day period of column leaching, the historical extractions are not fully representative of expected leaching performance on the production heap.

Table 13-4: Monthly crusher composite column leach test results 2017

Crusher Composite	Days Under Leach	FA Heads Au oz/ston	CN Sol Heads Au oz/ston	Calculated Au Head Grade oz/ston	Calc Head Rec. Au Percent	Reagents NaCN lb/ston
Jan-17	70	0.0083	0.0056	0.0098	56.30	0.08
Feb-17	101	0.0072	0.0054	0.0084	50.10	0.35
Mar-17	74	0.0107	0.0071	0.0083	62.70	0.32
Apr-17	132	0.0076	0.0061	0.0087	60.90	1.04
May-17	116	0.0078	0.0058	0.0095	75.70	1.59
Jun-17	219	0.0101	0.0067	0.0092	77.20	2.38
Jul-17	108	0.0087	0.0068	0.0116	68.20	0.46
Aug-17	93	0.0097	0.0067	0.0091	75.40	0.63
Oct-17	90	0.0087	0.0073	0.0071	65.00	0.42
Dec-17	127	0.0096	0.0062	0.0070	70.10	0.47
Jan-18	95	0.0084	0.0065	0.0087	71.40	0.77
Feb-18	107	0.0071	0.0052	0.0077	77.90	0.98
Mar-18	102	0.0110	0.0081	0.0076	78.90	1.10
Apr-18	96	0.0047	0.0045	0.0073	71.40	1.25
May-18	99	0.0064	0.0064	0.0068	70.70	2.27
Jun-18	110	0.0069	0.0057	0.0088	77.20	1.49
Jul-18	98	0.0075	0.0057	0.0081	84.00	1.90
Aug-18	94	0.0072	0.0081	0.0120	64.90	0.69
Average	107	0.0082	0.0063	0.0087	69.90	1.01
Minimum	70	0.0047	0.0045	0.0068	50.10	0.08
Maximum	219	0.0110	0.0081	0.0120	84.00	2.38
Median	100	0.0081	0.0063	0.0086	71.10	0.87

Source: SRK, 2018

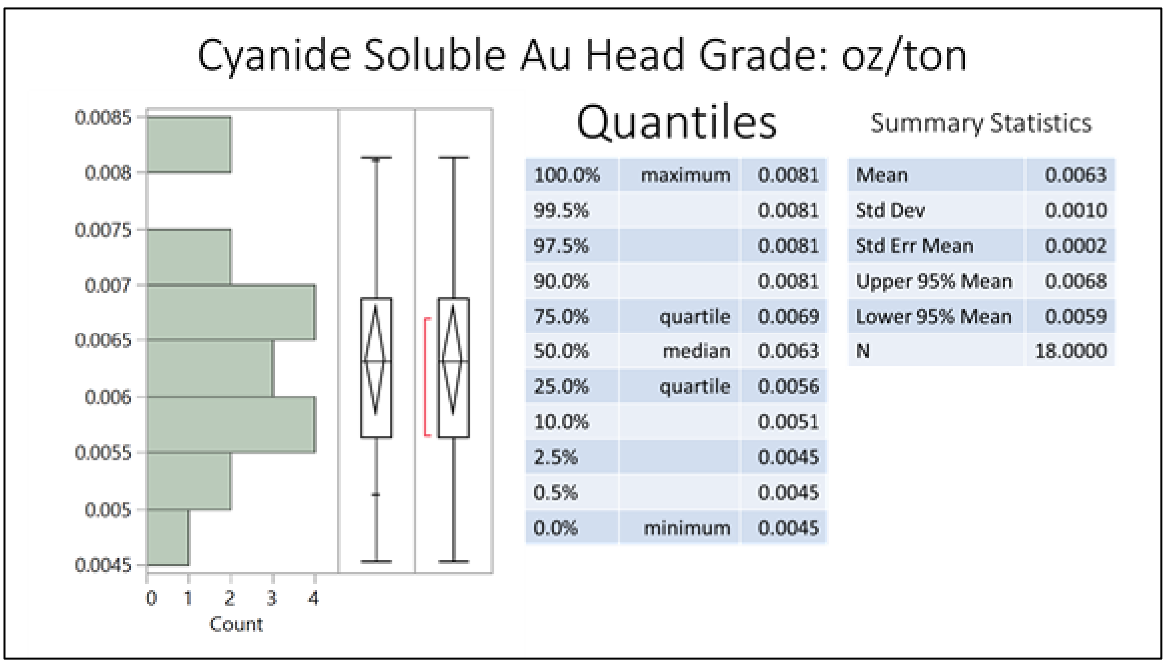
Figure 13-1 shows the fire assay head grade distribution and descriptive statistics for the available monthly crusher composite column tests. The gold head grade averaged 0.0082 oz/ston, with a range of 0.0074 to 0.0090 oz/ston. The median gold head grade to date is 0.0081 oz/ston.



Source: SRK, 2018

Figure 13-1: Fire assay head grade distribution

The cyanide soluble gold head grade (CNSol) data is presented in Figure 13-2. The CNSol Au head ranged between 0.0045 and 0.0081 oz/ston with an average CNSol Au grade of 0.0063 oz/ston. The median CNSol Au grade is 0.0063 oz/ston as well.



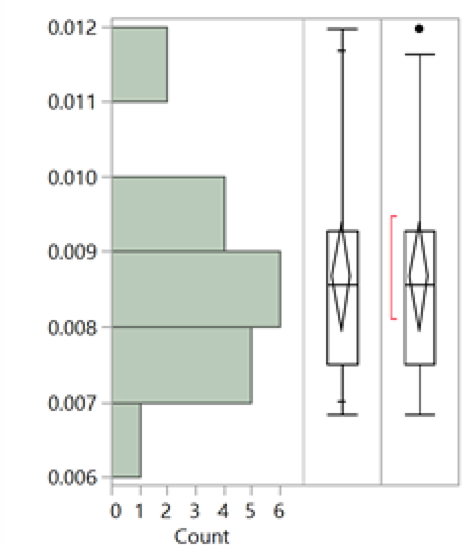
Source: SRK, 2018

Figure 13-2: The cyanide soluble gold head grade

Calculated head grades for the column tests are determined using mass balance data from the individual column tests. For these tests, the calculated gold head grade is the sum of the gold extracted in the column leach solution plus the gold reaming based on the tail screen fire assay results. Recoveries are the gold extracted divided by the calculated gold head grade.

Calculated head grade statistics for the monthly crusher composites are presented in Figure 3. The calculated Au head grades averaged 0.0087 oz/ston with a range of 0.0068 to 0.0120 oz/ston. The median gold grade for columns is 0.0086 oz/ston. It should be noted that the calculated head grades compare relatively well with the fire assay head grades with median grades of 0.0086 oz/ston and 0.0081 oz/ston respectively.

Calculated Au Head Grades: oz/ton



Quantiles

100.0%	maximum	0.0120
99.5%		0.0120
97.5%		0.0120
90.0%		0.0117
75.0%	quartile	0.0093
50.0%	median	0.0086
25.0%	quartile	0.0075
10.0%		0.0070
2.5%		0.0068
0.5%		0.0068
0.0%	minimum	0.0068

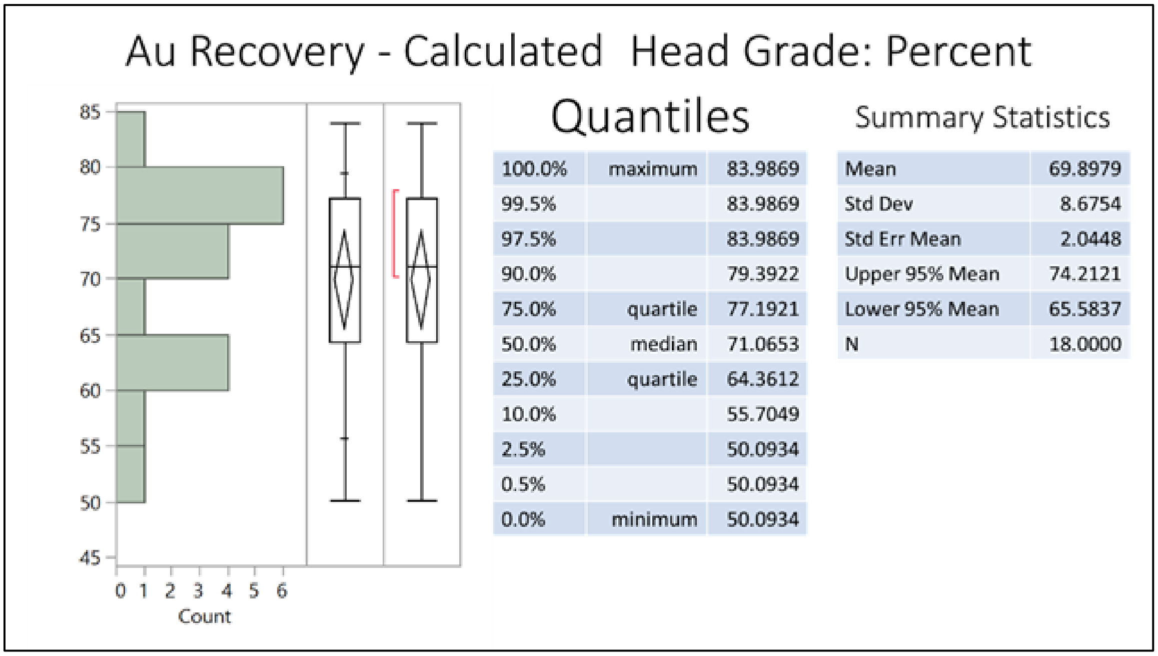
Summary Statistics

Mean	0.0087
Std Dev	0.0014
Std Err Mean	0.0003
Upper 95% Mean	0.0094
Lower 95% Mean	0.0080
N	18.0000

Source: SRK, 2018

Figure 13-3: Calculated head grade statistics for the monthly crusher composites

The column test gold recovery data, based on the respective column calculated head grades, is presented in Figure 4. Gold recoveries averaged 69.9 percent with a median recovery of 71.1 percent. The range of gold recovery for the column is between 50.12 percent and 84 percent.



Source: SRK, 2018

Figure 13-4: The column test gold recovery data

13.5 Gold Recovery Estimates

The current assessment of expected metallurgical performance is based upon the following assumptions:

- Processing of material above the oxide-sulfide boundary, as defined in the geologic model
- Processing of material with a CN Sol assay to fire assay ratio of 0.7:1 and above
- Mineralized material will be crushed to a minimum of p80 of 1.5 inch and will be effectively agglomerated with a polymer agglomeration aid prior to stacking on the heap.
- A minimum of 180 days of leaching (three cycles) will be accomplished for all material placed on the heap.
- Heap leach solution chemistry will be maintained at a pH greater than 10.5 with a minimum free cyanide concentration in the heap effluent of 100 ppm.

13.5.1 Gold Recovery Estimates used in Resource Estimate: Marsden 2018

The following relationships present the head grade versus recovery relationship, which is considered suitable for the purposes of a mineral resource estimate. It is specifically noted that the recovery relationship was based on a limited amount of test work and current operational data. The recovery estimates presented below were refined in the subsequent cash flow model.

Central and Main:

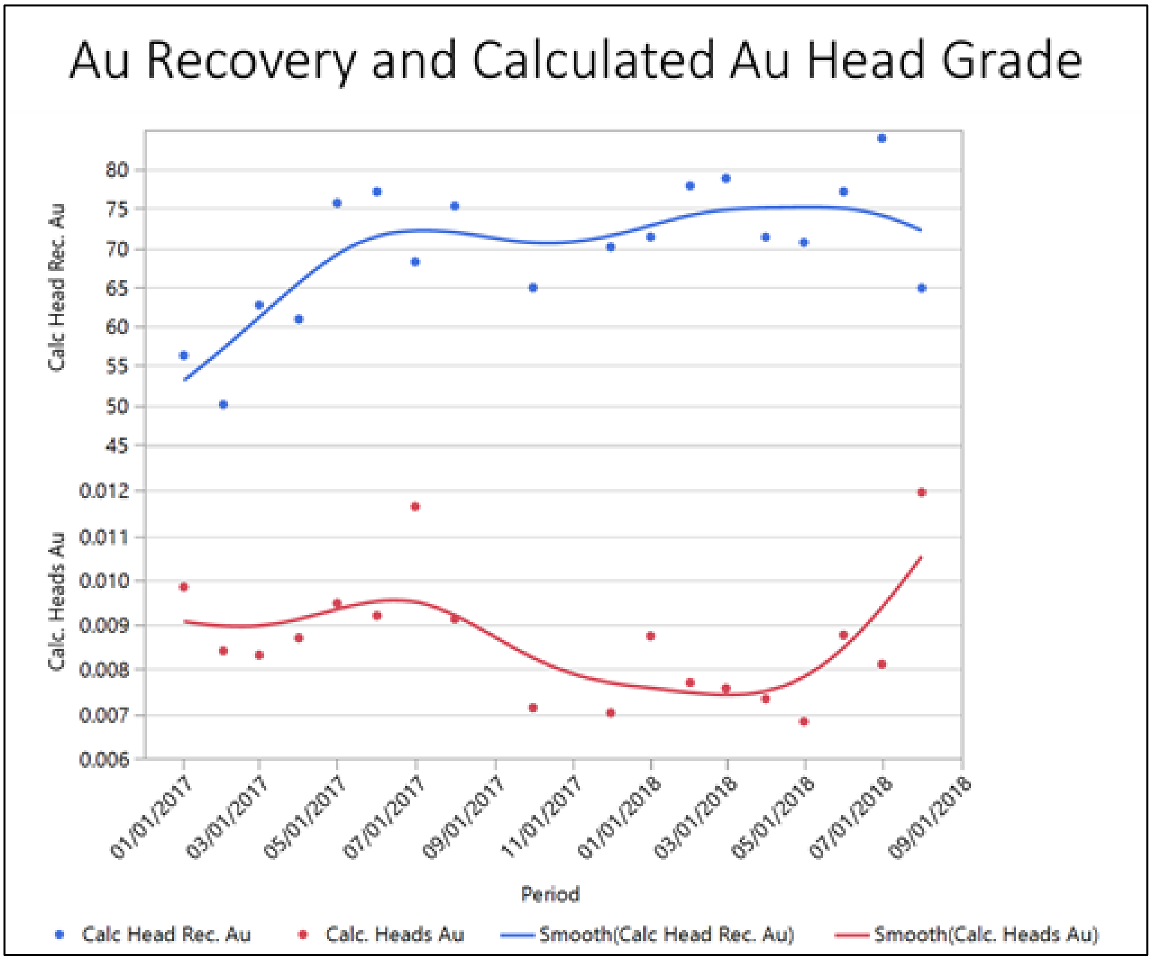
$$\text{Gold recovery (\%)} = ((0.7883 \times \text{Feed Grade}) - 0.00129) \times 100/\text{Feed Grade}$$

Radio Towers:

Gold recovery (%) = ((0.7378 x Feed Grade) – 0.00168) x 100/Feed Grade

13.5.2 Gold Recovery Estimates used in Cash Flow

Figure 13-5 illustrates the column test recovery and calculated head grades chronologically since the restart of operations in 2017. Early column tests were generally operated at a shorter leach cycle resulting in "depressed" gold recoveries. This is evident in Figure 13-5, which shows mean column test recoveries in the 73.4% range since August 2017. Derating the recovery by two percent to account for operational efficiencies, it is reasonable to forecast an ultimate recovery of 71% for the production heap.



Source: SRK, 2018

Figure 13-5: Column test recovery and calculated head grades by month

14 Mineral Resource Estimates

14.1 Summary

The mineral resource estimate was conducted by Mr. Timothy Carew, P.Geo., a SRK Principal Consultant, using Geovia GEMS® modeling software for block modeling, Sage2001 for variography and X10-Geo® for statistical analysis.

In summary SRK has:

- Modelled mineralization domains in 3-D, including on the orientation, texture and subsequent continuity of the structures, where applicable
- Applied high-grade caps determined per estimation domain from log-probability and other analysis methods
- Created a block model with block dimensions of 30 x 30 x 20 ft, covering the volume of interest
- Undertaken statistical and geostatistical analyses to determine appropriate interpolation methods for the mineralized domains
- Interpolated grades into the block model attributes
- Visually and statistically validated the estimated block grades relative to the original sample results
- Reported the Mineral Resource according to the terminology, definitions and guidelines given by the CIM Definition Standards (2014).

Upon consideration of data quality, drill hole spacing and the interpreted continuity of grades within the deposit, SRK classified the deposit into “Measured”, “Indicated” and “Inferred” mineral resource categories.

SRK applied basic economic considerations to restrict the mineral resource to material that has reasonable prospects for economic extraction by open-pit and underground mining methods. To determine this, the mineral resource was subject to a pit optimization study using Whittle™ software and a set of assumed technical and economic inputs which were selected based on site experience and benchmarking against similar projects.

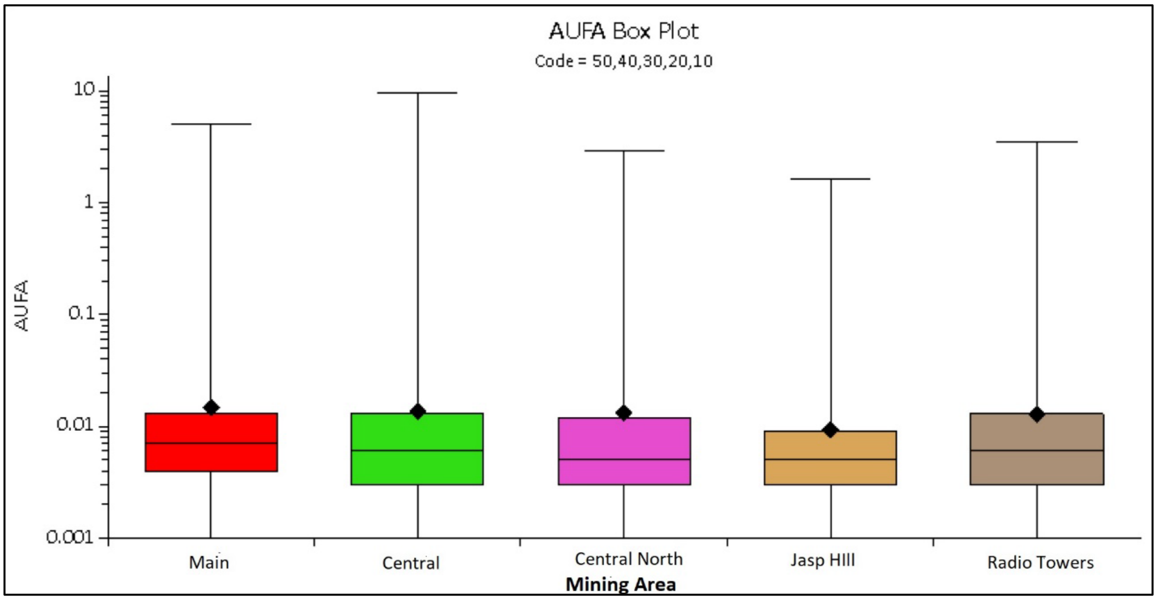
14.2 Drillhole Database

The drill hole database provided by FCMI consists of 4,286 RC/rotary drill holes totaling 1,912,604.5 ft of drilling and 53 core holes totaling 34,239.5 ft of drilling, for a total of 4,339 holes totaling 1,946,844 ft of drilling. The average drill hole spacing is approximately 100-ft centers for the mineralized areas. A plan view of the drill hole location is provided in Figure 10-1.

The average assay interval is approximately five feet in length, with samples being assayed at 10 different assay laboratories, including the mine laboratory. More than 67% of the samples have, however, been assayed by AAL.

Samples have been assayed using a fire assay method (AUFA) for all samples and a cyanide soluble gold methodology for selected samples. There is a total of 359,737 assay records in the drill hole database. A total of 12 holes were removed from the database used for estimation purposes. These holes had a single assay interval that was the length of the hole and had been assigned a default 'place holder' value of zero.

The gold (AUFA) assay distribution by mining area is illustrated in Figure 14-1 and tabulated in Table 14-1.



Source: SRK, 2018

Figure 14-1: Gold assay values by mining area

Table 14-1: Gold assay statistics by mining area

Mine Area	Count	Min	Max	Mean	StDev	CV	Skewness
All	219567	0	9.480	0.014	0.047	3.43	72.14
Main	64951	0	5.004	0.015	0.043	2.91	38.48
Central	105389	0	9.480	0.014	0.054	3.92	82.93
Central North	8178	0	2.892	0.013	0.048	3.63	35.12
Jasp Hill	10327	0	1.616	0.009	0.026	2.81	28.82
Radio Towers	30722	0	3.484	0.013	0.033	2.56	44.72

Source: SRK, 2018

The coefficient of variation (CV) for all areas is high, which is indicative of a highly positively skewed distribution. As well, the mean is typically greater than or equal to the upper quartile, which is another indication of a highly skewed distribution, which is common for gold deposits of this type. Given these indications, a reduction of the CV will be considered necessary – this will be achieved by capping outlier grades and compositing the 5-ft sample lengths to 10-ft composites.

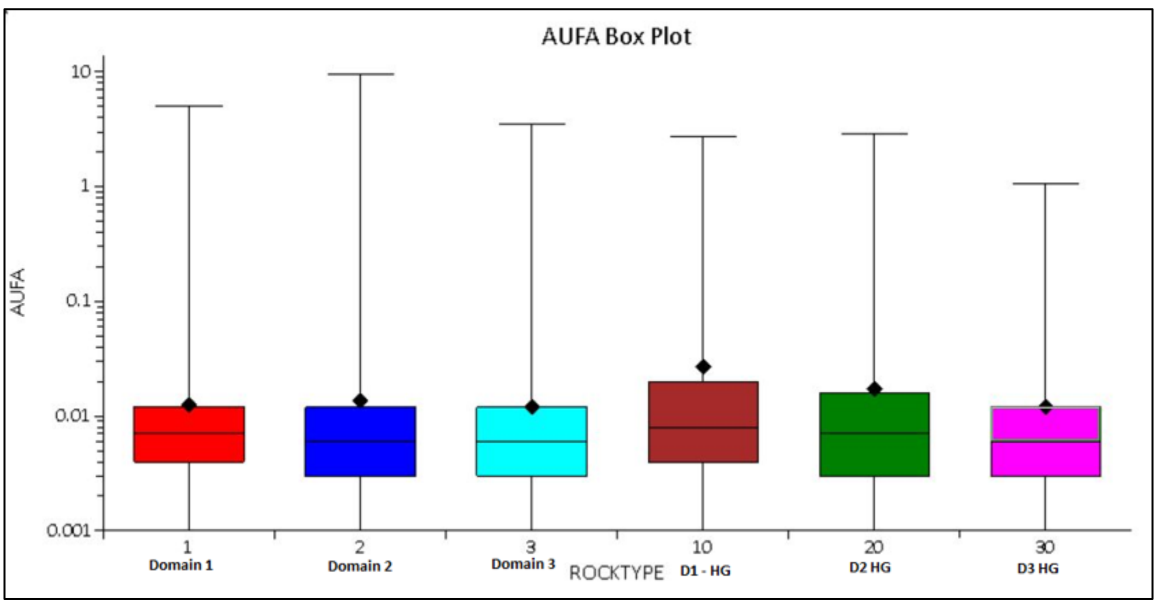
14.3 Geological Model

The geological framework for SRK's resource estimate was generated by SRK geologists, utilizing Leapfrog® implicit modeling software to generate 3-D solids modeling lithology and alteration, as described in Section 7. These solids were used to code lithology and alteration integer attributes in the block model, using majority rules assignation, with precedence's assigned to solids to resolve any overlaps. The July 2018 end of month (EOM) topographic surface was used as the current topography for modeling purposes. FCMI provided an 'as-mined' surface based on previous mining information that was modified by SRK to reflect the most recent production information (blast hole data) as of the July 2018 EOM. This surface was used to locate, and model backfill and dump material in the block model.

14.3.1 Grade Domains

A grade shell generated using LeapFrog® implicit modeling software was used to separate populations of grade values and spatially constrain estimated values. Blocks within the shell received estimated values for fire assay gold, if the drillhole data was sufficient, using composites falling within the grade shell. For implicit modeling purposes, the grade shell assay values were capped with generalized values, then composited to 20-ft lengths. The composited values were used to generate meshes around intervals that exceed the respective grade threshold. Structural trends related to mineralization were incorporated to reflect the influence of these structures/trends.

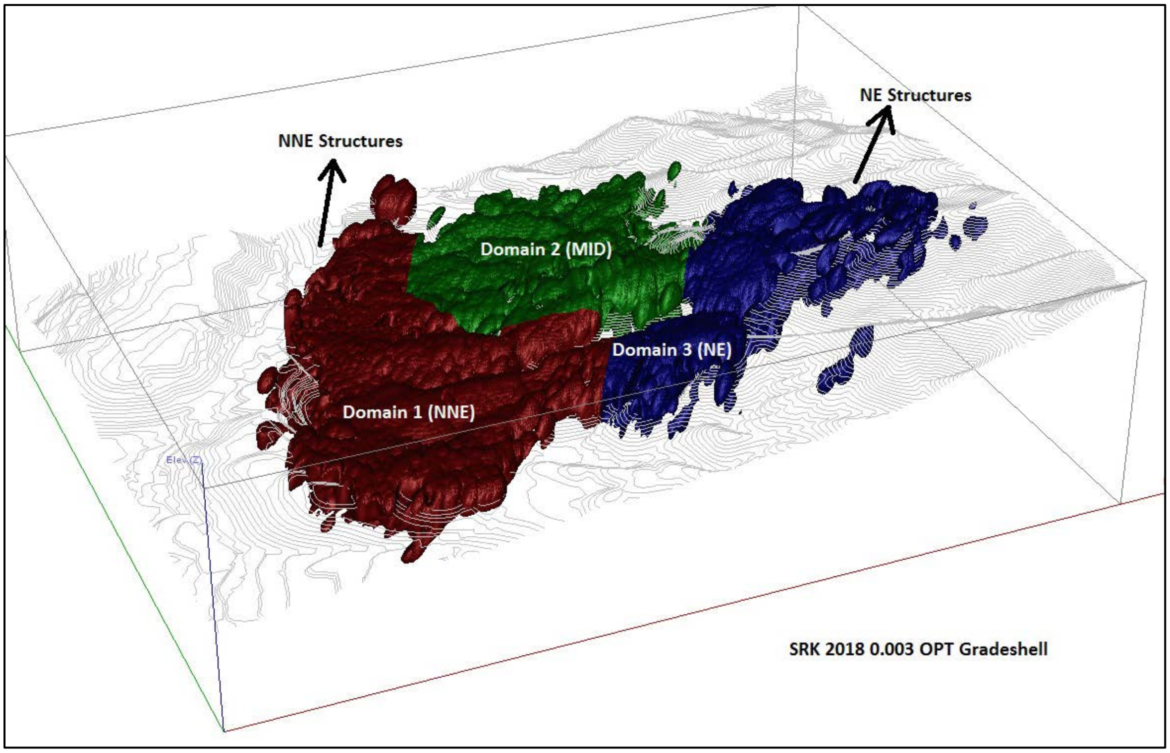
A single gold grade shell at a threshold value of 0.003 oz/ston was built for all areas of the model but was subdivided into three sub-domains based on the orientation of various structural trends that are considered to be associated with mineralization. Statistical analysis of assay data within the grade shells indicate that the grades are similar across the deposit, as illustrated Figure 14-2. Note that rock type codes 10, 20 and 30, as shown in Figure 14-2 refer to assay values within the high-grade shapes modeled internal to the sub-domains.



Source: SRK, 2018

Figure 14-2: Gold assay values by domain

Composites were, however, tagged with the sub-domain codes for use in variographic analysis, in consideration of the interpreted orientation differences. The 0.003 oz/ston grade shell, with sub-domains, is illustrated in a 3-D perspective view in Figure 14-3.



Source: SRK, 2018

Figure 14-3: 0.003 oz/ston-grade shell with sub-domains

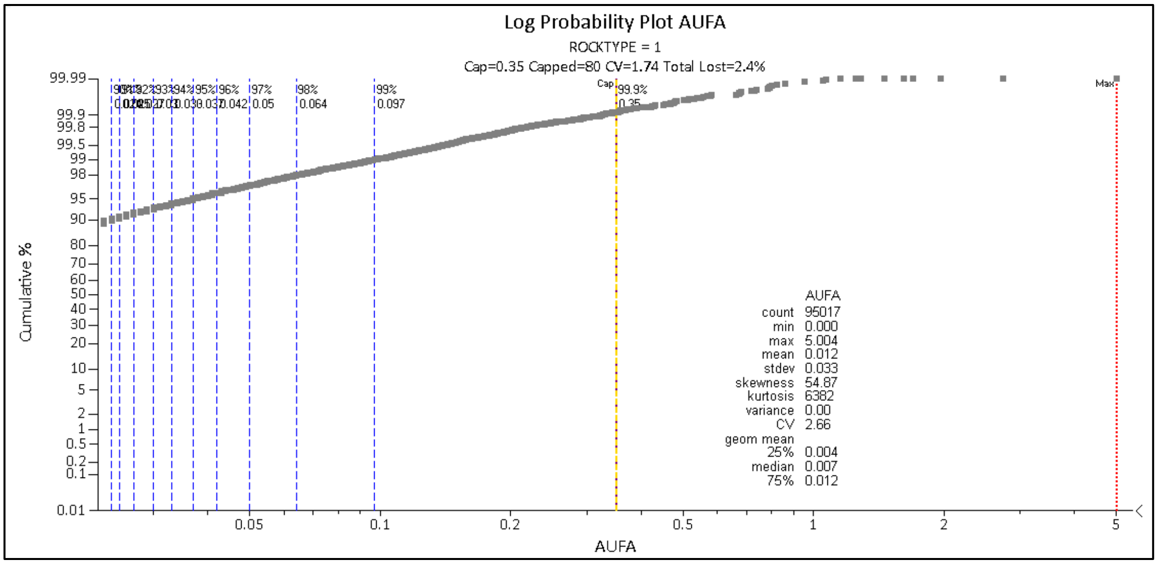
The grade domain grade shells were used to code an integer block model item identifying the domain, in addition to a percentage item storing the percentage of a block falling within the grade shell.

14.4 Assay Capping and Compositing

Assay values were capped prior to compositing, as described in the following sections.

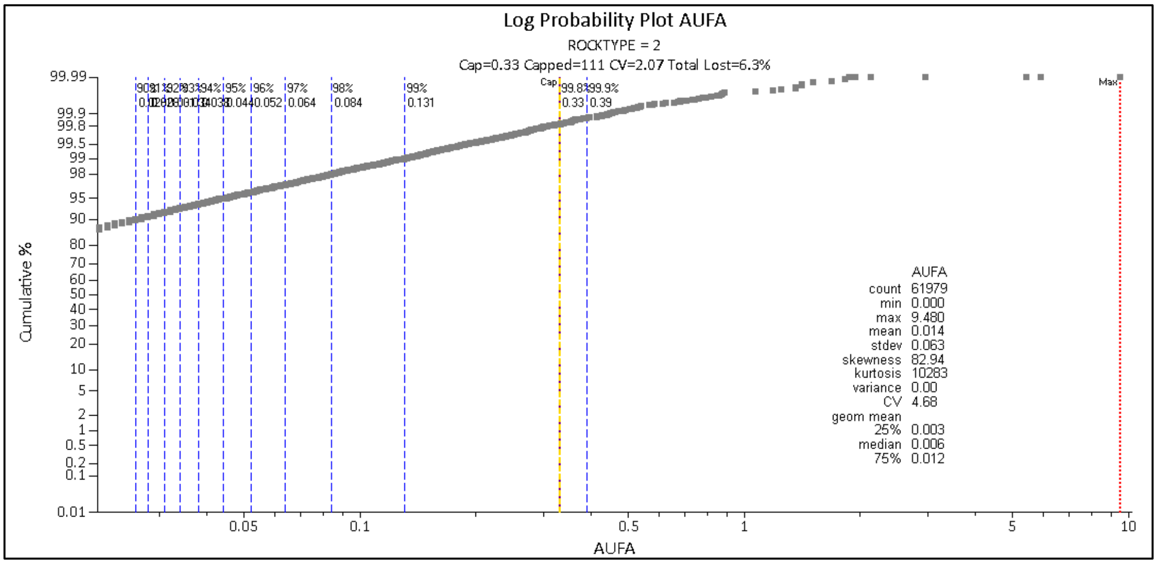
14.4.1 Capping

A capping analysis was conducted on AUFA values by domain prior to compositing to determine suitable capping values to minimize the effect of outlier values. A variety of analyses methods were considered, including a 'metal-at-risk' approach (this compares the gold metal contribution of each sample to its tonnage contribution as a ratio, with a guidance that the ratio should not exceed 10:1), in conjunction with examination of log probability plots of the domain distributions that identify breaks in the distribution corresponding to high-grade outlier populations. Log probability plots for the domains are illustrated in Figure 14-4 to Figure 14-5.



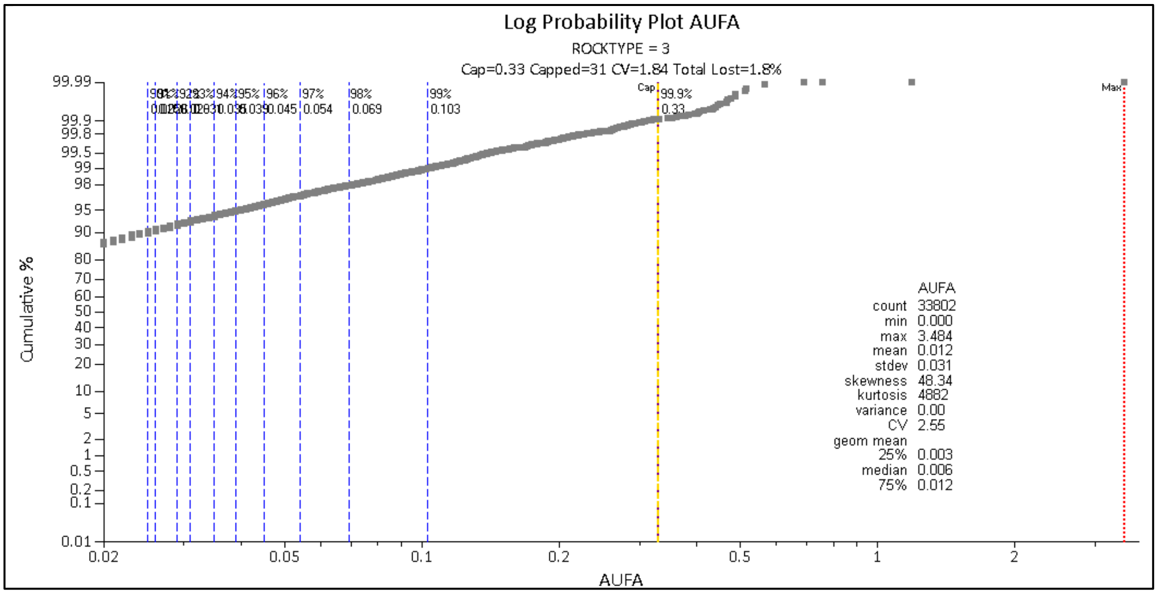
Source: SRK, 2018

Figure 14-4: Log probability plot – AUFA assays, Domain 1 (NNE)



Source: SRK, 2018

Figure 14-5: Log probability plot – AUFA assays, Domain 2 (MID)



Source: SRK, 2018

Figure 14-6: Log probability plot – AUFA assays, Domain 3 (NE)

Based on the capping analysis, the capping thresholds and statistics are tabulated in Table 14-2.

Table 14-2: Capping thresholds and statistics

Domain	Cap (oz/st)	# Capped	Capped %	Metal Loss %	CV Loss %
1 (NNE)	0.35	80	0.1	2.4	35
2 (MID)	0.33	111	0.2	6.3	56
3 (NE)	0.33	31	0.1	1.8	28

Source: SRK, 2018

14.4.2 Compositing

The capped assay data for AUFA gold was composited as 10-ft equal length composites starting at the DH collar and broken at the 0.003 oz/ston gold grade shell contacts. Any short residual intervals less than 4 ft in length (40% of nominal composite length) created in this process were merged into the previous interval. Composite intervals internal and external to the grade shells were assigned unique identifying rock type codes.

14.5 Density

Average density values provided by FCMI were assigned to blocks based on modeled alteration code, which includes codes for surface fill/dump material and alluvium. The codes and corresponding values are tabulated in Table 14-3.

Table 14-3: Density values assigned in block model

ALT Code	Description	Density (Cu,Ft/ston)	Ton/Cu. Ft.
40	None (Default)	13.88	0.0720
50	Fill/Dumps	17.51	0.0571
60	Hematite	13.88	0.0720
70	Siliceous	13.88	0.0720
80	Clay	14.20	0.0704
90	Sulfide (UNOX)	12.50	0.0800
100	Alluvium	15.50	0.0645

Source: FCMI, 2018

14.6 Variogram Analysis and Modeling

The spatial continuity of composites within the grade shell domains was investigated through variographic analysis using the SAGE 2001® variography package. Down-the-hole corellograms were calculated to determine appropriate nugget values, in addition to 3-D directional corellograms for use in variogram modeling. The corellogram measures the correlation coefficient between two sets of data, comprising values at the heads and values at the tails of vectors with similar direction and magnitude, and has been found to provide a stable estimate of spatial continuity. For ease of modelling, the correlogram value is subtracted from one and is presented in a similar graphical form to the variogram. In this report the correlograms presented this way are referred to as variograms.

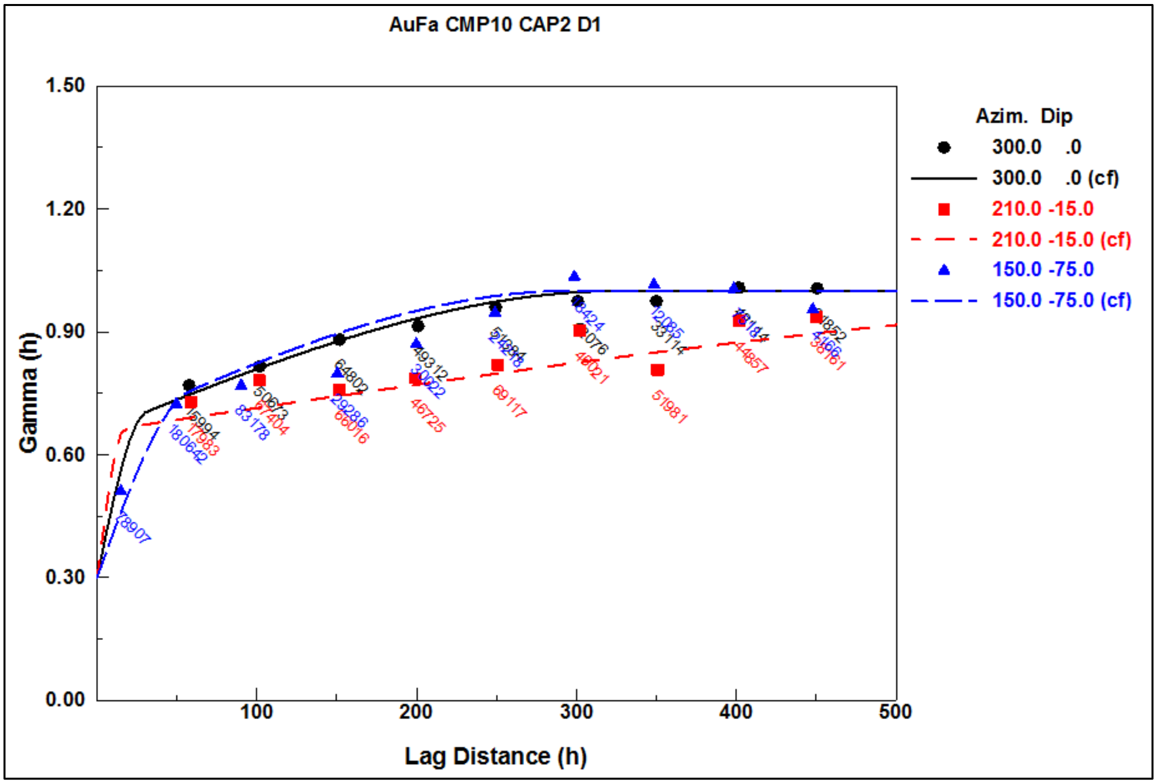
The variogram parameters are tabulated in Table 14-4 and the fitted variogram models by domain are illustrated from Figure 14-7 to Figure 14-9.

Table 14-4: Variogram parameters by grade shell domain

Domain	Nugget	Component 1								Component 2							
		Type	Sill	Rotation* (Deg)			Range (Ft)			Type	Sill	Rotation* (Deg)			Range (Ft)		
				Z	Y	Z	X	Y	Z			Z	Y	Z	X	Y	Z
NNE (D1)	0.300	SPH	0.360	-117	71	-67	32	120	15	SPH	0.340	-142	12	122	340	860	312
MID (D2)	0.380	SPH	0.530	-29	110	0	32	23	40	SPH	0.090	-18	-36	55	430	360	178
NE (D3)	0.420	SPH	0.430	15	23	-1	43	120	28	SPH	0.150	15	-25	30	635	540	170

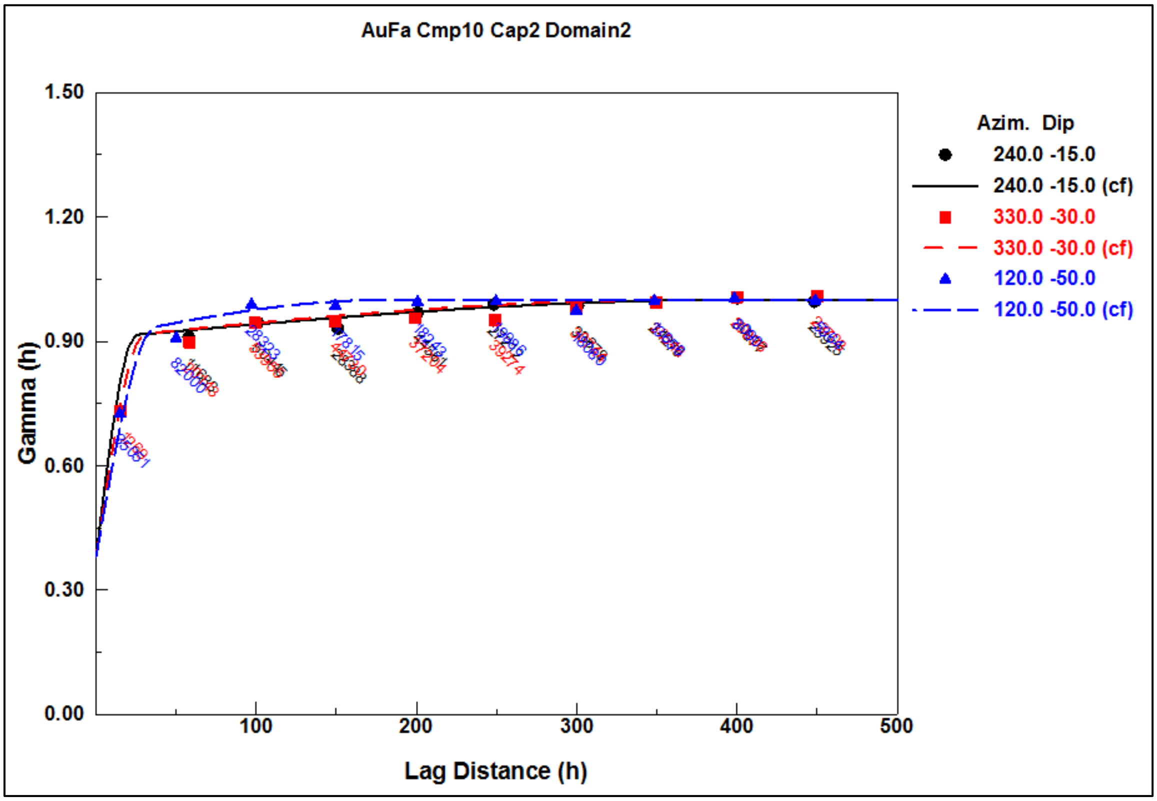
Source: SRK, 2018

Notes: Rotations* are specified in the GEMS ZYZ convention (order of rotation), with all rotations according to the Right Hand Rule – this rule imagines grasping the axis with the right hand so that the thumb is pointing in the direction of increasing values. The fingers will then be pointing in the direction of a positive rotation. A negative rotation angle indicates a rotation in the opposite direction.



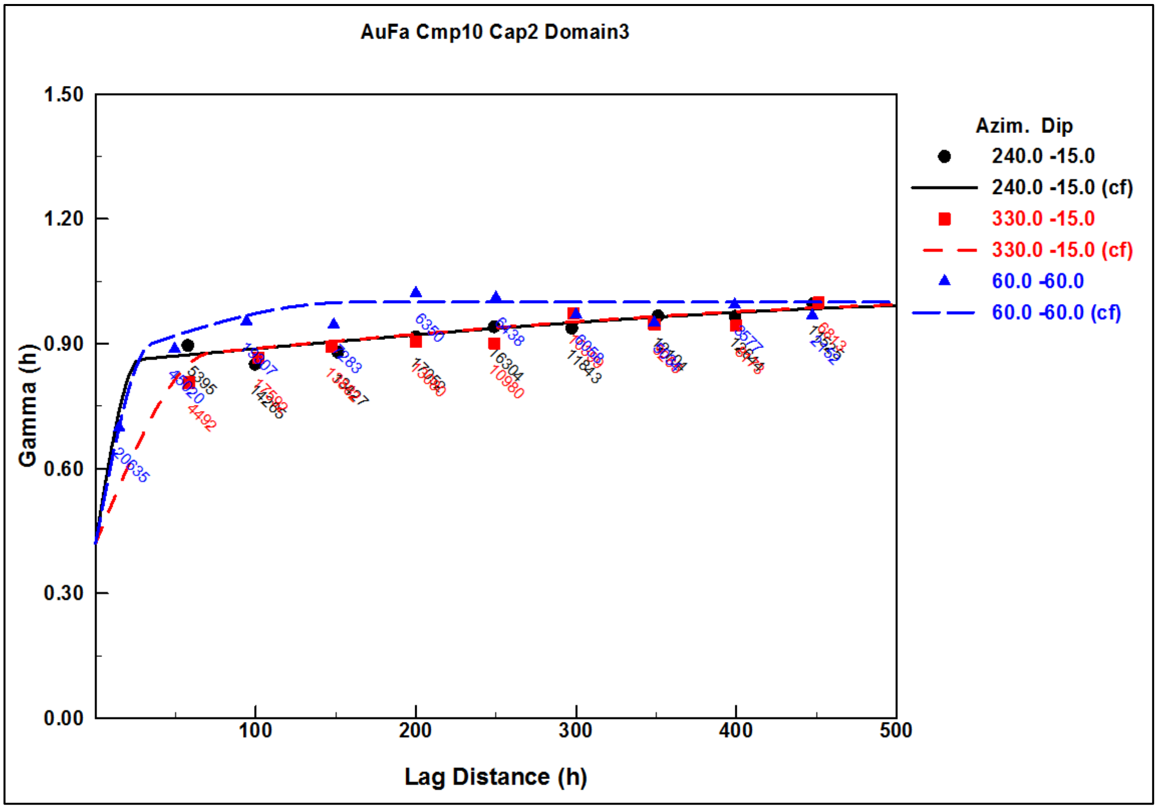
Source: SRK, 2018

Figure 14-7: Experimental variograms and fitted model – Domain 1 (NNE)



Source: SRK, 2018

Figure 14-8: Experimental variograms and fitted model – Domain 2 (MID)



Source: SRK, 2018

Figure 14-9: Experimental variograms and fitted model – Domain 3 (NE)

14.7 Block Model

A 3-D block model was defined to cover the volume of interest, approximately 2 by 2 miles in plan view and 3,000 ft vertically, and with a block size of 30 x 30 x 20 ft. The block model coordinate limits (in the mine grid system) and dimensions are tabulated in Table 14-5.

Table 14-5: Block model limits and dimensions

	Minimum (ft)	Maximum (ft)	Block Size (ft)	# of Blocks
Easting	48,000	59,580	30	386
Northing	46,000	54,820	30	294
Elevation	3,700	6,400	20	135

Source: SRK, 2018

14.8 Estimation Methodology

Block grades were estimated by domain (grade shell) for AUFA using Ordinary Kriging (OK). The interpolation process utilized 10ft composites tagged with corresponding rock type codes to enable the use of hard boundaries to prevent interpolation across the 0.003 oz/ston grade shell boundary. No restrictions were specified between the sub-domains, as statistical comparisons indicated that the distributions were not markedly different in the sub-domains. Composite tagging also allowed the use of semi-soft boundaries between the high-grade shapes modeled internal to the 0.003 oz/ston grade shell – this method allows the influence of some composites external to the high-grade grade shells to be used within a specified distance tolerance. The interpolations were done in three passes, with progressively larger search distances and with protection of blocks estimated in earlier passes. A Nearest Neighbor (NN) gold fire assay block value was also estimated for comparison/validation purposes, using the same estimation parameters as the OK interpolations. The search neighborhood parameters are tabulated in Table 14-6.

Table 14-6: Search neighborhood parameters

Domain	Pass	Search Neighborhood (Ellipsoid)					
		Rotation* (Deg)			Range (Ft)		
		Z	Y	Z	X	Y	Z
NNE (D1)	1	-20	-20	0	125	180	75
MID (D2)		-20	-20	0	125	180	75
NE (D3)		-30	-20	0	125	180	75
NNE (D1)	2	-20	-20	0	190	270	115
MID (D2)		-20	-20	0	190	270	115
NE (D3)		-30	-20	0	190	270	115
NNE (D1)	3	-20	-20	0	250	360	150
MID (D2)		-20	-20	0	250	360	150
NE (D3)		-30	-20	0	250	360	150

Source: SRK, 2018

Notes: Rotations* are specified in the GEMS ZYZ convention for order of rotation, with all rotations according to the Right-Hand Rule – this rule imagines grasping the axis with the right hand so that the thumb is pointing in the direction of increasing values. The fingers will then be pointing in the direction of a positive rotation. A negative rotation angle indicates a rotation in the opposite direction.

A high-grade search distance constraint was also implemented in interpolation, where more constrained search distances are considered for composites within the initial search ellipsoid that exceed a specified threshold value, as detailed below:

- Domain 1 (NNE) – 10 x 10 x 10 ft with a high-grade threshold of 0.30 OPT
- Domain 2 (MID) – 20 x 20 x 20 ft with a high-grade threshold of 0.25 OPT
- Domain 3 (NE) – 20 x 20 x 20 ft with a high-grade threshold of 0.20 OPT

Blocks were estimated by OK with a minimum of 6 composites and a maximum of 18 and using a block discretization of 3 x 3 x 2.

Given that the percentage of a block within the 0.003 oz/ston grade shell was variable, a final diluted fire assay gold block value was calculated as:

Diluted fire assay gold grade = fire assay gold grade x Gradeshell Percentage/100

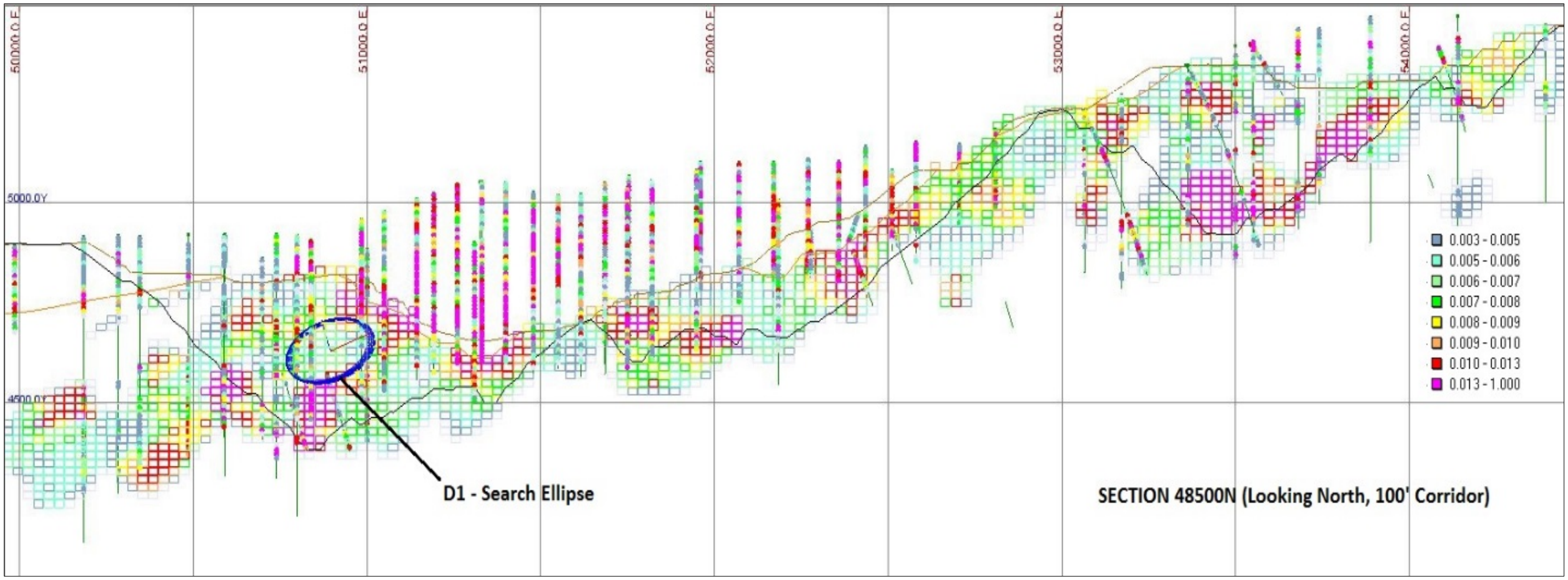
The percentage of a block falling external to the grade shell is assumed to be at zero grade.

14.9 Model Validation

Model validation was approached through visual and statistical methods. Visual comparison was done on sections and in plan for each area of the deposit. Statistical comparison was achieved using comparative population statistics and swath plots.

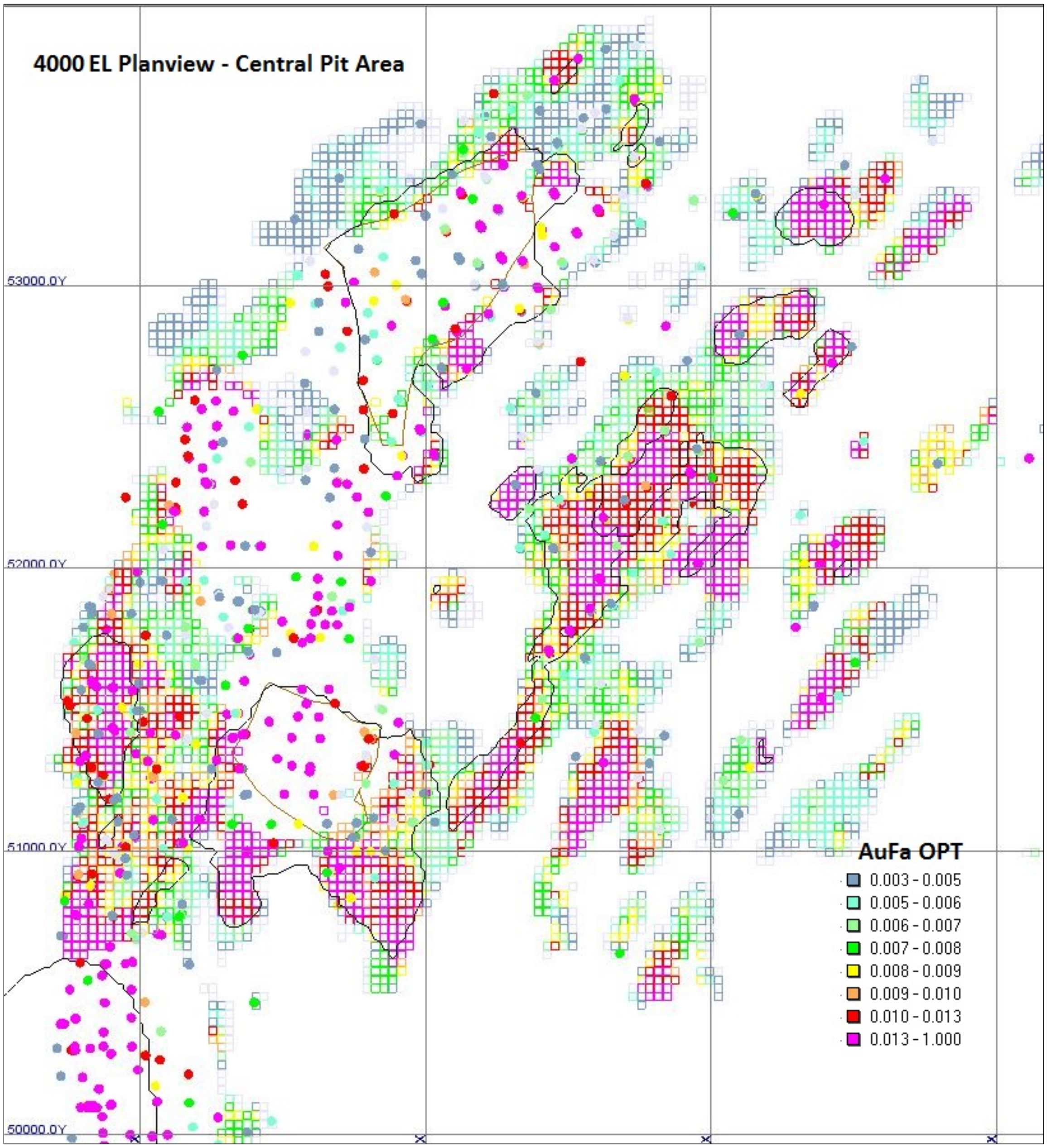
14.9.1 Visual Comparison

A visual inspection of the model in plan and section confirmed that grades generally correlate well between the blocks and the composite data in each area. Example images showing block grades vs composite grades in section and plan view are provided below in through Figure 14-10 through Figure 14-12.



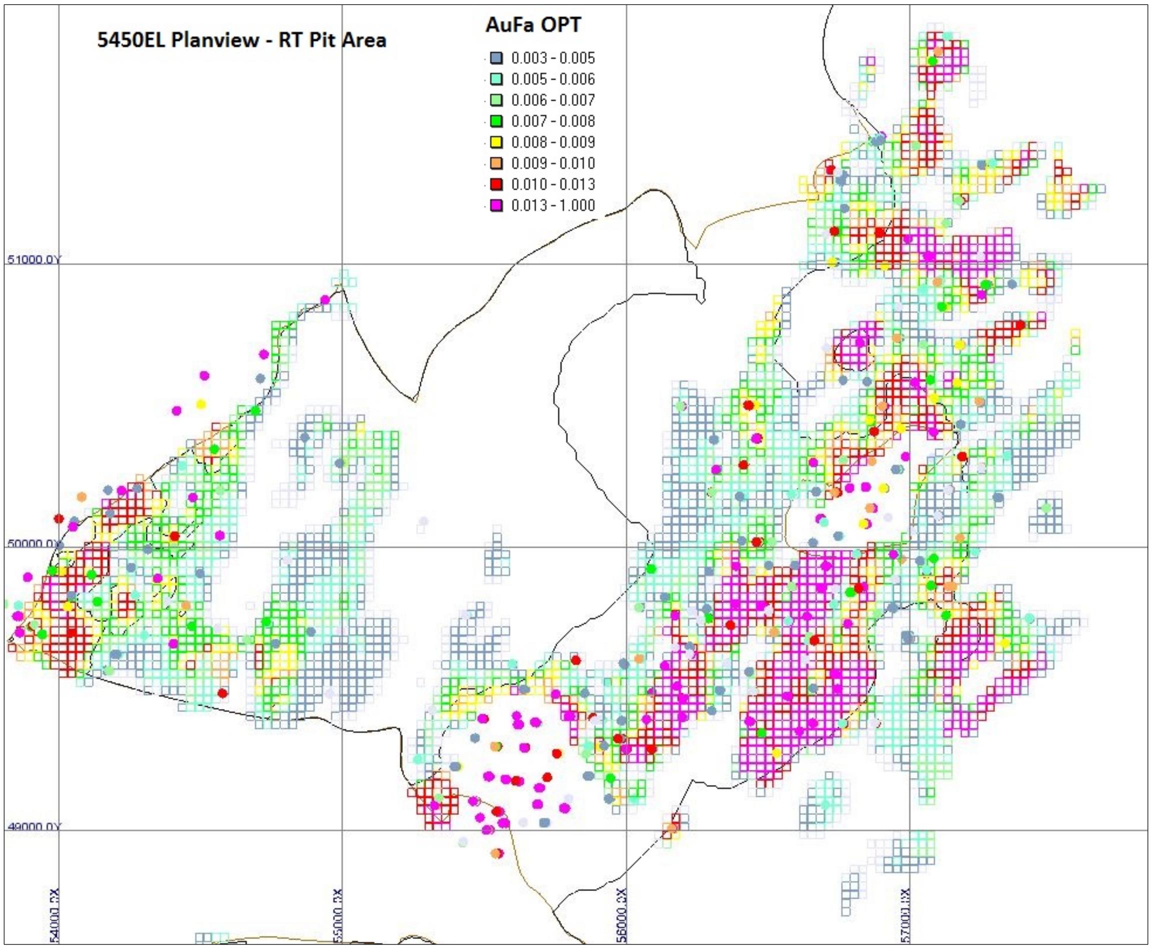
Source: SRK, 2018

Figure 14-10: Visual validation – typical cross-section



Source: SRK, 2018

Figure 14-11: Visual validation – typical plan view, lower levels (Central Pit)



Source: SRK, 2018

Figure 14-12: visual validation – typical plan view, upper levels (Radio Tower)

14.9.2 Comparative Statistics

Statistics by interpolation domain (grade shell) were used to compare the NN and OK fire assay block grades against each other. The NN interpolation method provides a declustered representation of the sample grades and therefore, the modeled mean grades of any other method should be similar to the mean grade of the NN estimate at a zero-cut-off grade. For fire assay gold, the OK estimates were within acceptable tolerances of the NN; approximately ±2% for each domain. The global mean estimated OK grade at zero cut-off was within ~5% of the NN estimate. The domain and global comparison between OK and NN models is shown in Table 14-7.

Table 14-7: Comparative statistics – OK and NN

Grade Shell	Mean (OPT)		% Difference
	AUFA (NN)	AUFA (OK)	(Absolute)
Domain 1 (NNE)	0.0100	0.0099	0.5%
Domain 2 (MID)	0.0110	0.0112	1.8%
Domain 3 (NE)	0.0100	0.0102	2.0%
Global	0.0100	0.0104	4.1%

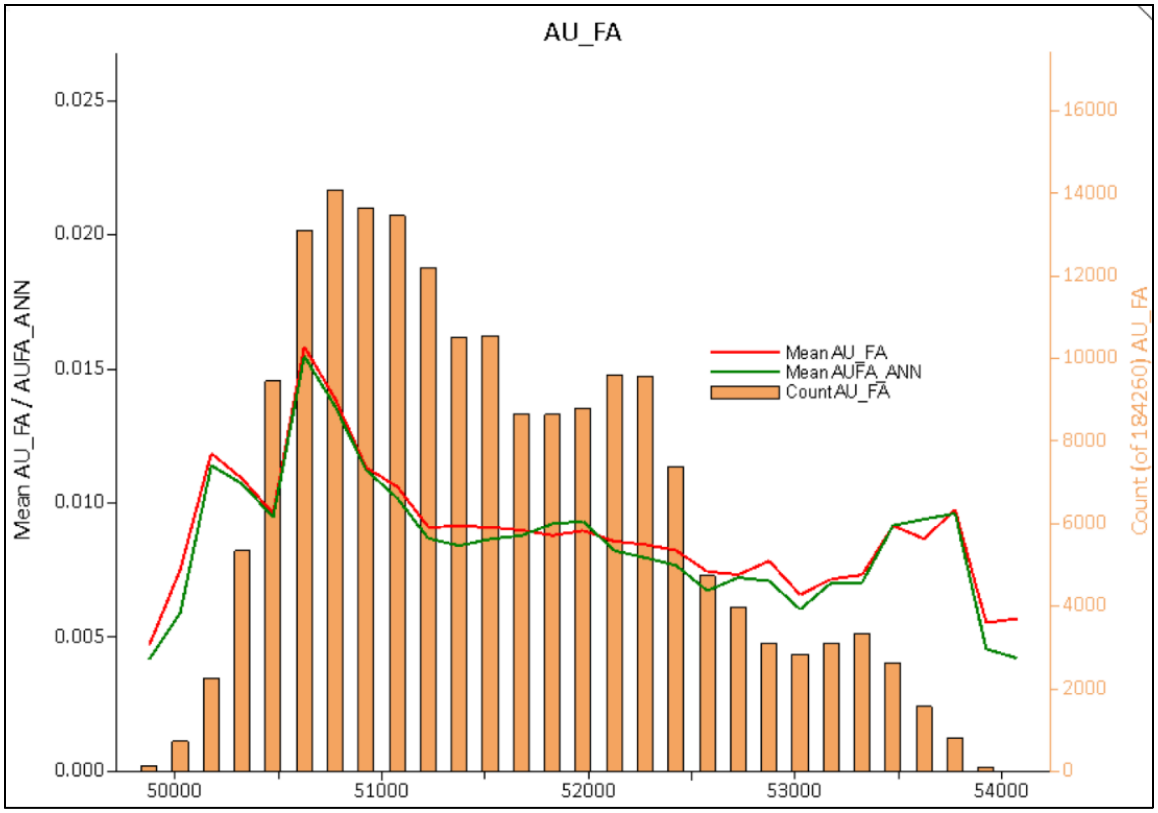
Source: SRK, 2018

14.9.3 Swath Plots

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions through the deposit. Using the swath plot, estimated grades from the OK model are compared to the distribution derived from the Nearest NN grade model.

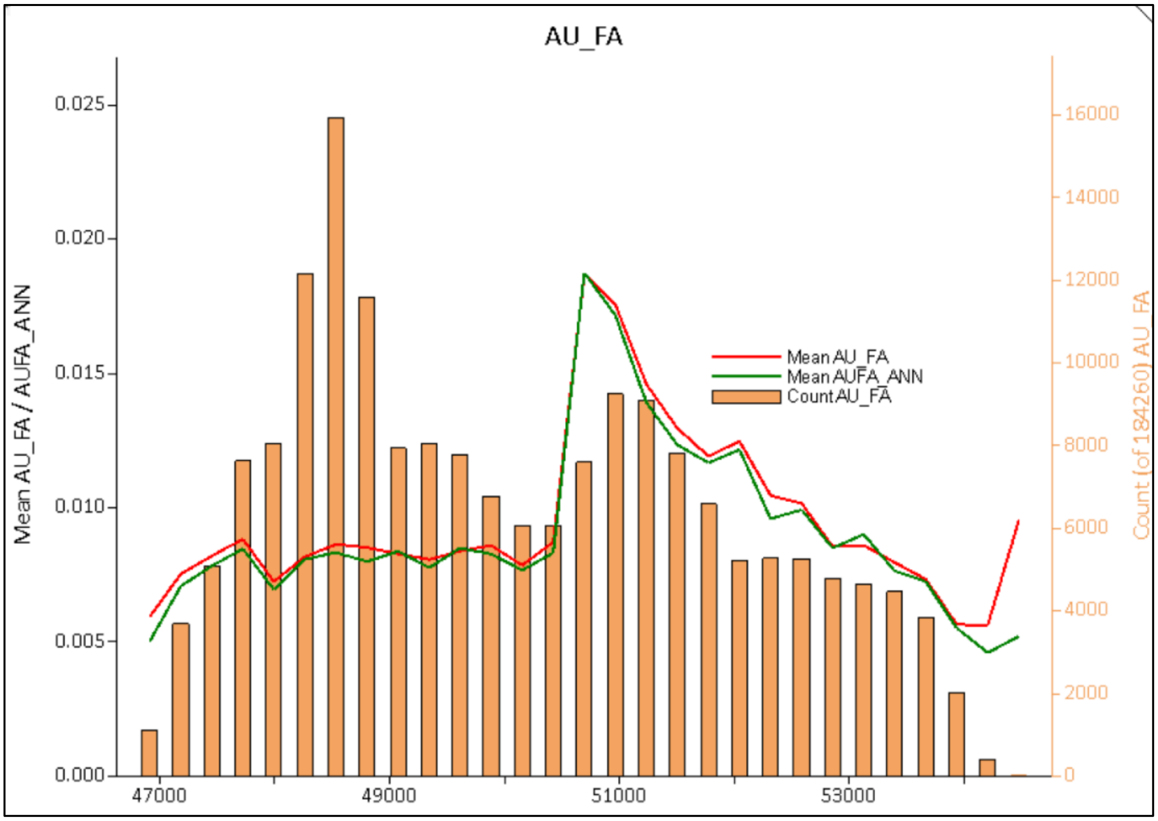
On a local scale, the NN model does not provide reliable estimations of grade, but on a much larger scale it represents an unbiased estimation of the grade distribution based on the underlying data. Therefore, if the OK model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend of the OK data should be similar to the NN distribution of grade.

Swath plots were generated along east-west and north-south directions, and for elevation. Swath widths were 150 ft wide for both east-west and north-south orientations, and 60 ft wide in the vertical. Gold grades were plotted by OK (green traces) and NN (blue traces) for all estimated blocks. Example swath plots for Domains 1 – 3 are shown in Figure 14-13 through
Figure 14-21 for Measured and Indicated Resources (M&I).



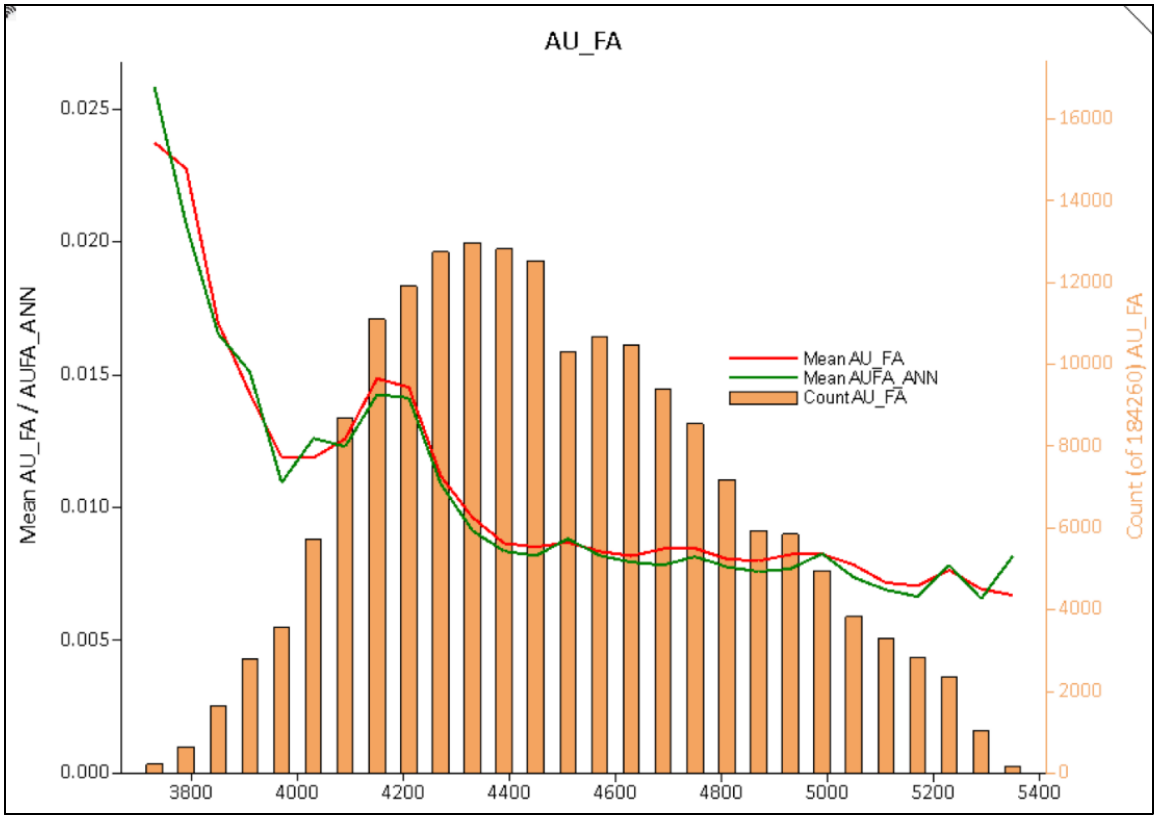
Source: SRK, 2018

Figure 14-13: Swath plot by Easting – Domain 1 (NNE) M&I



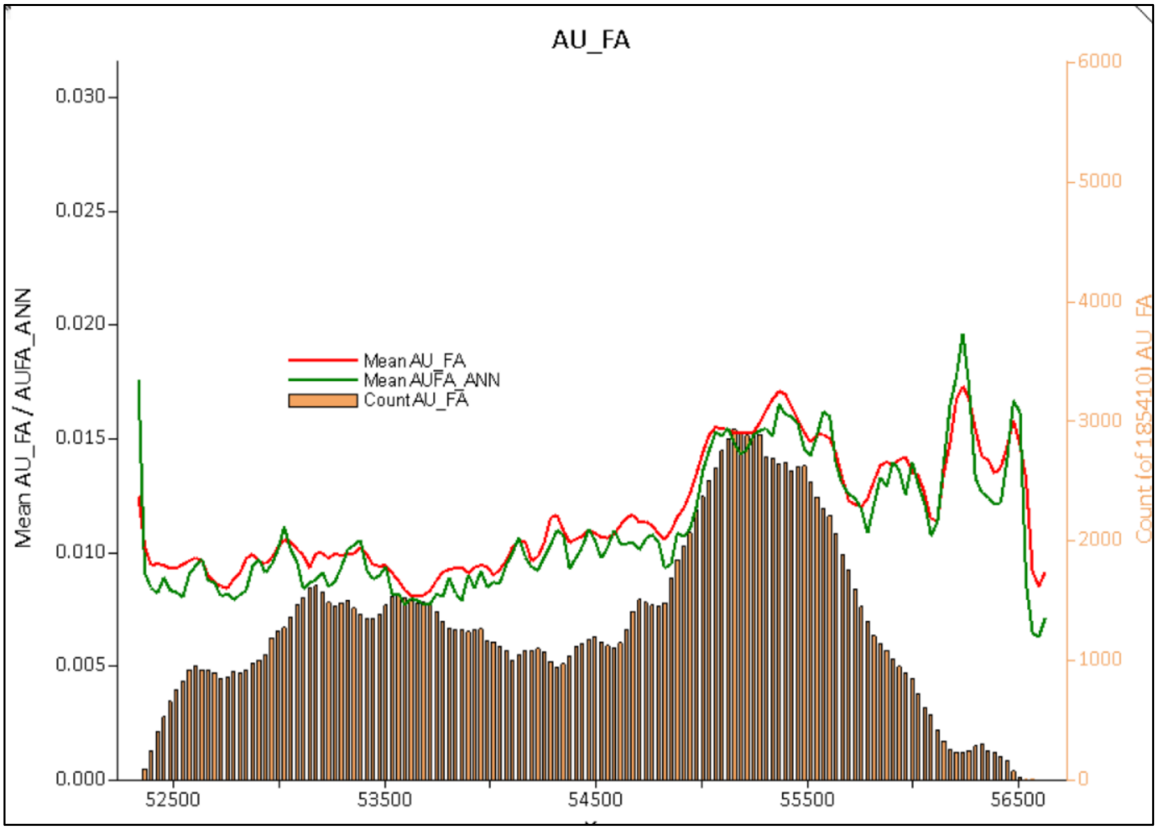
Source: SRK, 2018

Figure 14-14: Swath plot by Northing – Domain 1 (NNE) M&I



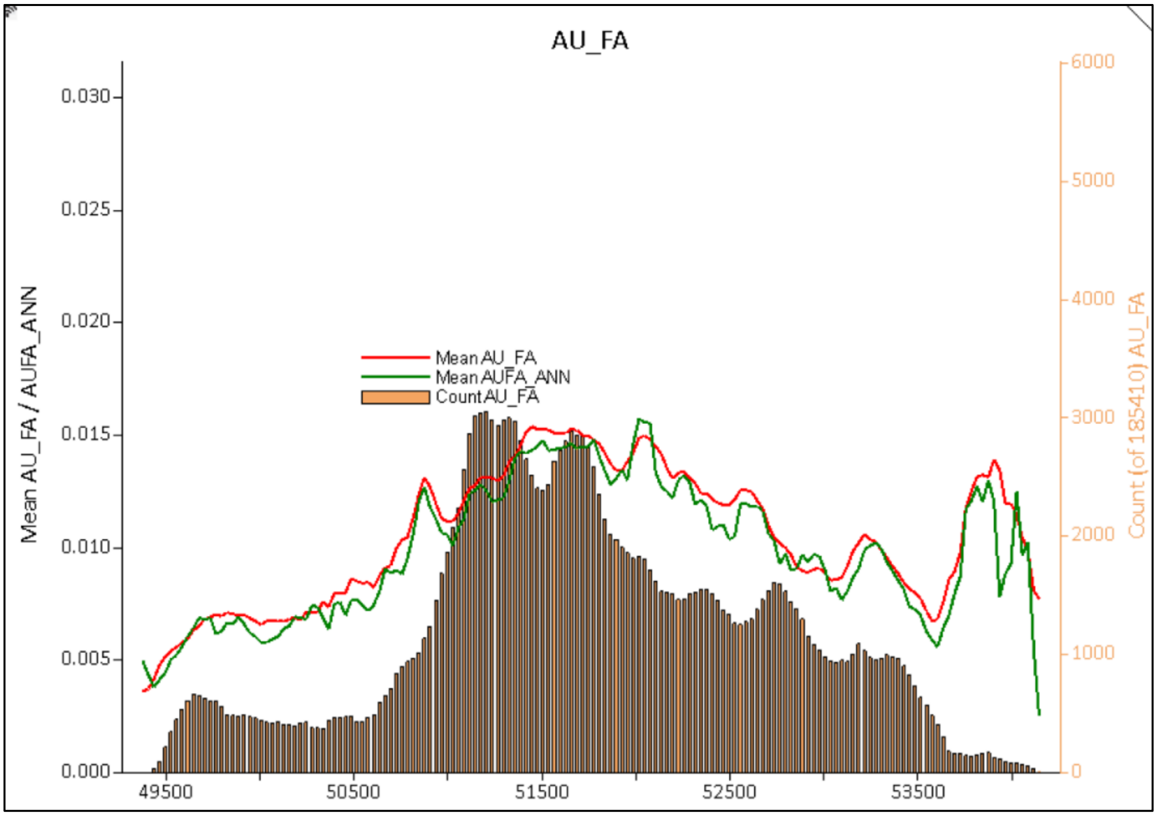
Source: SRK, 2018

Figure 14-15: Swath plot by Elevation – Domain 1 (NNE) M&I



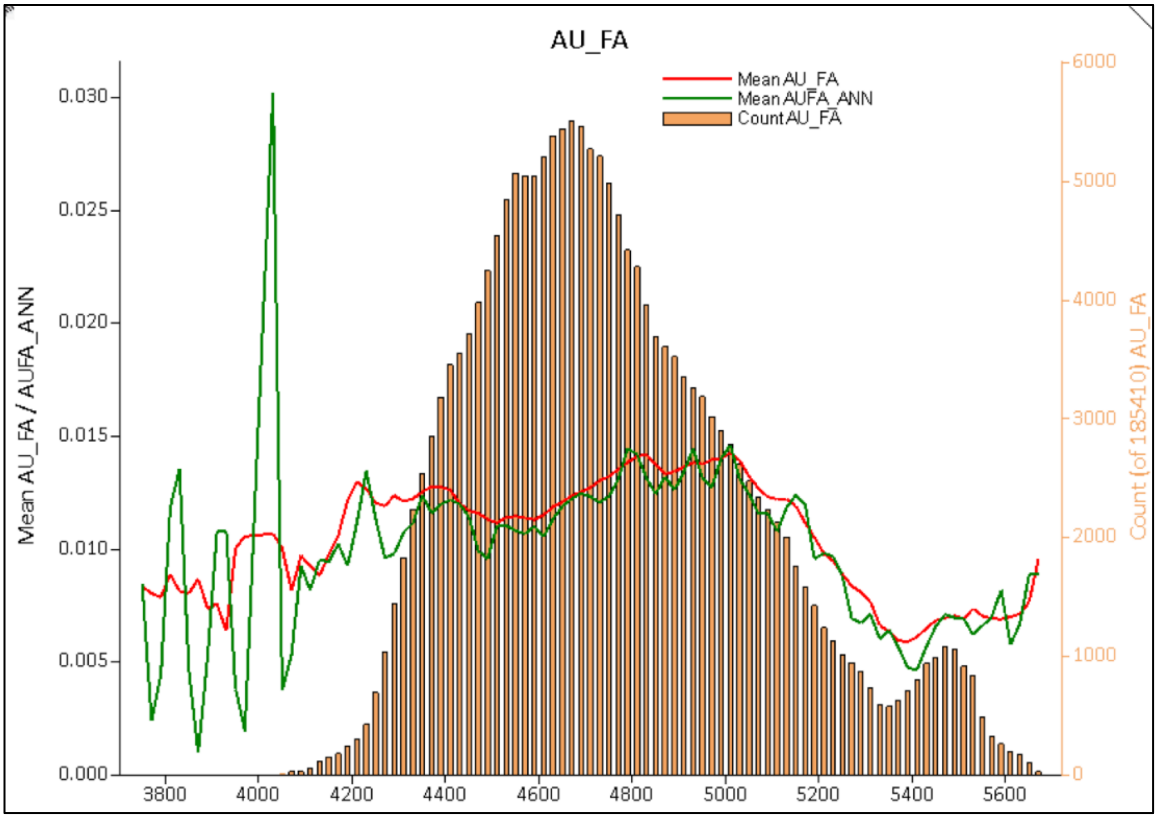
Source: SRK, 2018

Figure 14-16: Swath plot by Easting – Domain 2 (MID)



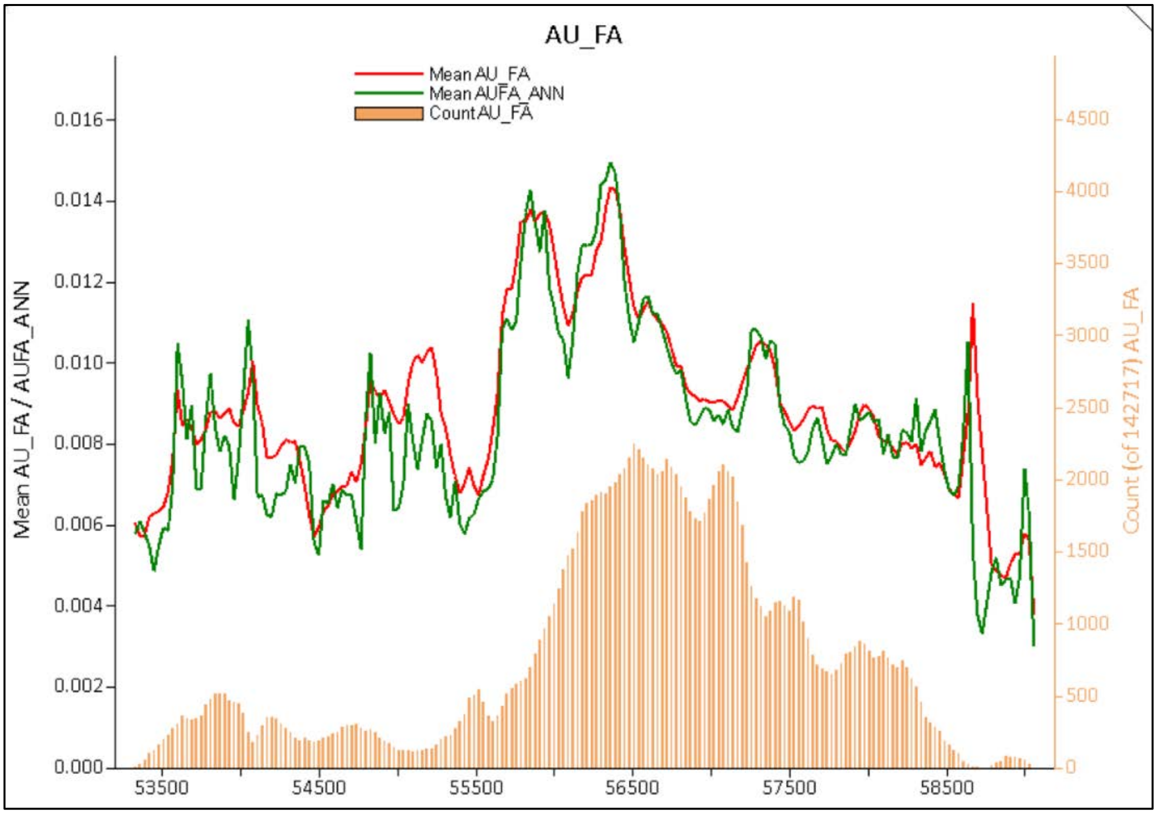
Source: SRK, 2018

Figure 14-17: Swath plot by Northing – Domain 2 (MID) M&I



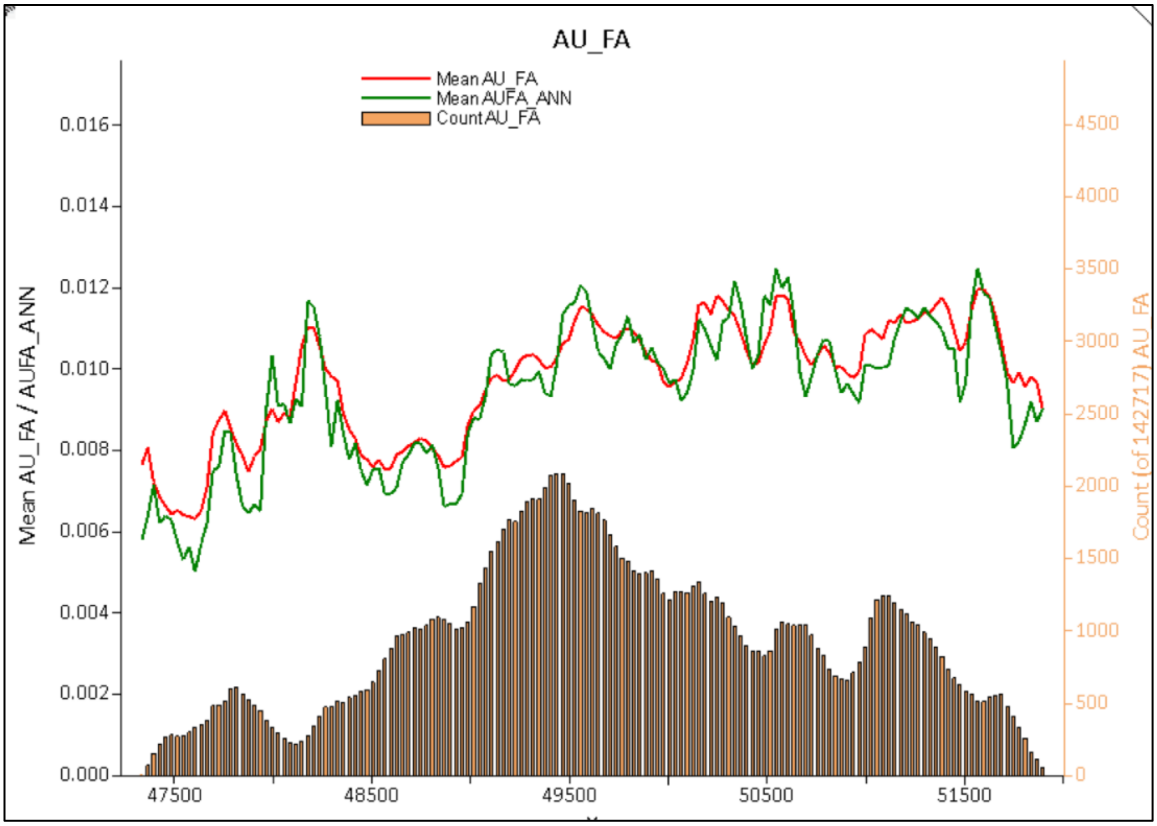
Source: SRK, 2018

Figure 14-18: Swath plot by Elevation – Domain 2 (MID) M&I



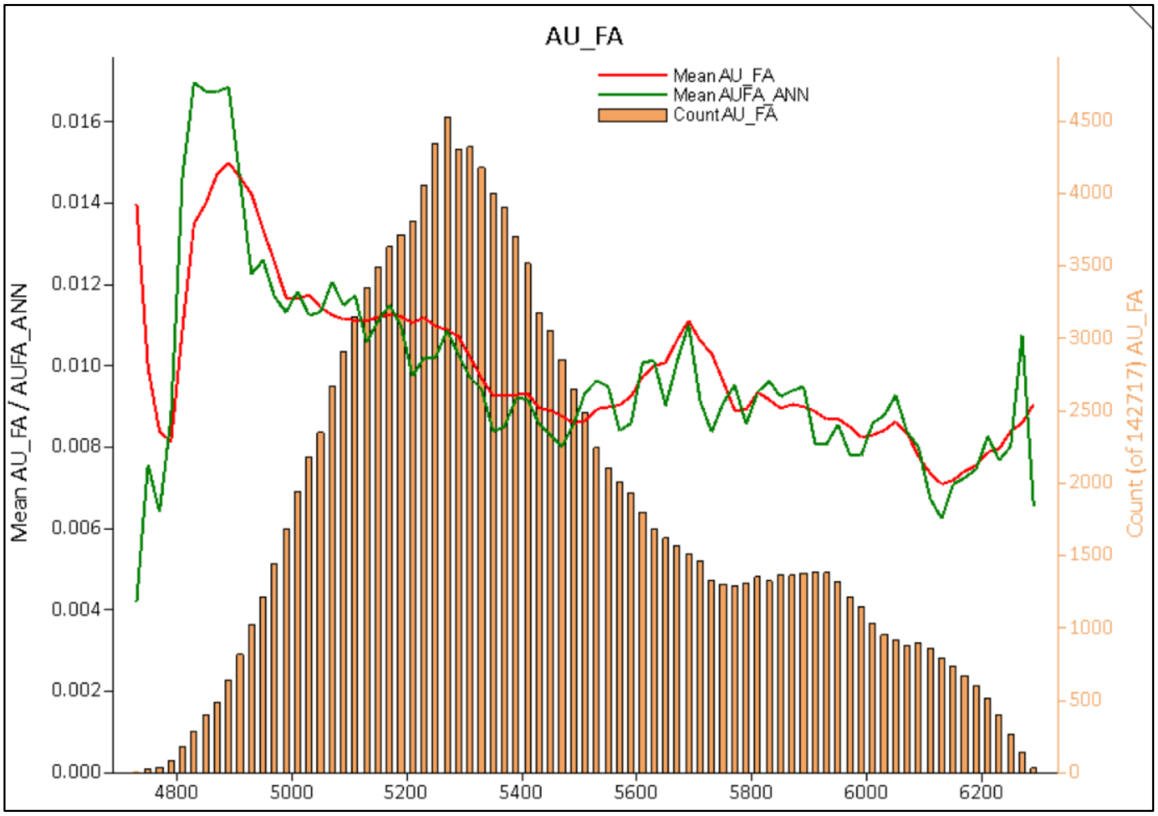
Source: SRK, 2018

Figure 14-19: Swath plot by Easting – Domain 3 (NE) M&I



Source: SRK, 2018

Figure 14-20: Swath plot by Northing – Domain 3 (NE)



Source: SRK, 2018

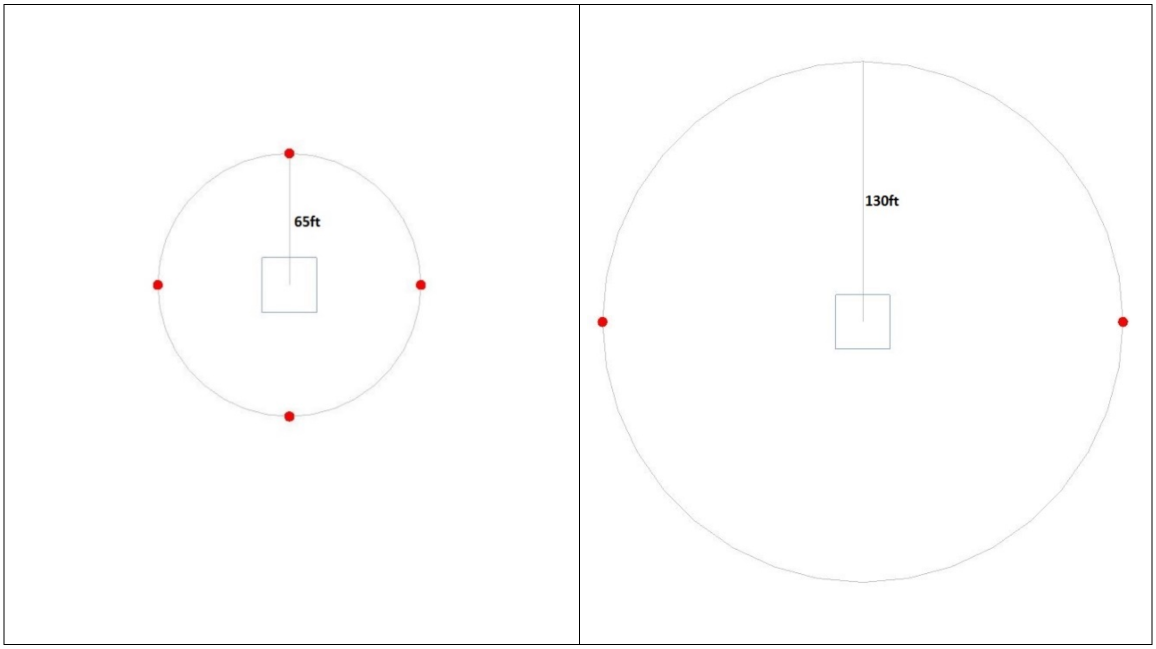
Figure 14-21: Swath plot by Elevation – Domain 3 (NE)

Based on the swath plots, there is a reasonable correlation between the modeling methods. The degree of smoothing in the OK model is evident in the peaks and valleys shown in some swath plots; however, this comparison shows a reasonable agreement between the OK and NN models in terms of overall grade distribution as a function of easting, northing, and elevation, with zones of marked divergence restricted to swaths where there are low tonnages (as shown by the block counts – vertical bars on the plots).

14.10 Resource Classification

The resources are classified with respect to a block kriging variance estimated using Simple Kriging (SK) with a large number of composites. This approach is actually used as an approximation for Universal Kriging, which uses all the data, but which is impractical with large data sets. The kriging variance thresholds used to define measured, indicated and inferred categories of ore are based on a practical simplification of the typical rules-based approach, which considers using worst-case scenarios instead of listing all the conditions, e.g., number of samples, average distance, etc., for each category.

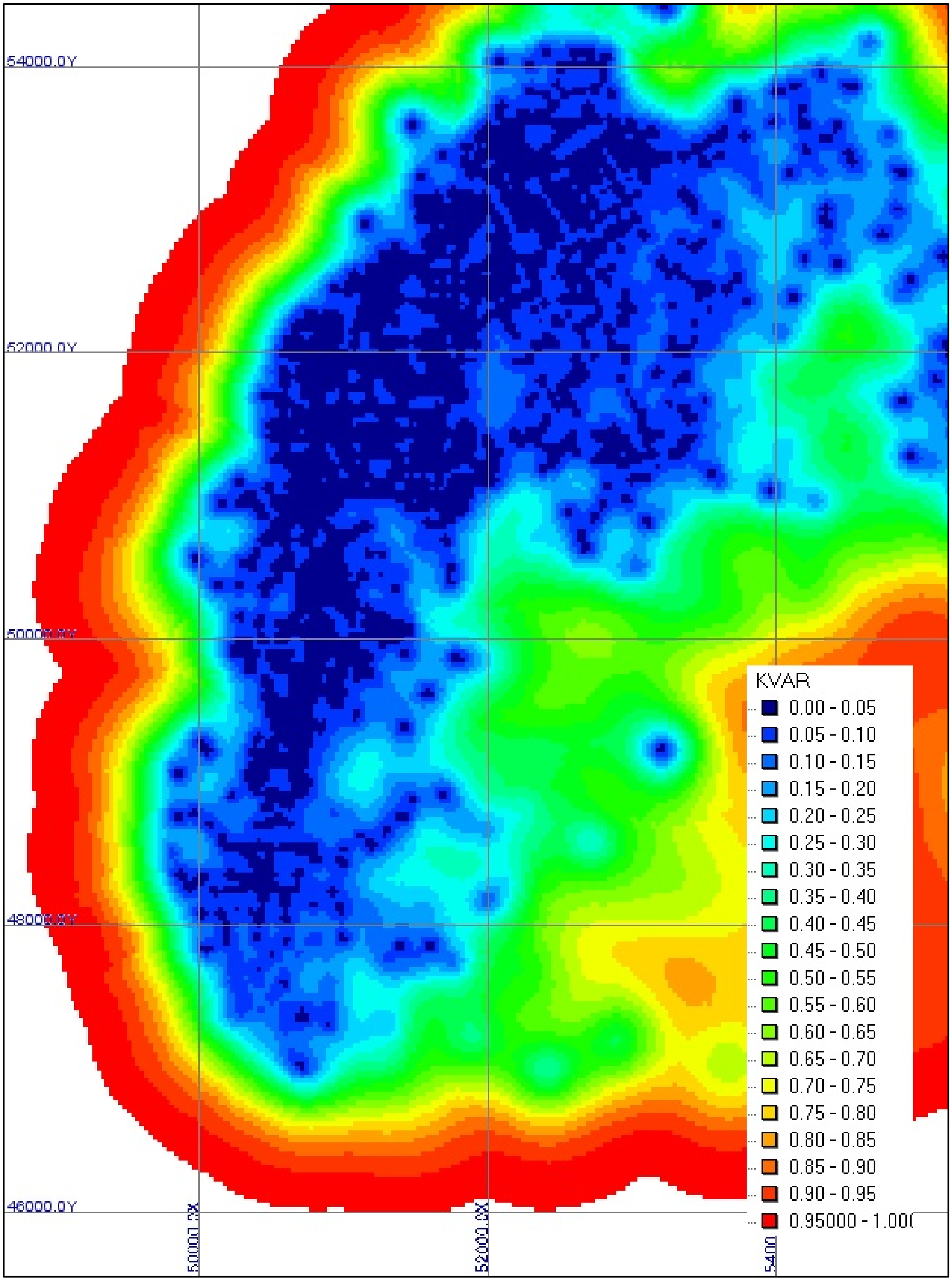
Two worst-case scenarios are defined to classify measured and indicated material. The inferred material is set as the rest of the estimated material that does not fall within the two categories. The worst-case scenarios are defined in terms of maximum search distance and number of bench composites around a block. The configuration for the measured category is four composites within a circular search of 65 ft. The configuration for the indicated category is two composites within a circular search of 130 ft. In both cases, the composites are considered to be equidistant to the block centroid, shown in Figure 14-22.



Source: SRK, 2018

Figure 14-22: Worst case scenario configurations

The corresponding simple kriging variances calculated for these scenarios are 0.06 and 0.18, respectively. All blocks with a more restrictive configuration of surrounding composites than their worst-case configuration are classified with their corresponding category. For implementation purposes, the composite configurations are associated with the simple kriging variance. The more restrictive the composite configuration, the smaller the simple kriging variance. The kriging variance is bounded between 0 and the sill of the variogram utilized (spherical model, with nugget = 0 and sill = 1). It is 0 if there is a composite at the block centroid and is equal to the sill of the variogram if all composites are beyond the influence of the variogram. As part of the implementation, the range of the variogram model is set to 1000 feet to cover the two categories, i.e. measured at 65 ft and indicated at 130 ft, and the mean is set to zero. The variogram range is sufficiently large to produce simple kriging values less than the sill of the variogram for the two worst-case scenarios. The SK kriging variance is illustrated on 4360L bench in Figure 14-23.



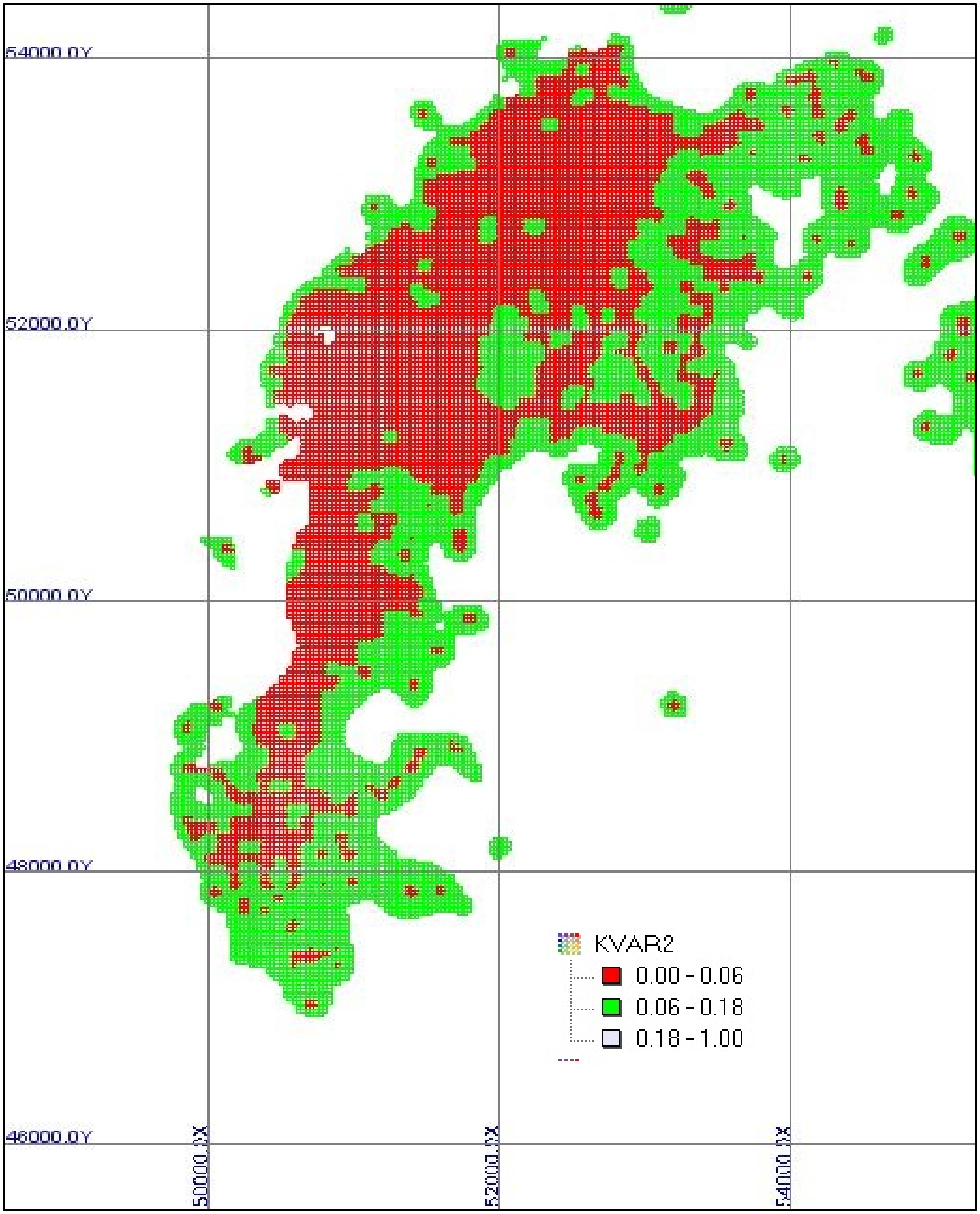
Source: SRK, 2018

Figure 14-23: Block simple kriging variance estimates – 4360L bench

The block model is classified based on the calculated thresholds for the measured and indicated categories:

- Measured – worst-case simple kriging variance = 0.06
- Indicated – worst-case simple kriging variance = 0.18
- Inferred – estimated blocks that do not fall within the measured and indicated categories

These thresholds represent the maximum kriging variance for a block to be classified in a category, as illustrated in for the 4360L Bench in Figure 14-24.



Source: SRK, 2018

Figure 14-24: Measured and indicated categories – 4360L bench

14.11 Mineral Resource Estimate

The mineral resource statement is presented per NI 43-101 requirements. Given that process recoveries and costs in the resource model are grade and/or domain dependent, the application of standard cut-off grades for resource reporting purposes is not feasible. The resources are, therefore, reported with respect to a block NSR value which is calculated on a block-by-block basis. The resource is also constrained by an optimized (Whittle^{TM}) resource pit, in accordance with the requirement to demonstrate that the defined resources have reasonable prospects of eventual economic extraction, a CIM criteria. All classification categories (Measured, Indicated and Inferred) were considered in the resource pit optimization.

14.11.1 Metallurgical Recovery for NSR Calculation

Gold recoveries used in resource estimate were calculated for each block and varied with grade based on the recovery assumptions in the SRK resource report (SRK, 2018a). Additional analysis of recoveries continued in parallel with mine planning subsequent to the release of the resource report. This analysis altered the understanding of the controls on recovery and led to a new recovery projection of 71% for all material types, as described in Section 13.5 of this report.

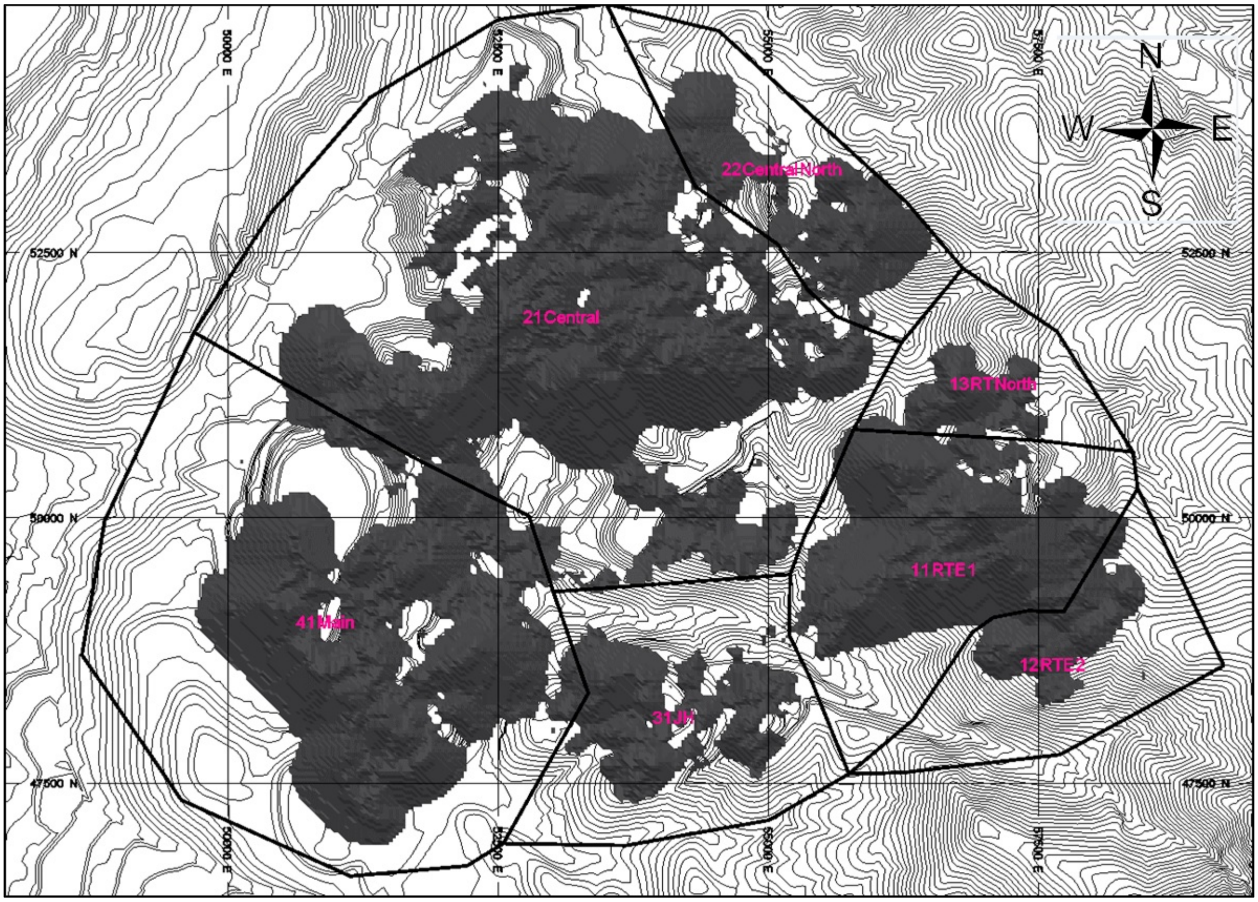
14.11.2 Resource Pit Optimization Parameters

The resource pit optimization parameters by mining area are tabulated in Table 14-8. These parameters were also used in the calculation of block NSR values for reporting purposes. Nominal slopes of 45° were utilized for in-situ rock and 37° for fill/dump material.

Table 14-8: Resource pit optimization parameters

Description	Units	Central	Central North	Jasperoid	Main	RT North	RT	RT2
Classification Code	MI&I	1,2,&3	1,2,&3	1,2,&3	1,2,&3	1,2,&3	1,2,&3	1,2,&3
Commodity Selling Price	$ / oz	$1,350	$1,350	$1,350	$1,350	$1,350	$1,350	$1,350
Commodity Selling Cost	$ / oz	$2.80	$2.80	$2.80	$2.80	$2.80	$2.80	$2.80
Royalty (on NSR)	%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Final Commodity Realized Price (NSR)	$ / oz	$1,280	$1,280	$1,280	$1,280	$1,280	$1,280	$1,280
Mining Costs								
Ore – Base Mining Cost	$ / ston ore	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26
Ore – Haulage Cost	$ / ston ore	$0.40	$0.40	$0.35	$0.30	$0.65	$0.55	$0.65
Total ore Mining Cost	$ / ston ore	$1.66	$1.66	$1.61	$1.56	$1.91	$1.81	$1.91
Waste – Base Mining Cost	$ / ston waste	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26
Waste – Haulage Cost	$ / ston waste	$0.40	$0.30	$0.25	$0.35	$0.60	$0.60	$0.65
Total Waste Mining Cost	$ / ston waste	$1.66	$1.56	$1.51	$1.61	$1.86	$1.86	$1.91
Processing Costs								
Crushing Cost	$ / ston ore	$0.95	$0.95	$0.95	$0.95	$0.95	$0.95	$0.95
Processing	$ / ston ore	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54
G&A – Admin	$ / ston ore	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50
Total ore PC	$ / ston ore	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99
Total ore Mining and Process Cost	$ /ston ore	$5.65	$5.65	$5.60	$5.55	$5.90	$5.80	$5.90

The mining areas referenced are illustrated in Figure 14-25.



Source: SRK, 2018

Figure 14-25: Mining areas and optimized resource pit – US$1350/oz

Table 14-9: Mineral Resource statement, Florida Canyon Gold Mine, Pershing County, SRK Consulting, effective date July 31, 2018

Mining Area	Category	Quantity (ston 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Total	Measured	115,817	0.012	1,371
	Indicated	30,652	0.011	339
	Measured and Indicated	**146,469**	**0.012**	**1,711**
	Inferred	1,550	0..014	22
Central	Measured	51,200	0..012	597
	Indicated	10,756	0.011	115
	Measured and Indicated	**61,956**	**0.011**	**712**
	Inferred	560	0.011	6
Main	Measured	30,846	0..011	331
	Indicated	10,031	0.010	100
	Measured and Indicated	**40,877**	**0..011**	**431**
	Inferred	521	0.011	10
Jasperoid Hill	Measured	5,945	0..011	68
	Indicated	2,255	0..009	21
	Measured and Indicated	**8,200**	**0..011**	**89**
	Inferred	170	0..010	2
Radio Towers	Measured	27,826	0..013	375
	Indicated	7,610	0.014	103
	Measured and Indicated	**35,436**	**0.013**	**478**
	Inferred	299	0..016	5

Source: SRK, 2018

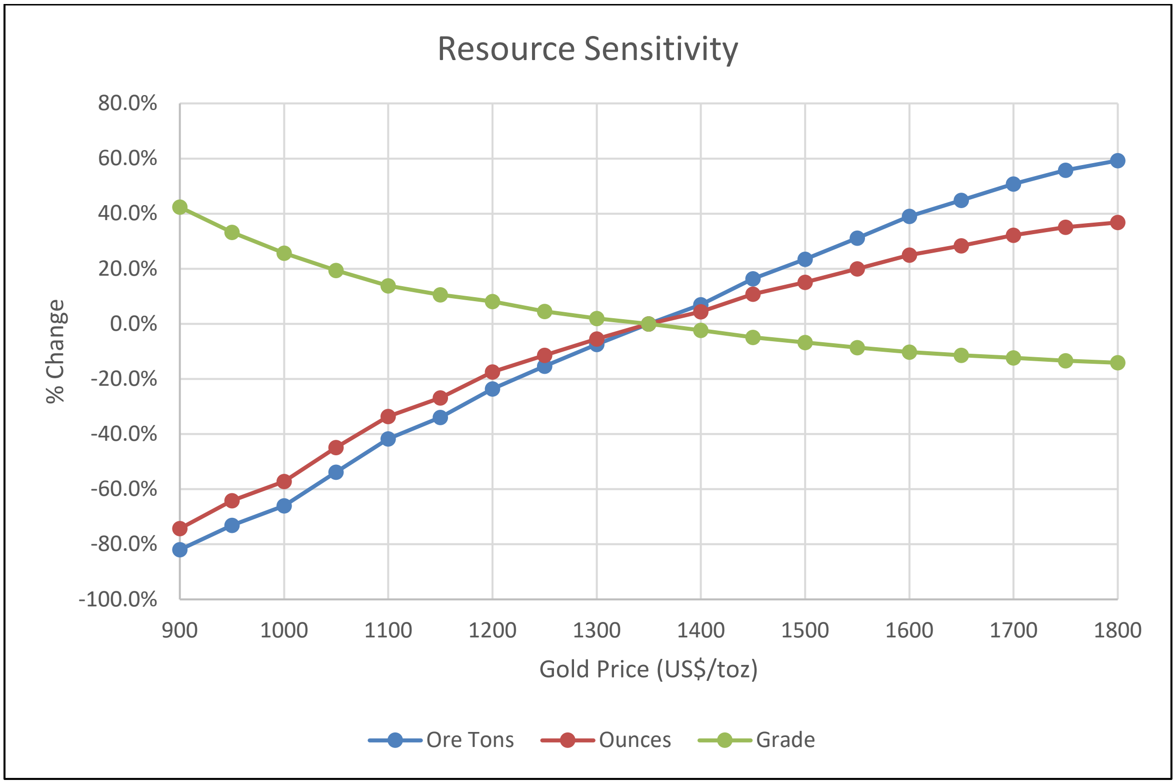
Notes:

1. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that any part of the Mineral Resources estimated will be converted into a Mineral Reserves estimate.
2. Gold recovery is based on a non-linear relationship to gold fire assay grade and is evaluated on a block by block basis in the resource model. To account for this variability, a NSR value was calculated for each block and cut-offs were then applied to the NSR.
3. The resource model was constructed in US units for quantities and grades.
4. Resources are reported using a NSR cut-off grade of US$3.99/ston for the Central area, US$4.09/ston for the Central N. and Jasperoid Hill areas, US$3.94/ston for the Main and Radio Towers areas, US$4.04/ston for the Radio Towers N. area, and US$3.99/ston for the Radio Towers2 area. The variable NSR cut-offs reflect differences in haulage cost.

5. Resources in the table above are grouped by major mining area. Central and Central N. were combined, as were all Radio Towers mining areas.
6. Resources stated as contained within a potentially economically minable open pit; pit optimization parameters are: US$1,350/oz Au, an average Au Recovery of 61% for Radio Towers area and 67% for the Central/Main area, US$2.80/oz Au Sales Cost, US$1.26/ston base waste mining cost, variable haulage costs by mining area, US$3.99/ston base ore processing cost, 45° pit slopes for in-situ rock, and a 37° pit slope for fill/dumps.
7. Numbers in the table have been rounded to reflect the accuracy of the estimate and may not sum due to rounding.

14.12 Mineral Resource Sensitivity

The sensitivity of the mineral resource with respect to the resource pit selected (US$1350) is illustrated in Figure 14-26.



Source: SRK, 2018

Figure 14-26: Resource sensitivity by gold price

15 Mineral Reserve Estimates

15.1 Introduction

SRK assisted FCMI with mine planning from 2016 through the present time. In 2017, SRK produced an updated internal LOM plan (SRK, 2017). The 2017 LOM plan was used to determine initial mine planning inputs defined in Table 15-1. SRK used standard mine planning processes to establish mineral reserves. Initial inputs were used to define economic pit limits. The assumptions used to define economic pit limits were refined during the development of this reserve estimation, as additional efforts were conducted to develop further understanding of metallurgical recovery for the operation, as well as the impact and sources of dilution.

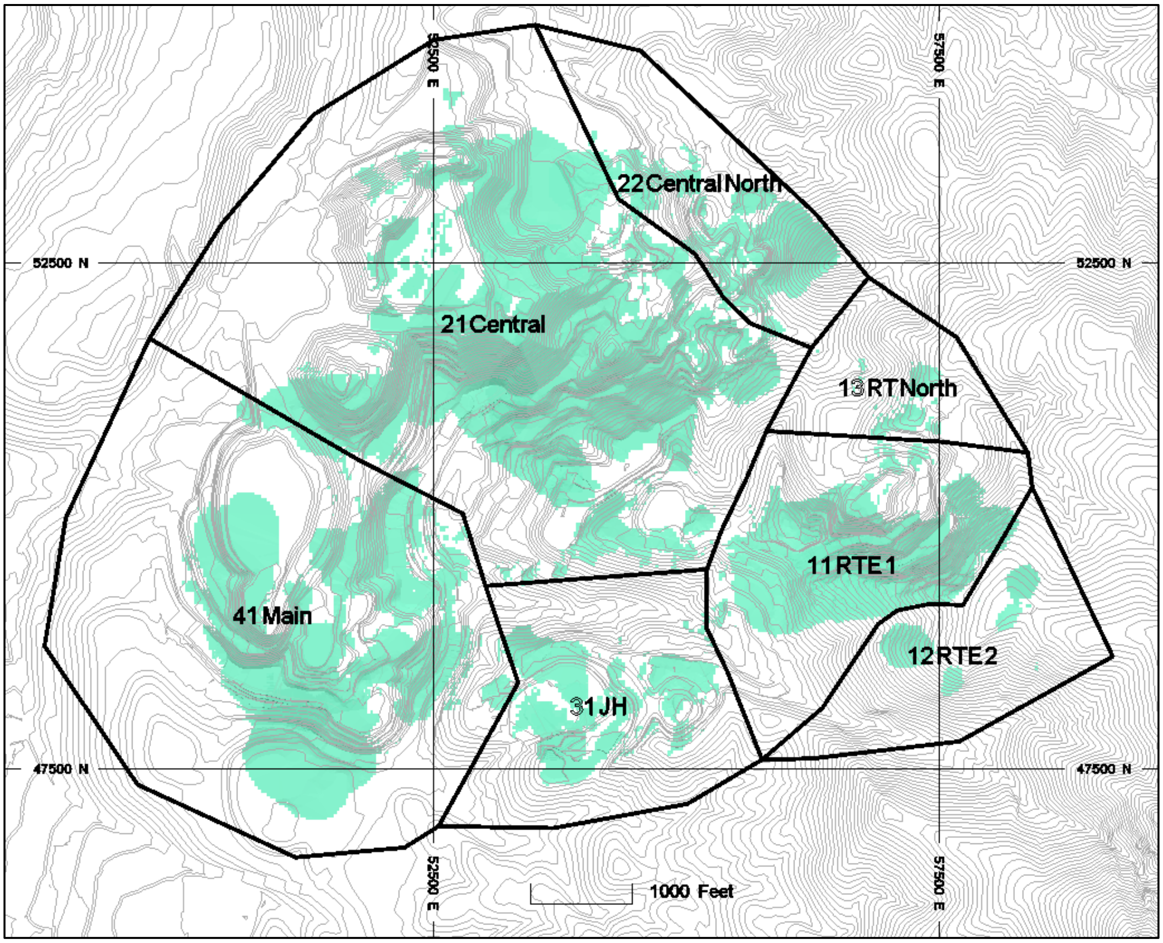
15.2 Key Assumptions, Parameters and Methods

15.2.1 Economic Limit Definition

Whittle™ pit optimization software, utilizing the industry standard Lerchs-Grossmann (LG) pit optimization algorithm, is used by SRK to perform the pit optimization and determine the economic limit. SRK worked with other consulting team members, outside consulting firms, Florida Canyon Mine team members, and Alio Gold representatives to develop key inputs for the optimization including metal price, metal recovery, pit slope parameters, as well as operating cost and capital cost data.

The deposit hosts a significant number of existing open pits in steep terrain, so mining costs vary based on available access and haulage routes. Therefore, the mine was divided into seven areas: Central, Central North, Jasperoid Hill, Main, Radio Tower North (RTN), Radio Tower (RT) and Radio Tower Two (RT2). Separate mining costs were assigned to each of these areas for mine planning purposes.

The seven mining areas are shown in Figure 15-1. Detailed optimization inputs are summarized in Table 15-1 and further discussed in the following sections.



Source: SRK, 2018

Figure 15-1: 2017 Mining areas used for pit optimization (black) with 2018 ultimate LG shell (green)

Table 15-1: Pit optimization input parameters by mining area

Description	Units	Central	Central North	Jasperoid	Main	RT North	RT	RT2
Grade Item	(opt)	Au FA	Au FA	Au FA	Au FA	Au FA	Au FA	Au FA
Classification Code	Measured & Indicated	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2
Commodity Selling Price	/ oz	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250
Commodity Selling Cost	/ oz	$2.80	$2.80	$2.80	$2.80	$2.80	$2.80	$2.80
Royalty (on NSR)	%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%	5.01%
Final Commodity Realized Price (NSR)	/ oz	$1,184.7	$1,184.7	$1,184.7	$1,184.7	$1,184.7	$1,184.7	$1,184.7
Recovery	%	Variable Based on Grade						
Mining Costs								
Ore – Base Mining Cost[1]	/ ston ore	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26
Ore – Haulage Cost	/ ston ore	$0.40	$0.40	$0.35	$0.30	$0.65	$0.55	$0.65
Total Ore Mining Cost	/ ston ore	$1.66	$1.66	$1.61	$1.56	$1.91	$1.81	$1.91
Waste – Base Mining Cost[1&2]	/ ston waste	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26	$1.26
Waste – Haulage Cost	/ ston waste	$0.40	$0.30	$0.25	$0.35	$0.60	$0.60	$0.65
Total Fill Mining Cost	/ ston waste	$1.35	$1.25	$1.20	$1.30	$1.55	$1.55	$1.60
Total Waste Mining Cost	/ ston waste	$1.66	$1.56	$1.51	$1.61	$1.86	$1.86	$1.91
Processing Costs								
Crushing Cost	/ ston ore	$0.95	$0.95	$0.95	$0.95	$0.95	$0.95	$0.95
Processing	/ ston ore	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54
G&A – Admin	/ ston ore	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50
Total Ore Processing Cost	/ ston ore	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99
Total Ore Mining and Process Cost	/ ston ore	$5.65	$5.65	$5.60	$5.55	$5.90	$5.80	$5.90
Dilution and Ore Losses (Blanket Factors)								
Dilution	%	3%	3%	3%	3%	3%	3%	3%
Ore Loss	%	2%	2%	2%	2%	2%	2%	2%

1Fill mining cost reduced by $0.31/ston

2Haul truck operator costs are included in the base mining rate.

15.2.2 Mine Design Model

The mine design model utilizes the same geologic grade model as described in Section 14.3 of the report (the SRK October 2018 resource block model). However, only measured and indicated classifications are considered as potential ore blocks. This model includes metallurgical recoveries, a flag for each mining area, AUFA in oz/ston, slope criteria, and density values.

15.2.3 Commodity Selling Price, Selling Cost, and Royalty

SRK used pricing assumptions that were confirmed by Alio Gold. A gold selling price of $1,250 per troy ounce of gold was applied to all seven areas, as well as the selling cost of $2.80 per troy ounce of gold and a royalty of 5.01%.

15.2.4 Metallurgical Recoveries

Gold recoveries used in the pit optimization runs were calculated for each block and varied with grade based on the recovery assumptions in the SRK 2018 report on mineral resource (SRK, 2018a). Additional analysis of recoveries continued in parallel with mine planning subsequent to the release of the resource report. This analysis altered the understanding of the controls on recovery and led to a new recovery projection of 71% for all material types, as described in Section 13.5 of this report. Pit optimization is based on the initial variable grade recoveries, while the detailed mine plan and production schedule utilize the refined recovery number of 71%. This recovery value is higher than the average recovery presented in the resource report.

With the new recovery values, Alio Gold requested that detailed mining planning move forward without running new pit optimizations. Therefore, the results of the current optimization study provide a smaller, lower risk, ultimate pit limit for the reserve estimate.

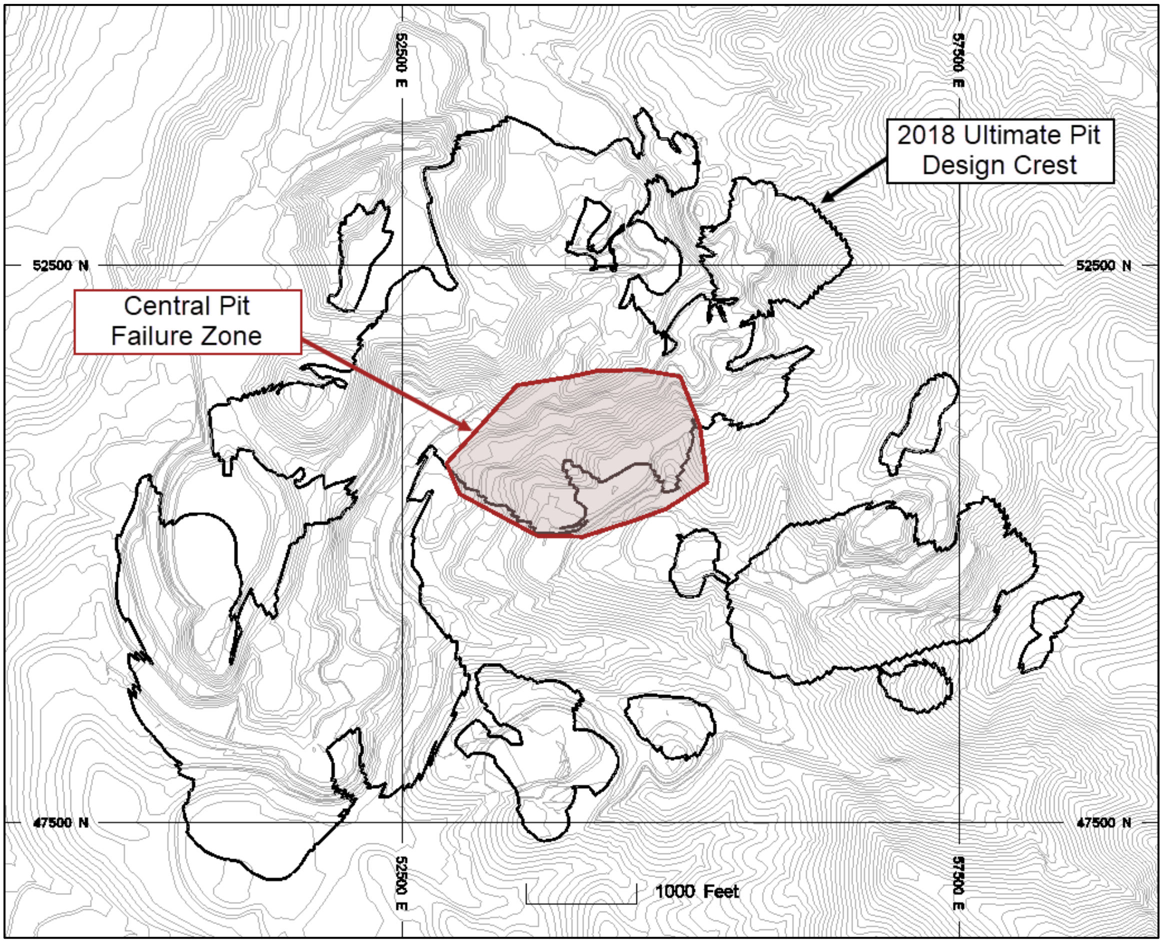
15.2.5 Geotechnical Slope Guidance and Hydrology

Geotechnical design criteria for the deposit is provided in Golder's 2016 Geotechnical Memo (Golder, 2016), which includes recommended slopes based on rock types, alteration, and orientation of the highwall. Golder recommends slopes for rock (45°), fill and alluvium (38°), and reduced 35°slopes for non-silicified rock with northwest facing highwalls at an orientation between 305° and 355°. Additionally, Golder requires a 50ft step-in at the base of fill rock.

A significant number of existing open pit excavations are available for observation and in general, provide sufficient information for geotechnical characterization of the deposit for this level of study. Most of the pits occur in areas with significant existing exposure due to mining, except for one pit in the Central North area.

The northwest facing walls in the existing Central and Radio Towers pits have experienced planar-type failures associated with the interaction of faults, regional fabric, alteration regime and lithological contact.

SRK is of the opinion that the geology and alteration model in the immediate vicinity of the planned Central high-wall is not defined to a level that would allow accurate assignment of localized variable slopes based on rock type and alteration. Additionally, SRK recommends that a geotechnical catch bench be included in the final design, since the highwall is about 1,000 ft high. In light of these considerations, SRK reduced the slope to 32.5° in that zone which is less than the 35° slope recommended by Golder. The failure zone is shown in Figure 15-2.



Source: SRK, 2018

Figure 15-2: Central failure zone

Past mining in the upper benches of the Central pit in the failure zone indicates that the failure may be attributed to a structure running parallel to the highwall. A steeper highwall may be possible by mining behind this structure if the structure is the failure mechanism.

The failure zone in the existing Radio Towers pit is similar in nature to the failure zone in the Central pit. This pit is at the extents of the geological model. Golder's 2016 report indicates that the design will likely cut into Natchez Pass Limestone which is expected to be relatively strong and support steeper slopes. The Radio Towers pit is designed using the standard 45° rock and 38° fill slopes per Golder's assumption that the limestone can support steeper slopes. Pit slopes used by SRK for the development of pit designs are included in Table 15-2.

Table 15-2: Final pit optimization slope configuration

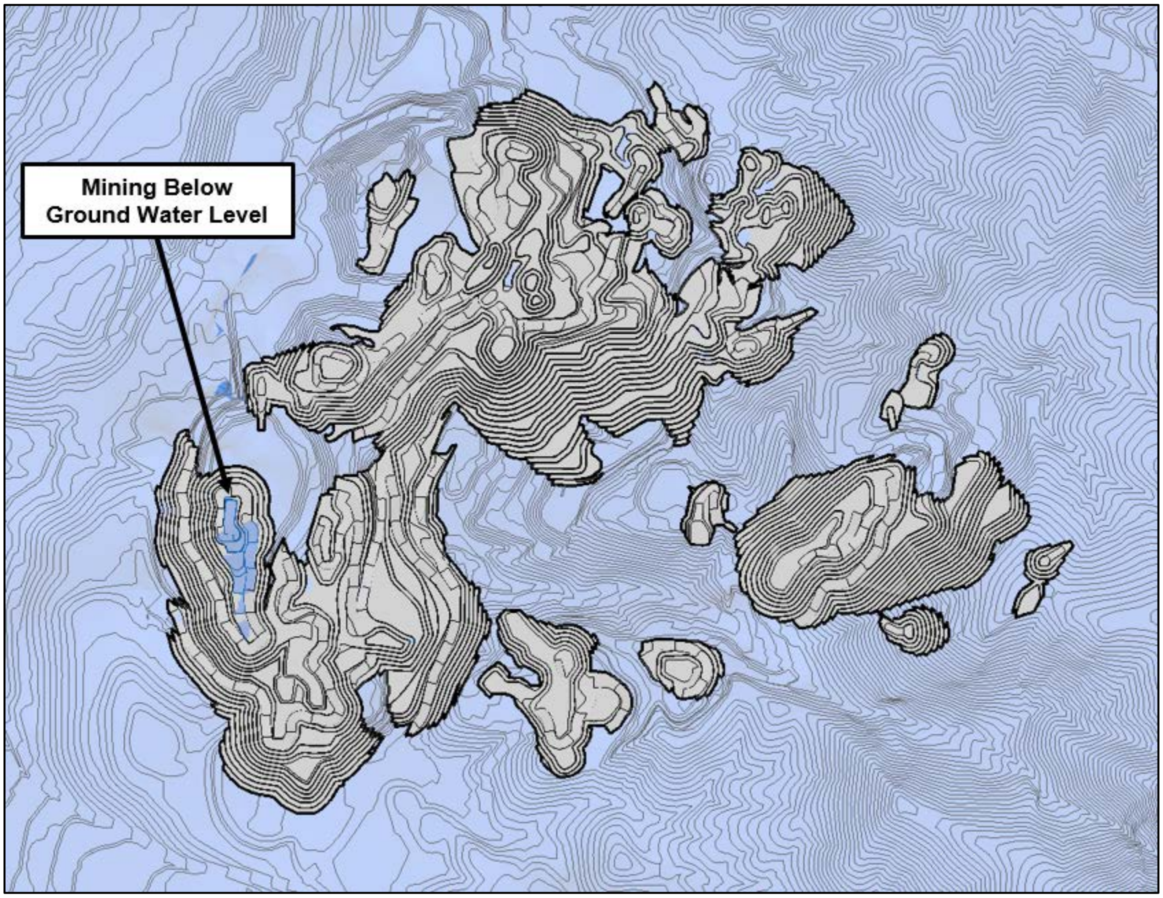
Material type	Azimuth (°)		Pit Slope (°)
	From	To	
Rock	0	360	45.0
Fill and Alluvium	0	360	38.0
Central Failure Zone	0	110	45.0
	110	125	40.0
	125	175	32.5
	175	195	40.0
	195	0	45.0

Source: Golder, 2016 & SRK, 2017

In 2018, Golder supplied an updated report, recommending an observational approach to adapt to any changes in ground conditions as they are encountered. This is considered by SRK to be a sound engineering approach; however, more aggressive slopes may be possible with more geotechnical work and unforeseen changes in ground conditions could required design changes that affect the reserve.

A detailed geotechnical analysis focused on optimizing the pit slope angles for all mining areas has not been conducted. This analysis should be performed with a focus on evaluating risk, and on optimizing slopes, ultimately resulting in a new set of specific design criteria for all mining areas. There is a significant potential to either improve project economics and/or reduce project risk by performing such a study. At a minimum, the Central and Radio Towers designs should be evaluated by a qualified geotechnical engineer prior to construction.

SRK developed an updated groundwater surface for the mine. Water is only encountered in the lower benches of the Main pit, where the modeled groundwater surface rises towards the existing pit floor. For geotechnical purposes, the highwalls are assumed to be dry. This area warrants slope stability work and will require additional permitting prior to construction. Consequently, no mining is planned below the water table until 2021. The intersection of the ground water surface with the ultimate pit design is shown in Figure 15-3.



Source: SRK, 2018

Figure 15-3: Intersection of ultimate pit design (grey) and ground water (blue)

15.2.6 Dilution and Ore Loss

FCMI continues to evaluate the reconciliation of actual mine production against the resource model. As of the writing of this report, this work is still ongoing. Therefore, a clear description of dilution and ore loss at the mine is not available. For the purposes of pit optimization, dilution and ore loss factors of 3% and 2%, respectively, were applied.

For the detailed mine plan, blanket factors of 5% dilution and 5% ore loss were applied. The increase was based on SRK's engineering judgement with input from the site technical staff.

For both the pit optimization and the detailed mine plan, dilution material was assumed to be zero grade.

15.3 Pit Optimization

Open pit optimization is used to generate data to help identify the optimum economic pit shape based on the highest project cash flow for a given scenario. The pit optimization process seeks a solution to a complex 3-D mathematical relationship involving the mineral resource model, geotechnical slope guidelines, product revenue, project constraints, modifying factors, and costs. SRK used Whittle™ software to perform the pit optimizations.

Key outputs from the open pit optimization process are the identification of the project economic drivers, ultimate pit shapes and guidance on strategic logic to reach the final pit limits.

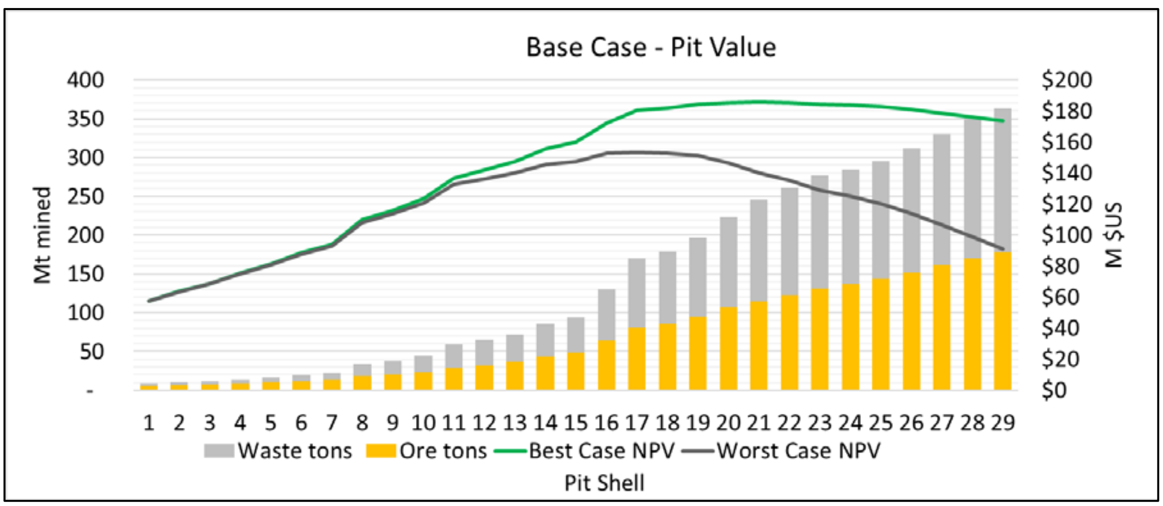
Practical mining considerations such as access and minimum mining widths are not captured in LG pit optimization. For the Florida Canyon Mine, access considerations and minimum mining widths affect the pit limits. These changes were incorporated in the next iteration of mine planning when a practical strategic plan is developed using the results of this pit optimization work as a guideline.

15.3.1 Pit Optimization Results

Incremental pit optimizations were run by keeping the preceding input parameters provided in Table 15-1 constant, except for the gold price. Twenty-nine pit shapes were generated by varying he gold price from $625 to $1,500/oz.

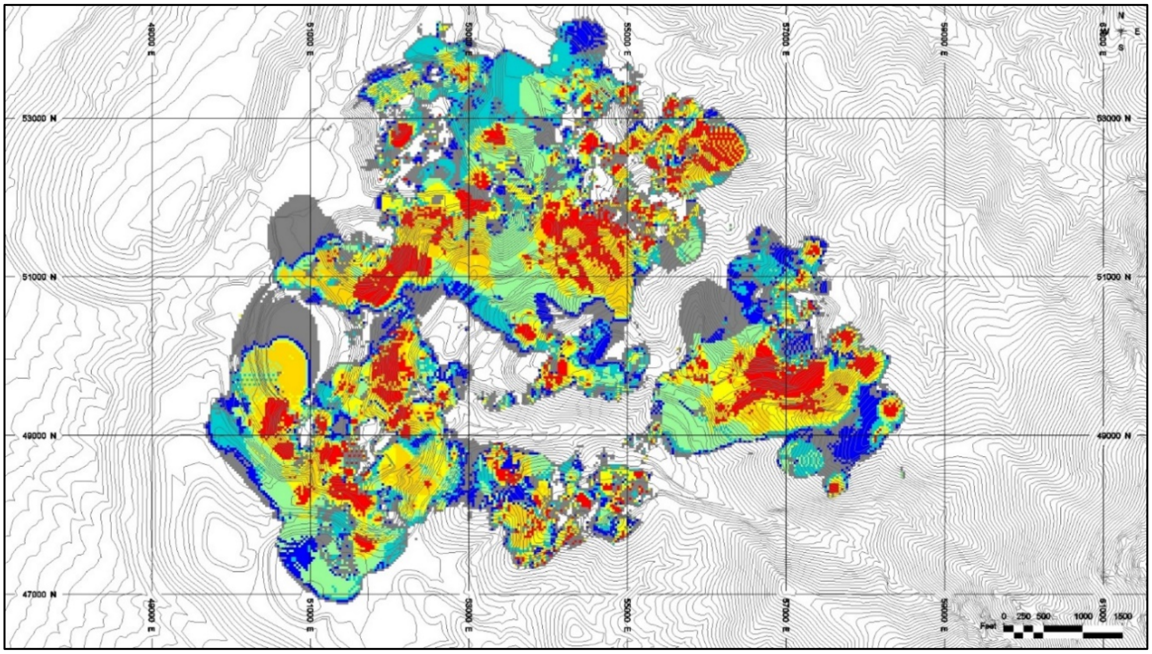
Looking at the results shown on Figure 15-4, the total cash flow generated from scenario 17 up to scenario 25 is relatively flat, however, the amount of material mined changes considerably and this has a large impact on the LOM and present value of cash flows.

The incremental pit shells are shown in Figure 15-5 to provide a visual representation of the highest value areas of the resource. Warmer colors represent economic pits at lower gold prices, which depict the high value areas of the resource.



Source: SRK, 2018

Figure 15-4: Base-case pit values



Source: SRK, 2018

Figure 15-5: Open pit price sensitivity pits $800 - $1400

Note: red = $800. Orange = $900, yellow = 1000, green = $1100, pale blue = $1200, dark blue = $1300, grey = $1400

To select the ultimate pit, SRK ran both a hypothetical best-case schedule that assumes each pit can be mined in sequence using maximum production rates and a worst-case schedule, which assumed the pit would be mined as whole benches from the top down. The cash flows generated from these schedules were then discounted at rate of 7% annually.

While these hypothetical schedules do not reflect practical schedules or consider all the Florida Canyon constraints, they show the approximate upper and lower limits of what is possible. The majority of the project's NPV is collected by the time pit 17 is mined. Continued mining has a minimal impact on project economics while mining a large quantity of material. Because of this, SRK's recommends that Pit 17 be selected as the ultimate pit.

A good proportion of the material added between pit 17 and pit 21 is from the Central Pit area. This is primarily due to the inclusion of a northern pit bottom in the Central mining area that was not included in the 2017 budget mine plan. This pit was included in the detailed mine plan as it was shown to increase the project economics.

15.3.2 Pit Optimization – Practical Phasing

The pits described in the previous section do not consider the practical limits on mining such as access, contiguous mining areas, or sequencing. To account for these factors, SRK ran independent pit optimizations for the Main, Central, Jasperoid, and Radio Towers mining areas and evaluated them for reasonable phase breaks and access requirements.

15.4 Reserve Pit Design

15.4.1 Parameters Relevant to Mine Design

Design criteria for the pits were supplied by the site staff and were also based on SRKs experience. Table 15-3 lists the major pit design criteria used for this mine plan and Table 15-4 lists the major dump design criteria. The current mining operation is mining a 20-ft bench height, which is suitable for the current mining fleet. The mine design in this report utilizes this same bench height.

Table 15-3: Pit design criteria

Criteria	Value
Inter-ramp pit slope in rock	45°
Inter-ramp pit slope in fill and alluvium	38°
Inter-ramp pit slope in Central failure zone	35°
Bench face angle	66 to 70°
Bench Height	20 ft
Benches per catch bench	2 (double benching)
Minimum catch bench width	20 ft
Target road grade	10 %
Maximum road grade	13 %
Two-way road width (including berm)	90 ft
One-way road width (including berm)	60 ft
Minimum mining width	100 ft
Targeted mining width	150 ft
Minimum pit bottom width	80 ft

Source: SRK, 2018

Table 15-4: Dump design criteria

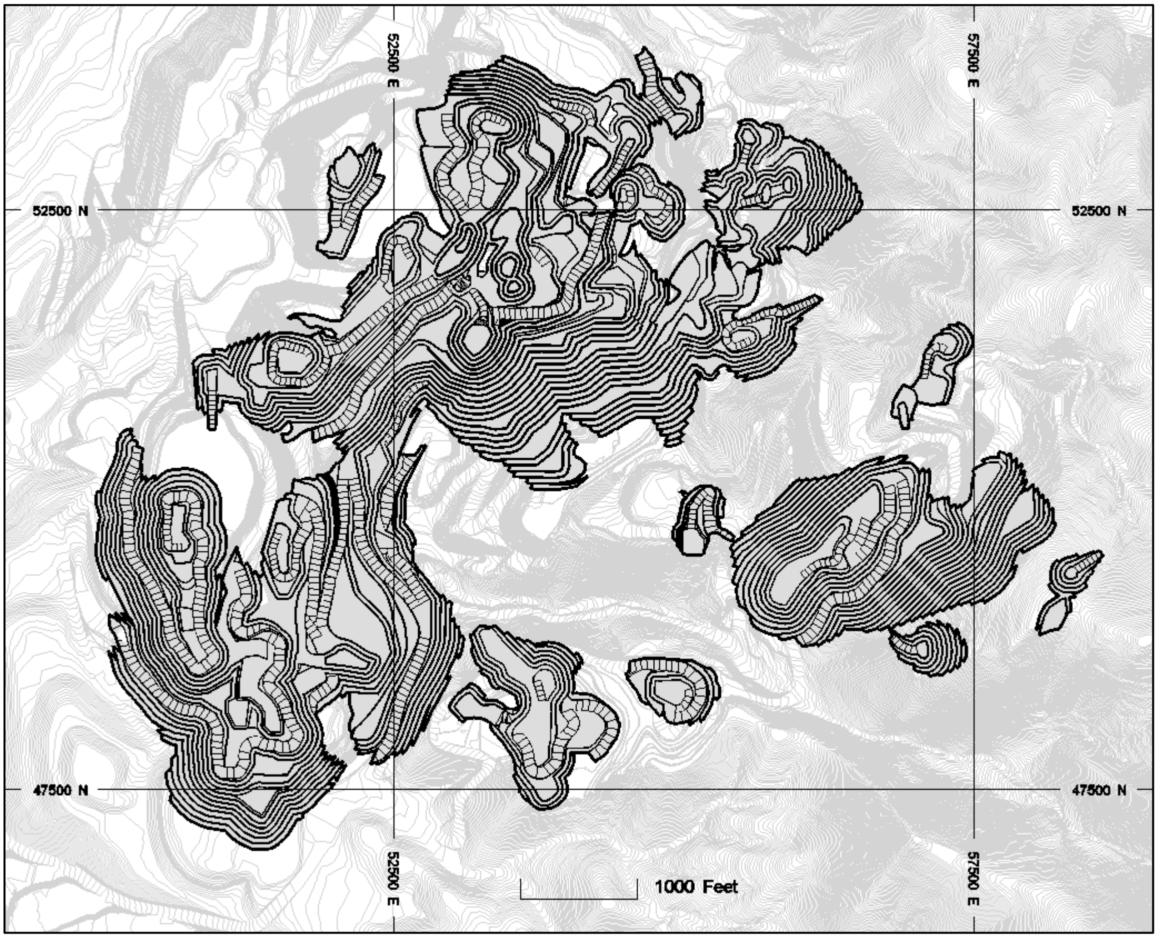
Criteria	Value
Final Reclaimed Slope	3.0:1
Bench Face Angle	1.5:1
Lift Height	40 to 50 ft
Road Grade	10 %
Road Width (including berm)	100 ft

Source: SRK, 2018

SRK recommends reviewing the 3.0:1 dump reclaim slopes both geotechnically and within the site permitting documents to determine if this can be steepened. Many Nevada sites reclaim their dump slopes to 2.5:1.

15.4.2 Ultimate Pit Design

Several designs for initial phases were provided by Alio Gold and adopted by SRK. SRK then completed the remaining pit design work, targeting pit shell 17 from the pit optimization analysis for all mining areas except Central, where pit shell 20 was used as the basis of design. The Florida Canyon ultimate pit design is provided in Figure 15-6. Compared to the optimized pit shells, the ultimate pit design has a 20% more waste and 0.3% less ore. The larger discrepancy in waste tonnage is attributed primarily to access adjustments to the Main and Jasperoid mining areas in the final design pit.

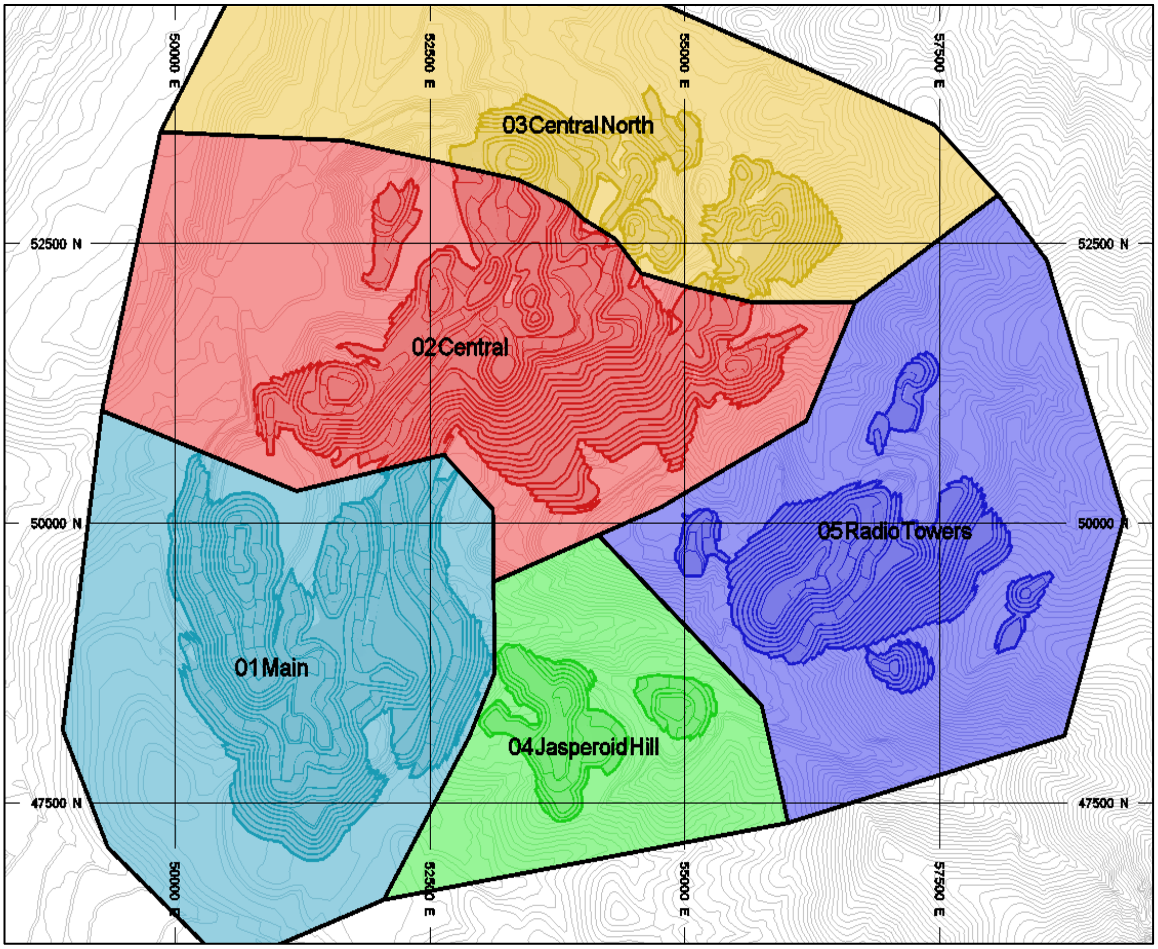


Source: Alio Gold, 2018 and SRK, 2018

Figure 15-6: Florida Canyon ultimate pit design

15.4.3 Revised 2018 Mining Areas

The updated ultimate pit limit incorporates several access changes from previous work. With these changes, it was necessary to redefine the mining areas used for economic reporting. These updated 2018 mining areas are shown in Figure 15-7 and differ from the mining area limits shown previously in this report.



Source: SRK, 2018

Figure 15-7: 2018 Mining areas

15.5 Mineral Reserve Estimates

15.5.1 Cut-Off Grade

The cut-off grade for Florida Canyon determines what material is processed as ore versus what is disposed of as waste. The grade in this instance is the AUFA of the material and the cut-off AUFA is the value at which the revenue of the ore is more than the sum of costs for processing, general and administration (G&A), and associated sustaining capital costs, less the differential mining cost between ore and waste. The cut-off grade used for each mining area is provided in Table 15-5.

Table 15-5: Florida Canyon Reserve cut-offs by mining area

Mining Area	Cut-off Used *(Au oz/ston)*
Central	0.005
Central North	0.005
Jasperoid	0.005
Main	0.005
Radio Towers	0.006

Source: SRK, 2018

15.5.2 Mineral Reserve Estimates

The mineral reserve estimate for Florida Canyon, provided in Table 15-6, is based on the resource model documented in Section 14. The mineral resources are inclusive of mineral reserves. The reserves are calculated using a combination of the ultimate pit design (Section 15.4.2), cut-off grade (Section 15.5.1), and production schedule (Section 16.6). Reserves by mining area are provided in Table 15-7.

Table 15-6: Mineral Reserves statement for the Florida Canyon Mine, Pershing County, Nevada, effective date November 1, 2018

Category	Quantity (st 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Proven	80,739	0.011	876
Probable	13,896	0.010	137
Proven and Probable	**94,634**	**0.011**	**1,013**

Source: SRK, 2018

Notes:

1. The Qualified Person for the estimate is Mr. Justin Smith, P.E., SME-RM.
2. The Mineral Reserves and Resources in this report were estimated using the CIM Definition Standards (2014).
3. Reserves are reported within a designed pit using a cut-off of 0.006 oz/ston for the radio towers mining area and 0.005 oz/ston for all other areas.
4. The Mineral Reserves are based on a pit design which in turn aligns with an ultimate pit shell selected from a Lerchs-Grossmann pit optimization exercise. Key inputs for the reserve cut-off calculation are:
   A metal price of $1,250/oz Au;
   Ore mining costs by area ranging from $1.42 to $2.67/ston;
   Waste mining costs by area ranging from $1.24 to $1.83/ston;
   Crushing and processing costs of $2.85/ston ore;
   General and administration costs of $1.02/ston milled;
   Pit slope angles varying from 32.5 to 45°; and
   Process recoveries of 70%.
5. Mining dilution is assumed to be 5% at zero grade;
6. Ore loss is assumed to be 5%;
7. The ultimate pit design includes 97.9 Mston of waste, resulting in a stripping ratio of 1.0 tons waste to 1.0 ston of ore.

8 All figures are rounded to reflect the relative accuracy of the estimate. Totals may not sum due to rounding.

Table 15-7: Florida Canyon Mine Reserves by mining Area, Pershing County, Nevada, effective date November 1, 2018

Mining Area	Cut-off (oz/ston)	Category	Quantity (ston 000s)	Au Grade (oz/ston)	Au Metal (oz 000s)
Main	0.005	Proven	22,593	0.010	217
		Probable	5,437	0.009	49
		Proven and Probable	**28,029**	**0.010**	**267**
Central	0.005	Proven	31,188	0.011	331
		Probable	2,872	0.010	27
		Proven and Probable	**34,060**	**0.011**	**358**
Central North	0.005	Proven	6,311	0.011	68
		Probable	2,225	0.011	24
		Proven and Probable	**8,536**	**0.011**	**92**
Jasperoid Hill	0.005	Proven	2,205	0.011	25
		Probable	915	0.009	8
		Proven and Probable	**3,120**	**0.011**	**34**
Radio Towers	0.006	Proven	18,443	0.013	235
		Probable	2,446	0.011	28
		Proven and Probable	**20,889**	**0.013**	**263**

Source: SRK, 2018

Notes:

1. Mineral Reserves have an effective date of November 1, 2018. The Qualified Person for the estimate is Mr. Justin Smith, P.E., SME-RM.
2. The Mineral Reserves and Resources in this report were estimated using the using the CIM Definition Standards (2014).
3. Reserves are reported within a designed pit using a cut-off of 0.006 oz/ston for the radio towers mining area and 0.005 oz/ston for all other areas.
4. The Mineral Reserves are based on a pit design which in turn aligns with an ultimate pit shell selected from a Lerchs-Grossmann pit optimization exercise. Key inputs for the reserve cut-off calculation are:
    - A metal price of $1,250/oz Au;
    - Ore mining costs by area ranging from $1.42 to $2.67/ston;
    - Waste mining costs by area ranging from $1.24/to $1.83/ston;
    - Crushing and processing costs of $2.85/ston ore;
    - General and administration costs of $1.02/ston milled;
    - Pit slope angles varying from 32.5 to 45°; and
    - Process recoveries of 70%.
5. Mining dilution is assumed to be 5% at zero grade;
6. Ore loss is assumed to be 5%;
7. The ultimate pit design includes 97.9 Mston of waste, resulting in a stripping ratio of 1.0 ston waste to 1.0 ston of ore.
8. All figures are rounded to reflect the relative accuracy of the estimate. Totals may not sum due to rounding.

15.6 Factors Affecting Mineral Reserves

SRK is not aware of any existing environmental, permitting, legal, socio-economic, marketing, political, or other factors are likely to materially affect the mineral reserve estimate.

In addition to the mine and processing facility development, all infrastructure required to support the stated Mineral Reserve have been accounted for in this PFS.

Mineral reserves have been economically tested to ensure that they are economically viable. The project remains economic across a range of key input parameters.

The pit design for establishing mineral reserves also encompassed Inferred Mineral Resources. Inferred Mineral Resources are too speculative to be the basis of mineral reserves. While there is the opportunity that future exploration may result in upgrading some of Inferred Mineral Resources to Indicated or Measured, there is no guarantee that this may occur.

16 Mining Method

16.1 Open Pit Mining

Florida Canyon operates as an open pit and has done so for over twenty years. The nature of the orebody is a large, low grade, near-surface orebody, so the Florida Canyon project is developed as an open pit mining operation in this report. Waste and ore are drilled and blasted, loaded by front end wheel loaders, and transported by haul trucks to external waste rock storage facilities (WRSF), stockpiles, or a primary crusher for mineral processing.

During a strategic mine planning study prior to the PFS, Alio Gold established that an optimal processing throughput rate was 800,000 tons per month (tpm) and is possible after implementing several adjustments to the crushing circuit as described in Section 13. This became the basis of mine planning in the PFS.

Crushed ore is loaded into haul trucks and stacked on the heap leach pad facility where it is irrigated with a dilute cyanide solution and recovered with carbon columns.

16.2 Equipment Selection

The current mining operation utilizes 24-yd^3 front-end loaders to load 150-ton haul trucks. Rock is drilled by diesel powered rotary blast hole drills. Replacement equipment is included in sustaining capital to replace aging equipment. Replacement equipment is leased as the equipment reaches its assumed age threshold through the remainder of the mine life. Replacement equipment is assumed to be the same size as the present fleet. The mine will keep some of the older equipment to maintain or supplement production if necessary.

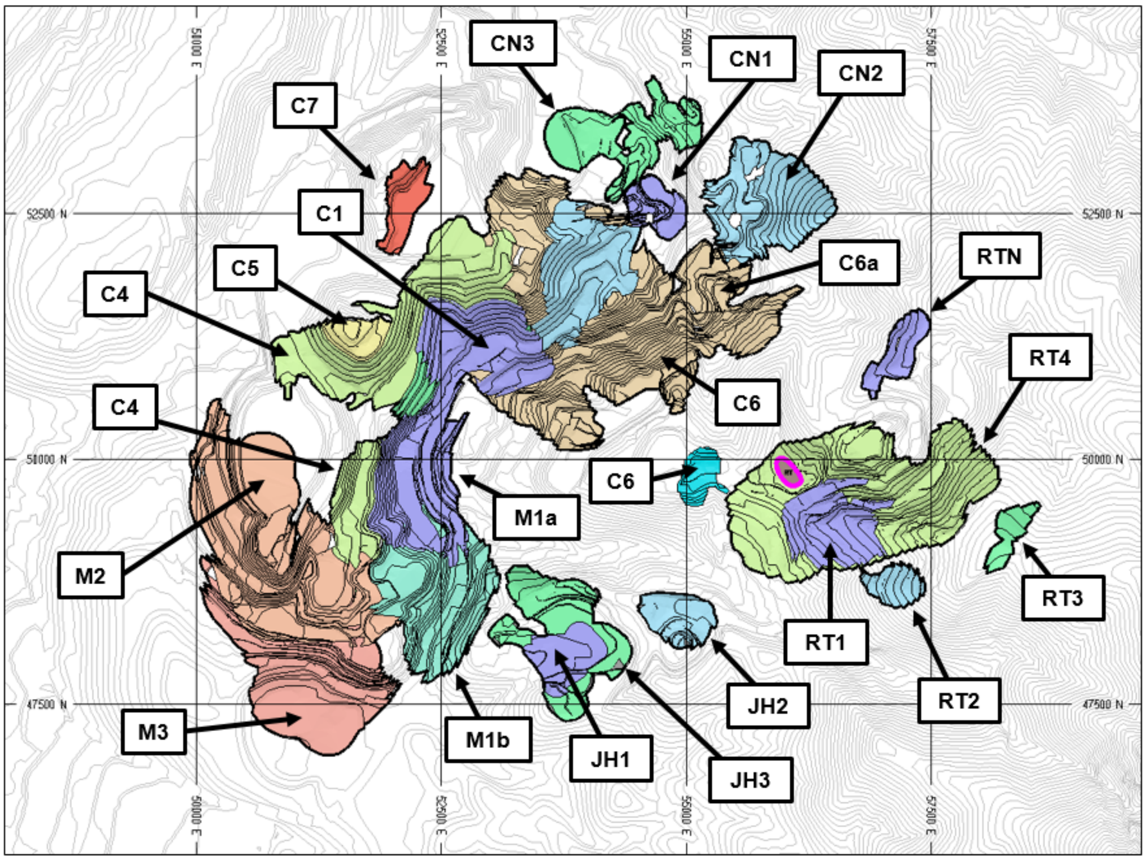
16.3 Access Development

For each of the pit phases shown in Figure 16-1 a detailed haulage network of road centerlines and destinations are used to select the haulage route from each bench of each phase to all destinations. Access development will be required and is assumed to be conducted using the Florida Canyon Mine fleet and support equipment. Most access development not included in the current designs will likely be handled by the current equipment fleet and therefore the cost of that is already included in the economic model. To account for additional work that may occur, and some major access development that is expected to reach the top of the Radio Towers and Central North mining areas, the base mining cost is increased by 0.05%, about $750,000 in cost over the mine life. There is potential to develop some of the access with waste rock, potentially reducing the mining cost and improving the project economics.

16.4 Pit Phase Designs

Initial pit designs were developed by Alio Gold and provided to SRK for use in the PFS. These designs did not encompass the entire mining area and SRK completed the rest of the designs. All mining areas were designed to match the pit 17 limit from pit optimization, except for the Central area, which was designed to the pit 20 limit from pit optimization. As most mining areas have significant existing open pits with steep topography, access for the designs is complicated. To ensure that a practical mining sequence is maintained with access to each bench, multiple pit phases are designed. The individual pit phase designs are shown in Figure 16-1. A list of designs provided by Alio Gold and adopted by SRK is given in Table 16-1. Some minor edits were made to these designs to tie them into the ultimate pit limits. The individual pit designs are shown in Figure 16-2 through Figure 16-31.

In addition to the economic and access controls on pit phasing, there are existing communication towers that will need to be moved prior to mining. This area is identified in Figure 16-1 with a magenta shape. Phasing of the radio towers mining area avoided this area in initial pits to allow time to relocate the towers.



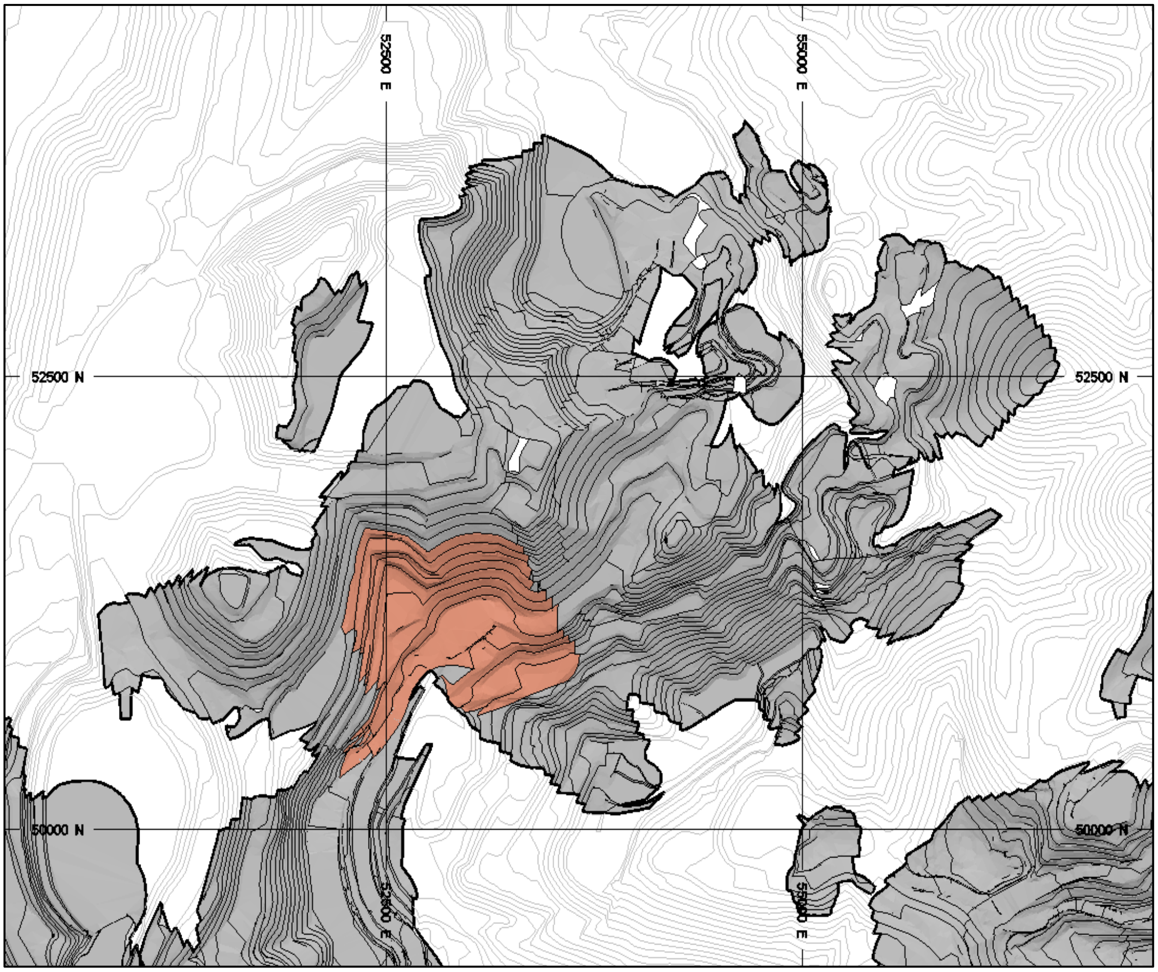
Source: SRK, 2018

Figure 16-1: Pit phases designs

Table 16-1: Phase pit responsibility

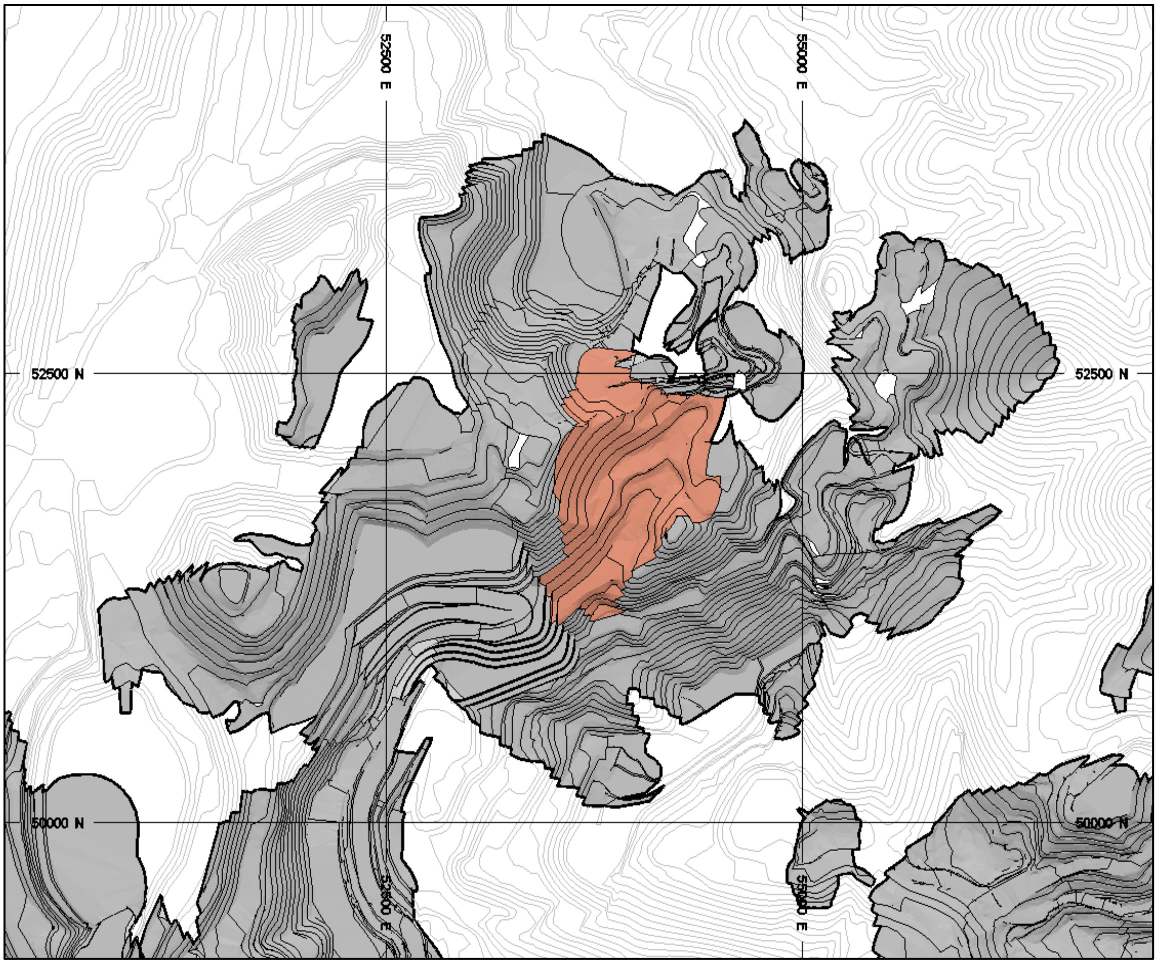
Pit Phases	Designer
C 1	Alio Gold
C 2	Alio Gold
C 3	Alio Gold
C 4	Alio Gold
C 5	SRK
CN 1	Alio Gold
CN 2	SRK
CN 3	SRK
C 6	SRK
C 7	Alio Gold
CN Ext	SRK
JH 1	Alio Gold
JH 2	Alio Gold
JH 3	SRK
M 1a	Alio Gold
M 1b	Alio Gold
M 1c	Alio Gold
M 2	Alio Gold
M 3	Alio Gold
RT 1	Alio Gold
RT 2	SRK
RT 3	SRK
RTN	SRK
RT 4	SRK
CT	SRK

Source: SRK, 2018



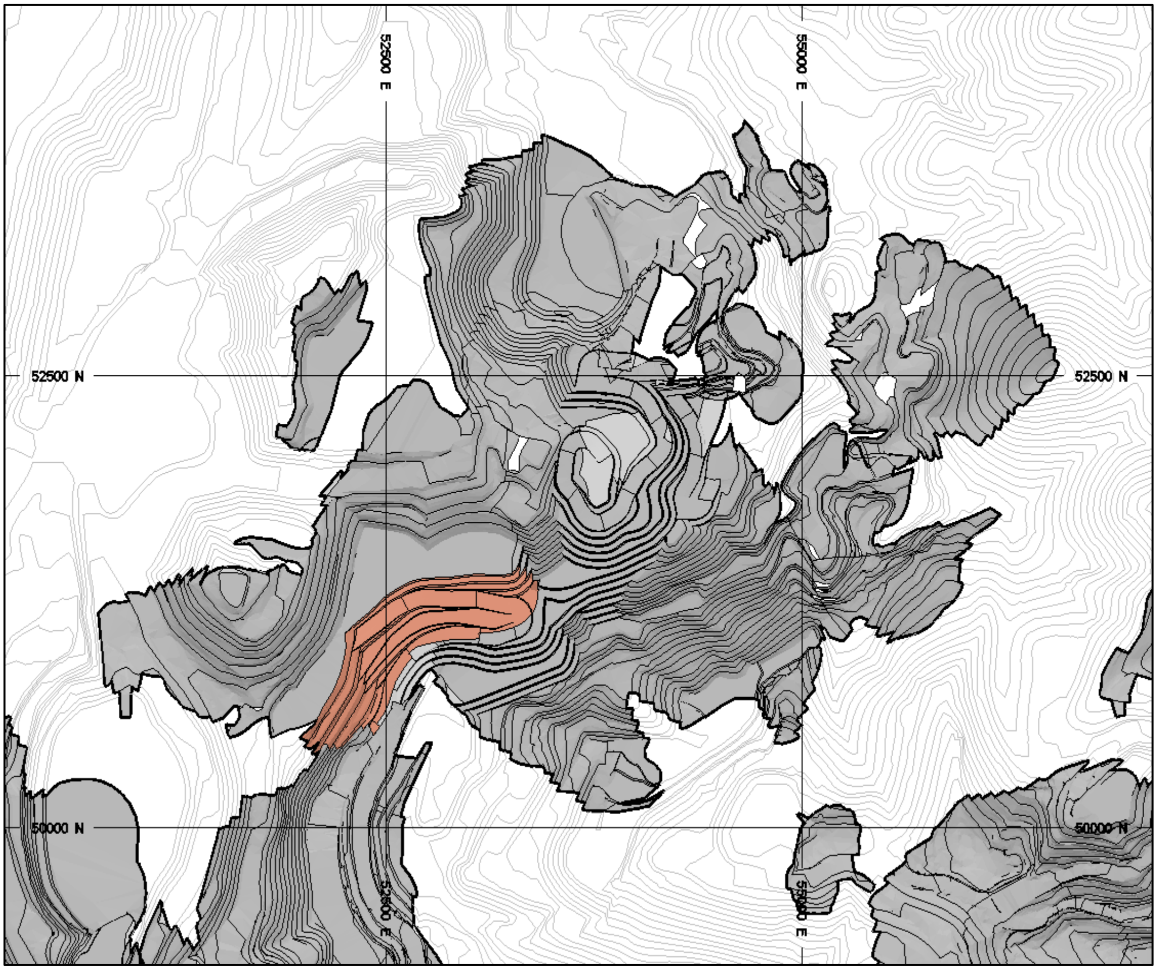
Source: SRK. 2018

Figure 16-2: Pit phase – Central 1 (C 1)



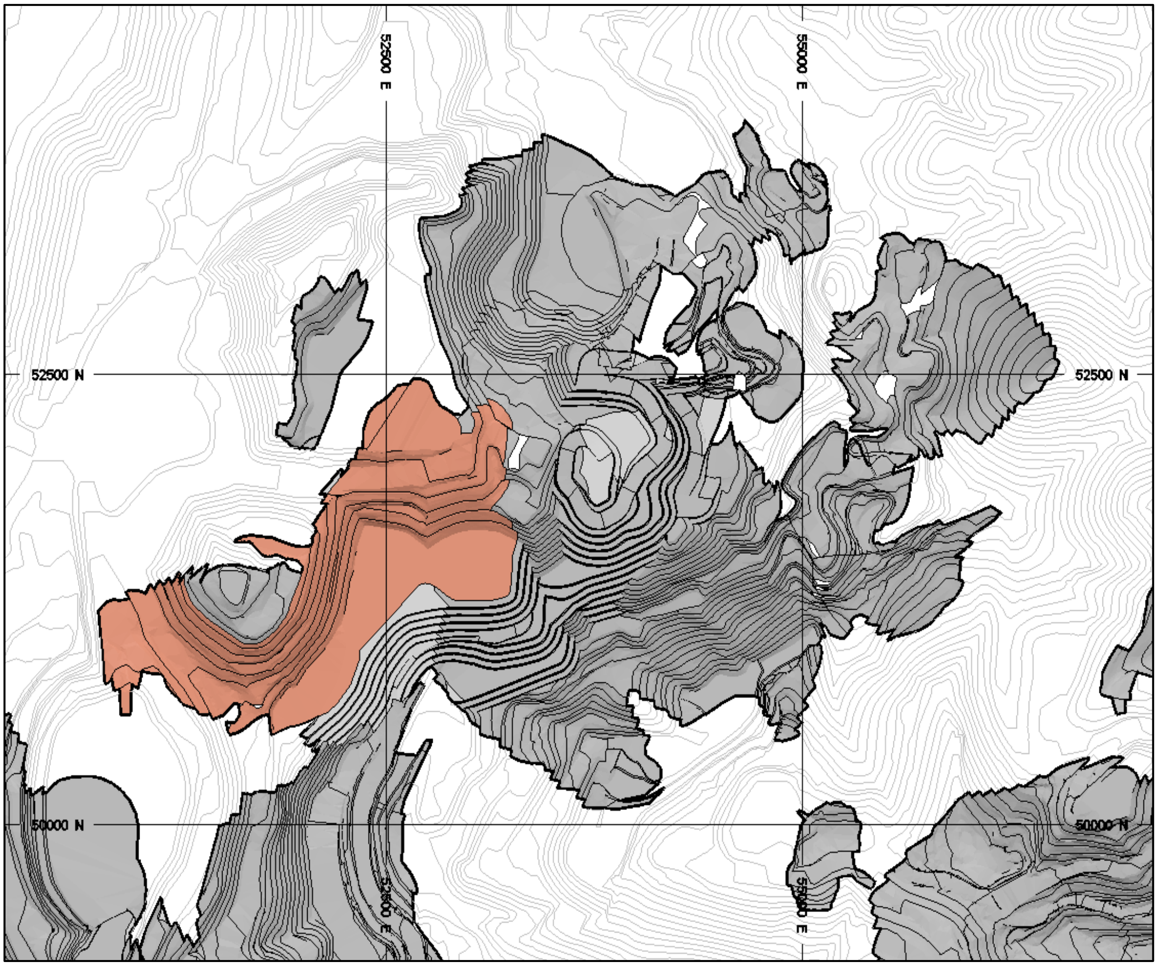
Source: SRK. 2018

Figure 16-3: Pit phase – Central 2 (C 2)



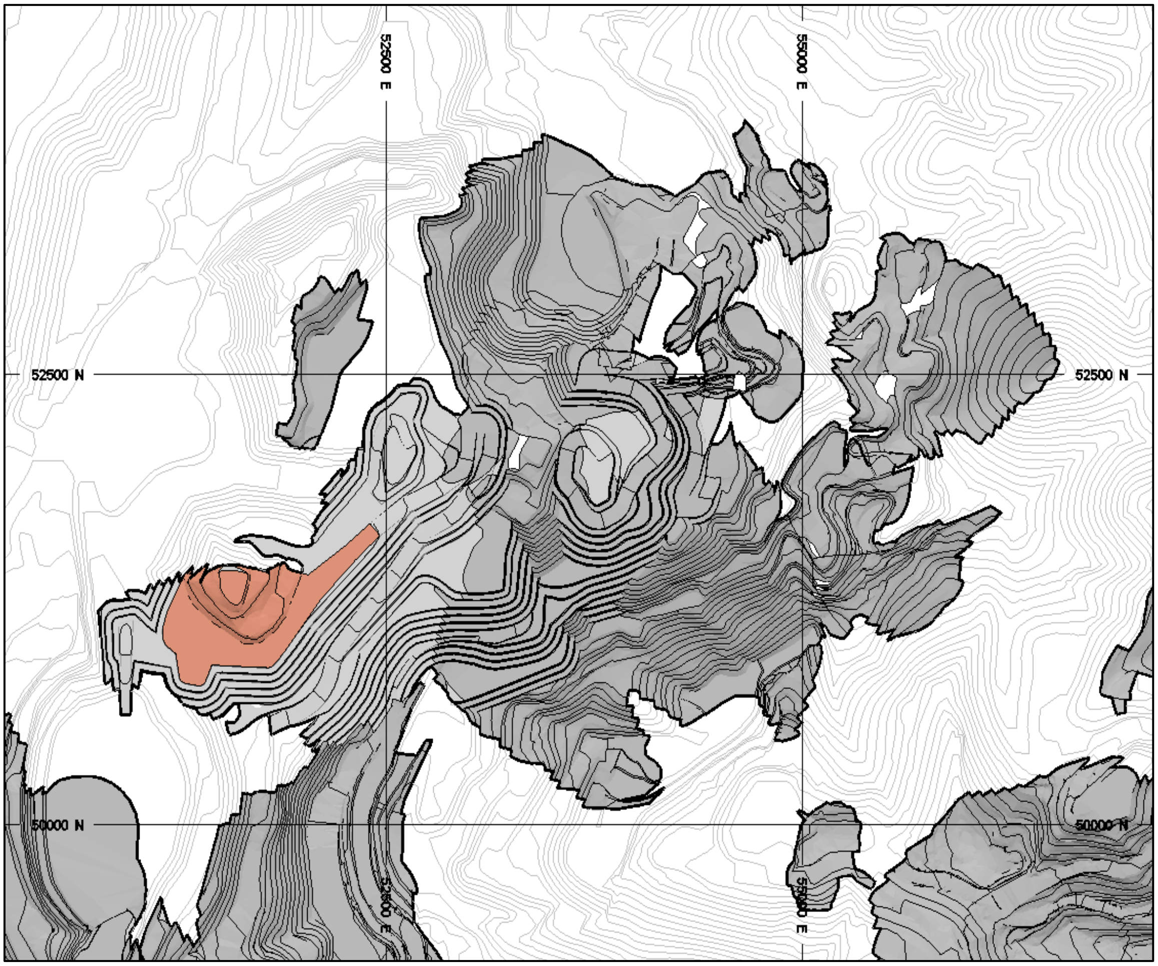
Source: SRK. 2018

Figure 16-4: Pit phase – Central 3 (C 3)



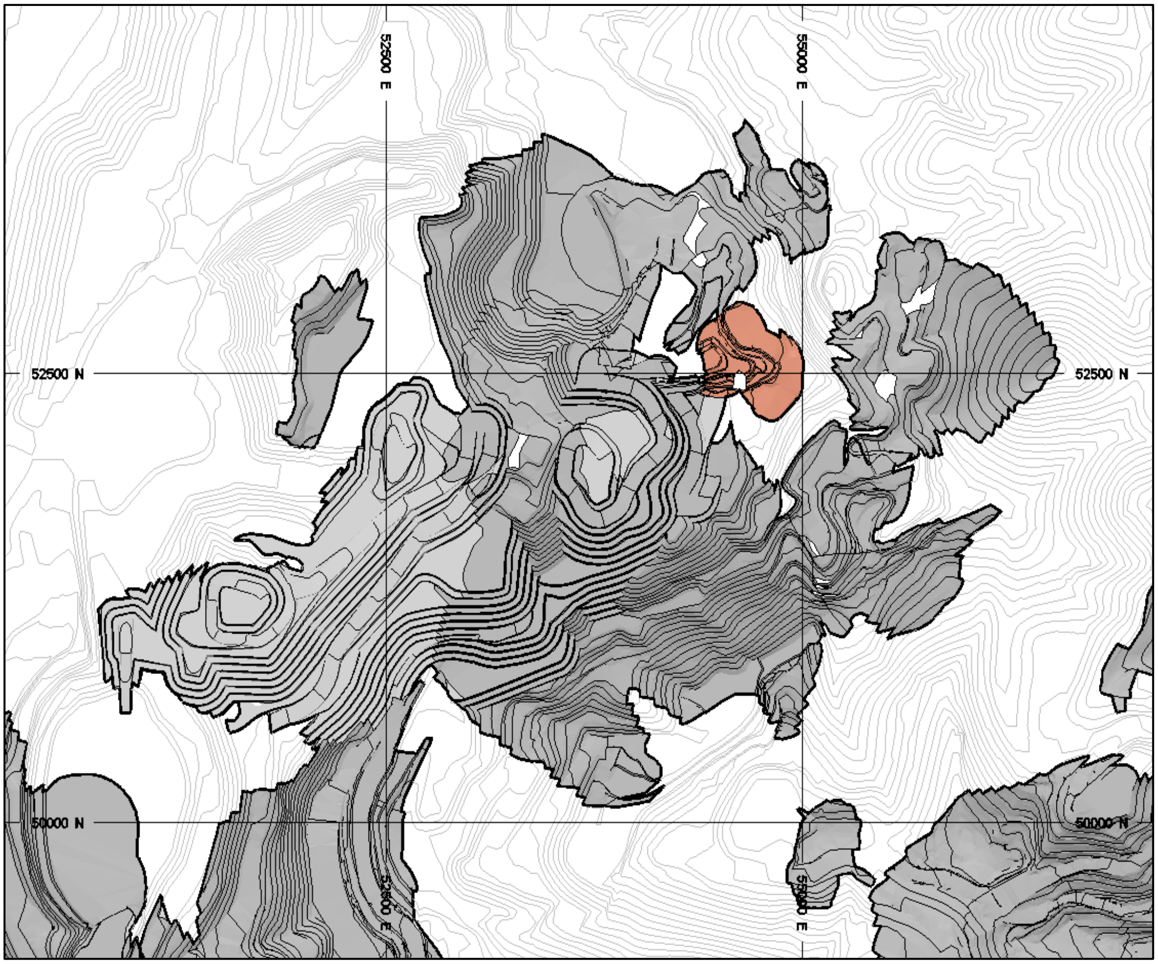
Source: SRK. 2018

Figure 16-5: Pit phase – Central 4 (C 4)



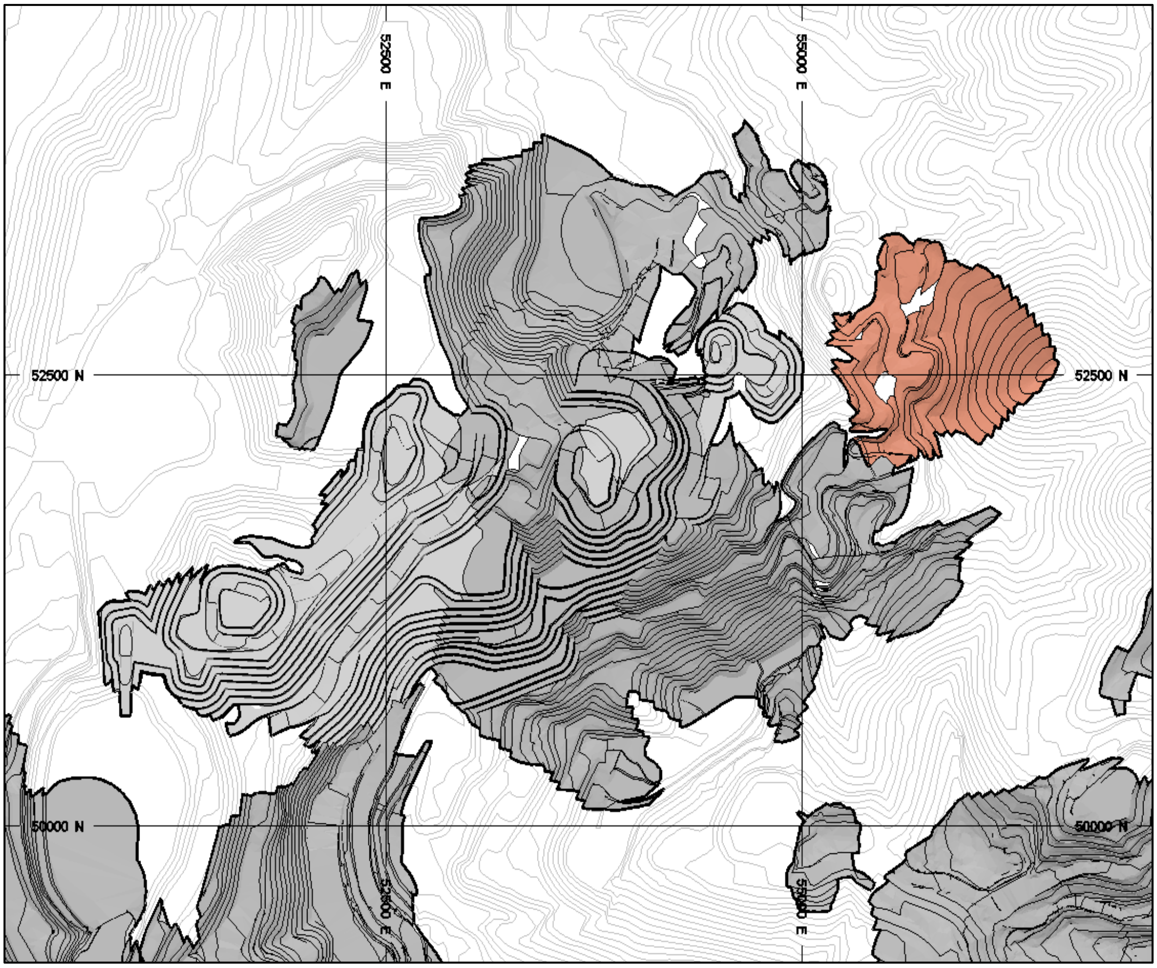
Source: SRK. 2018

Figure 16-6: Pit phase – Central 5 (C 5)



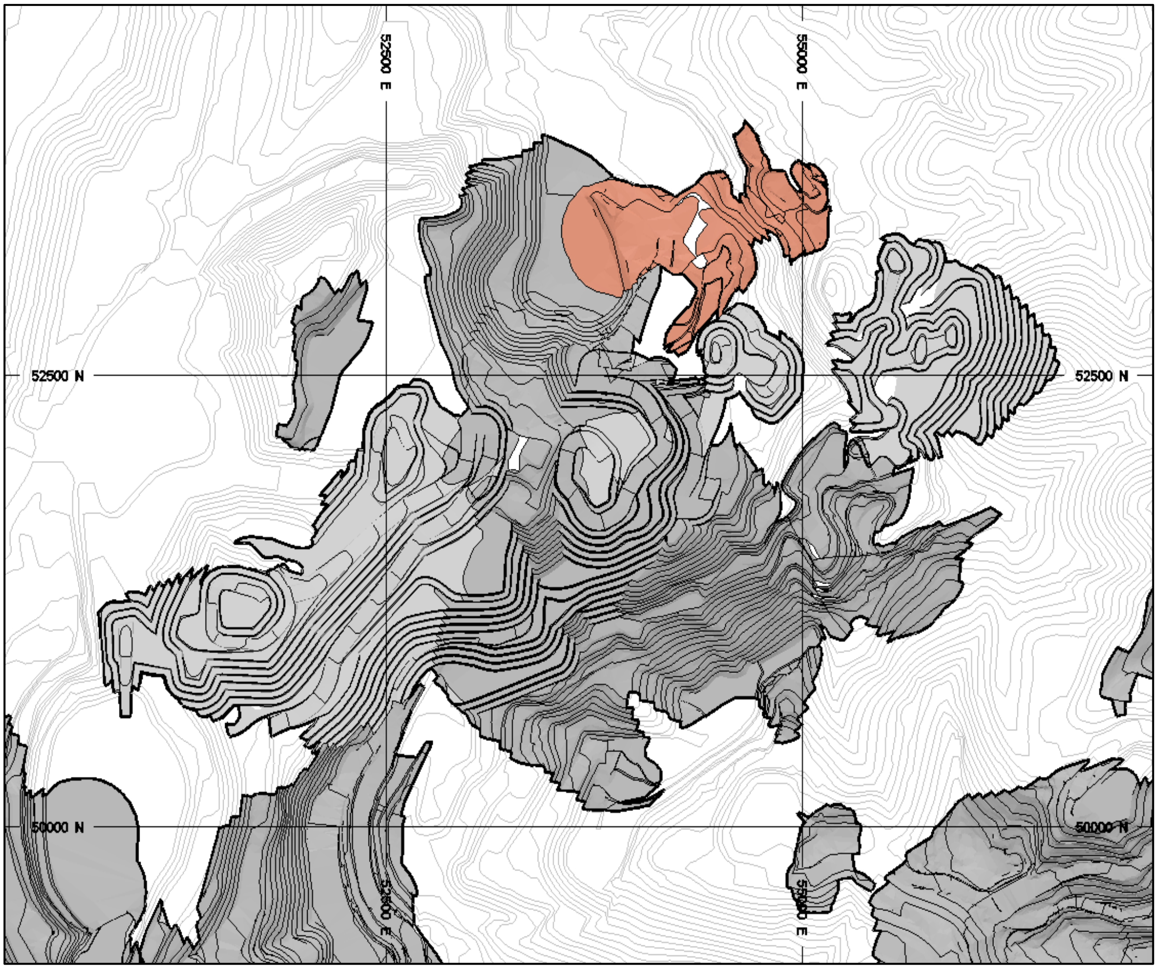
Source: SRK. 2018

Figure 16-7: Pit phase – Central North 1 (CN 1)



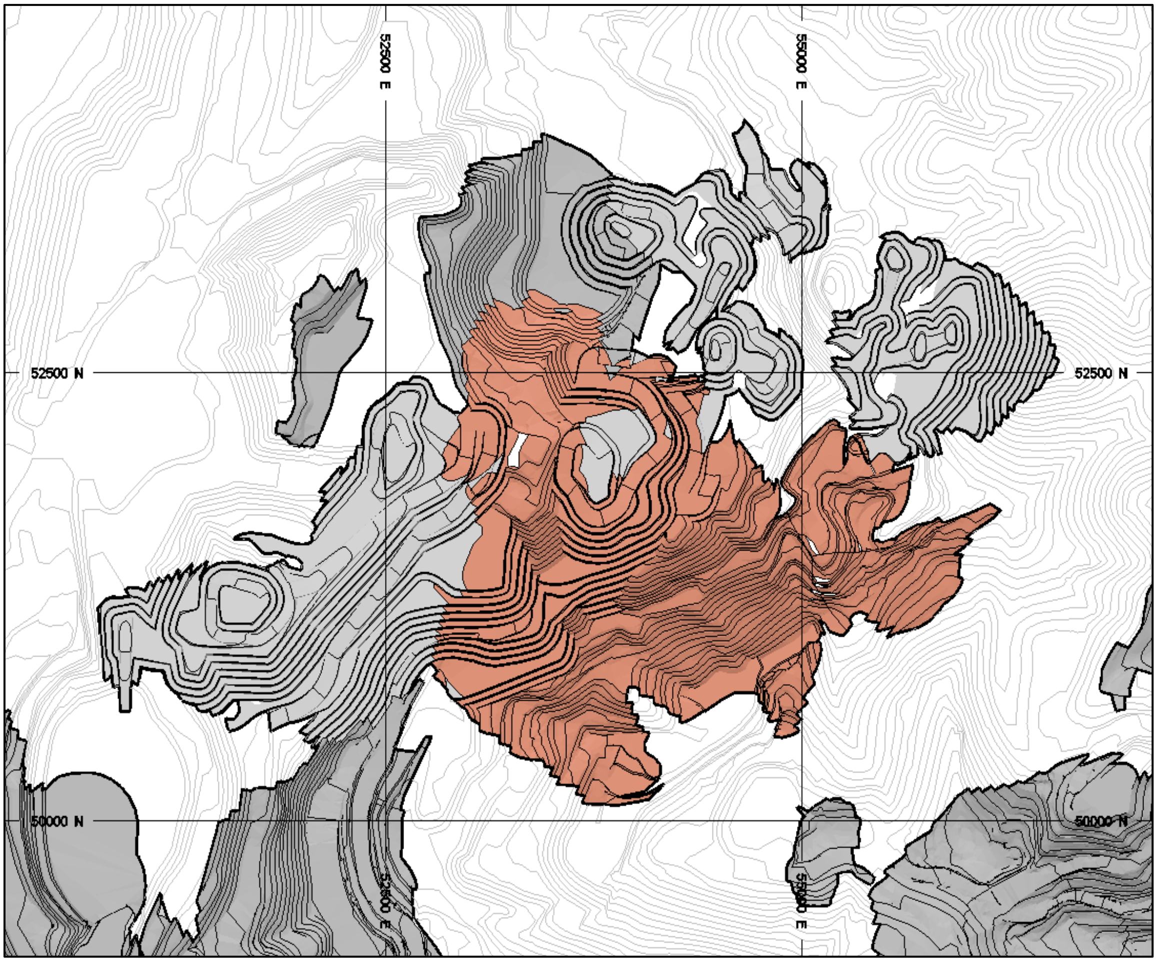
Source: SRK. 2018

Figure 16-8: Pit phase – Central North 2 (CN 2)



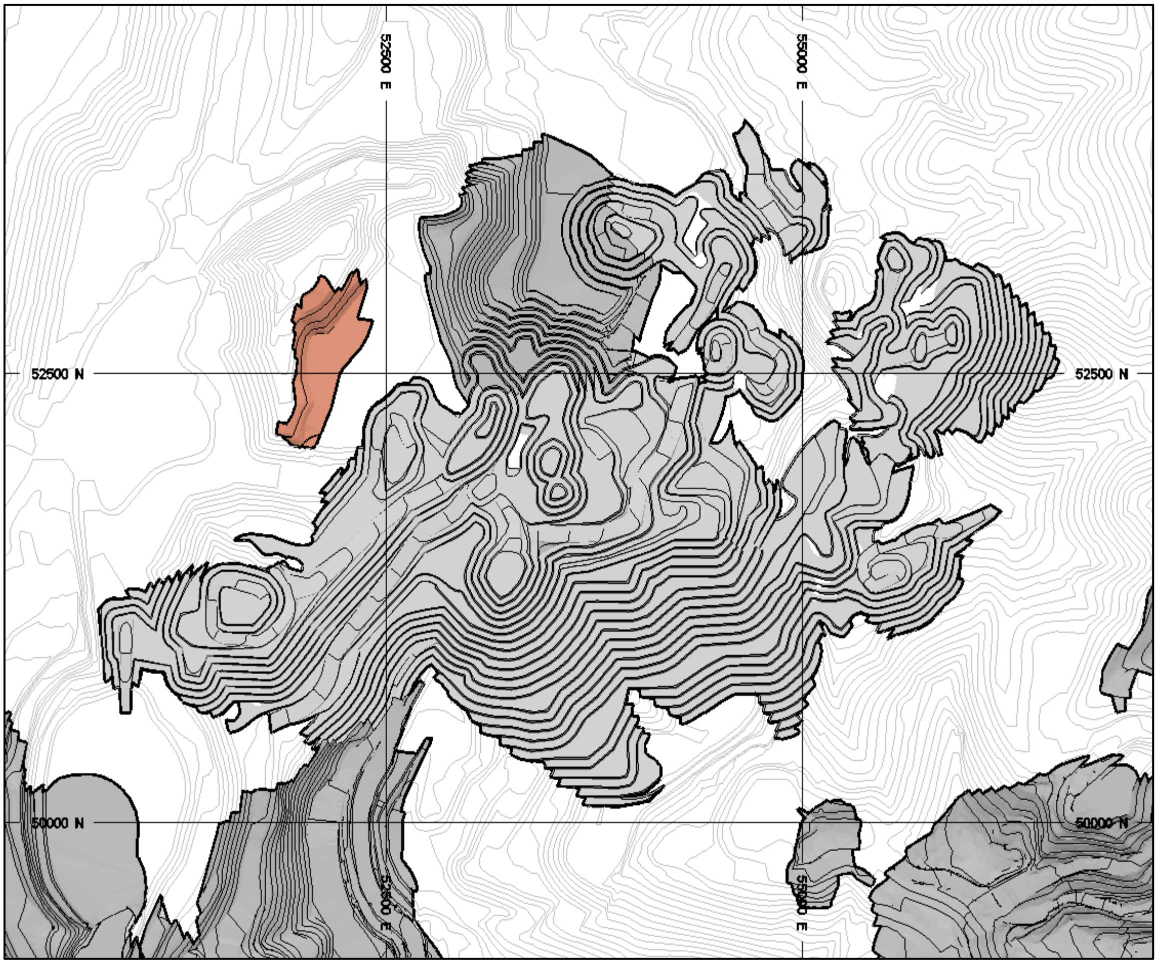
Source: SRK. 2018

Figure 16-9: Pit phase – Central North 3 (CN 3)



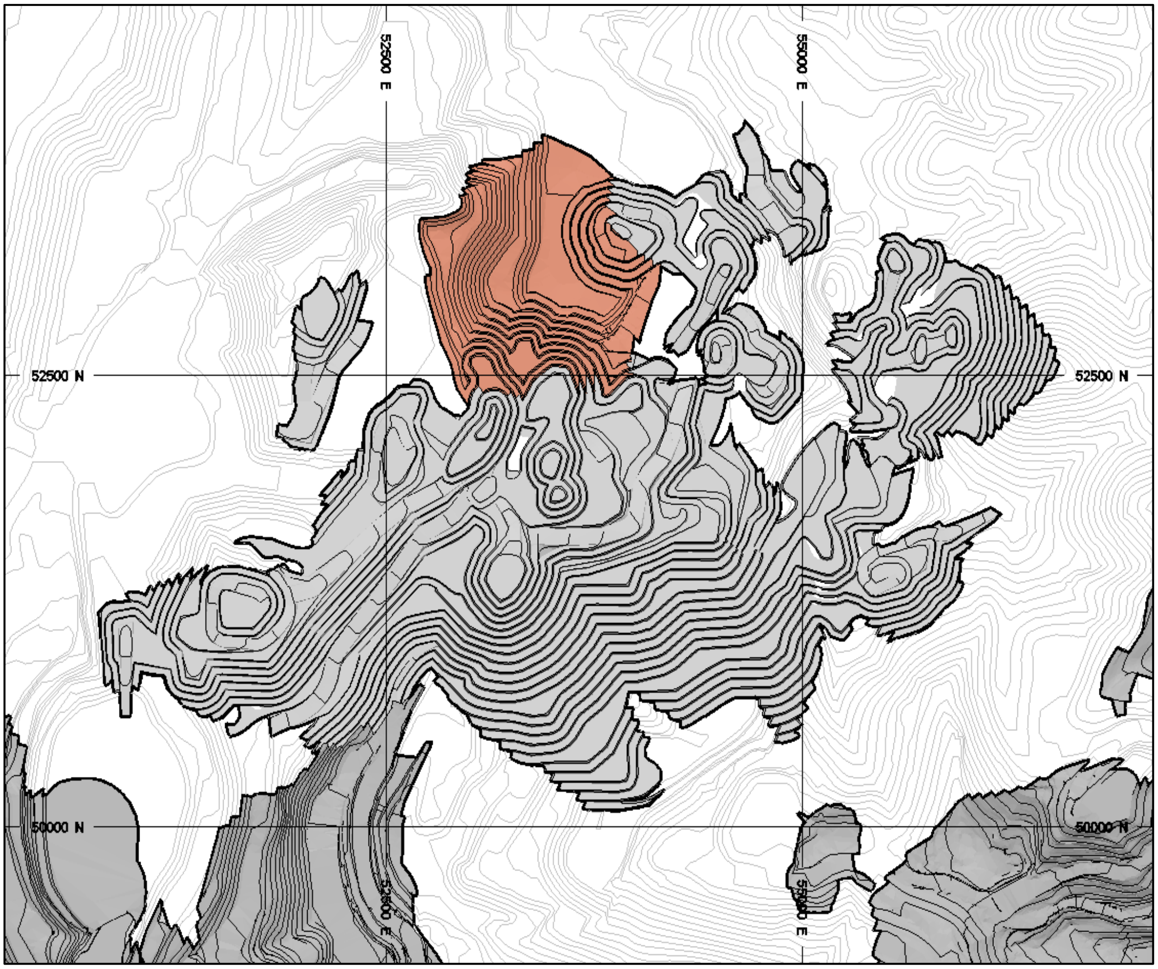
Source: SRK. 2018

Figure 16-10: Pit phase – Central 6 (C 6)



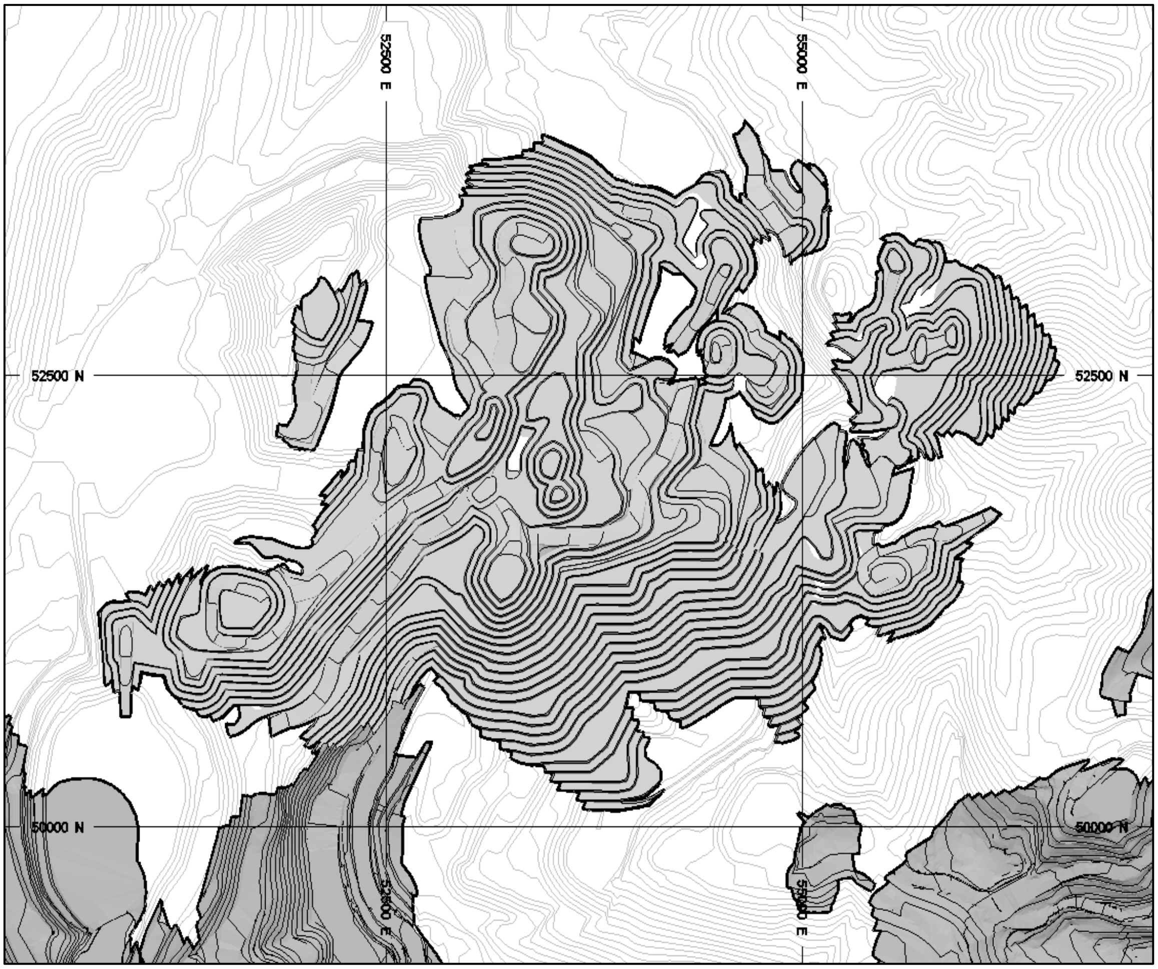
Source: SRK. 2018

Figure 16-11: Pit phase – Central 7 (C 7)



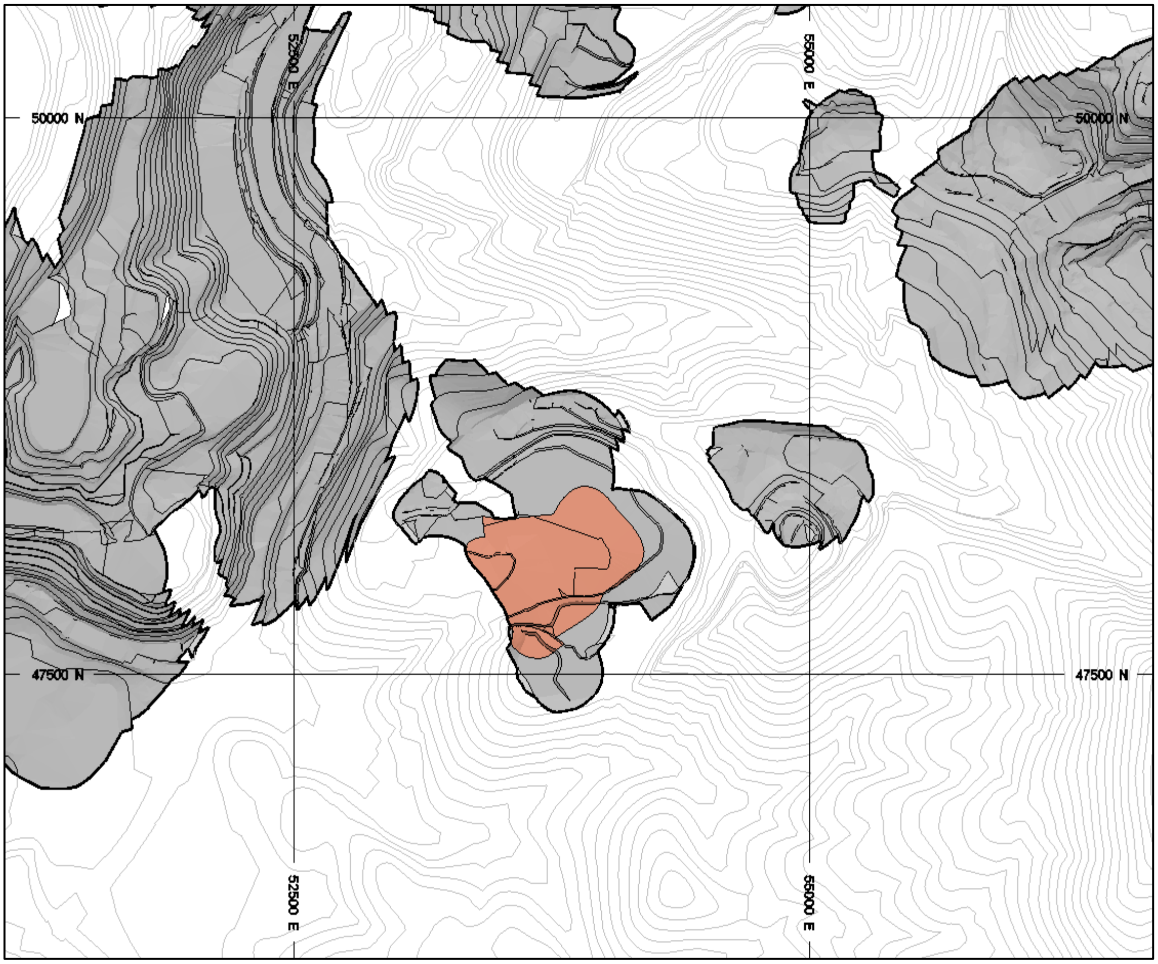
Source: SRK. 2018

Figure 16-12: Pit phase – Central North Ext (CN Ext)



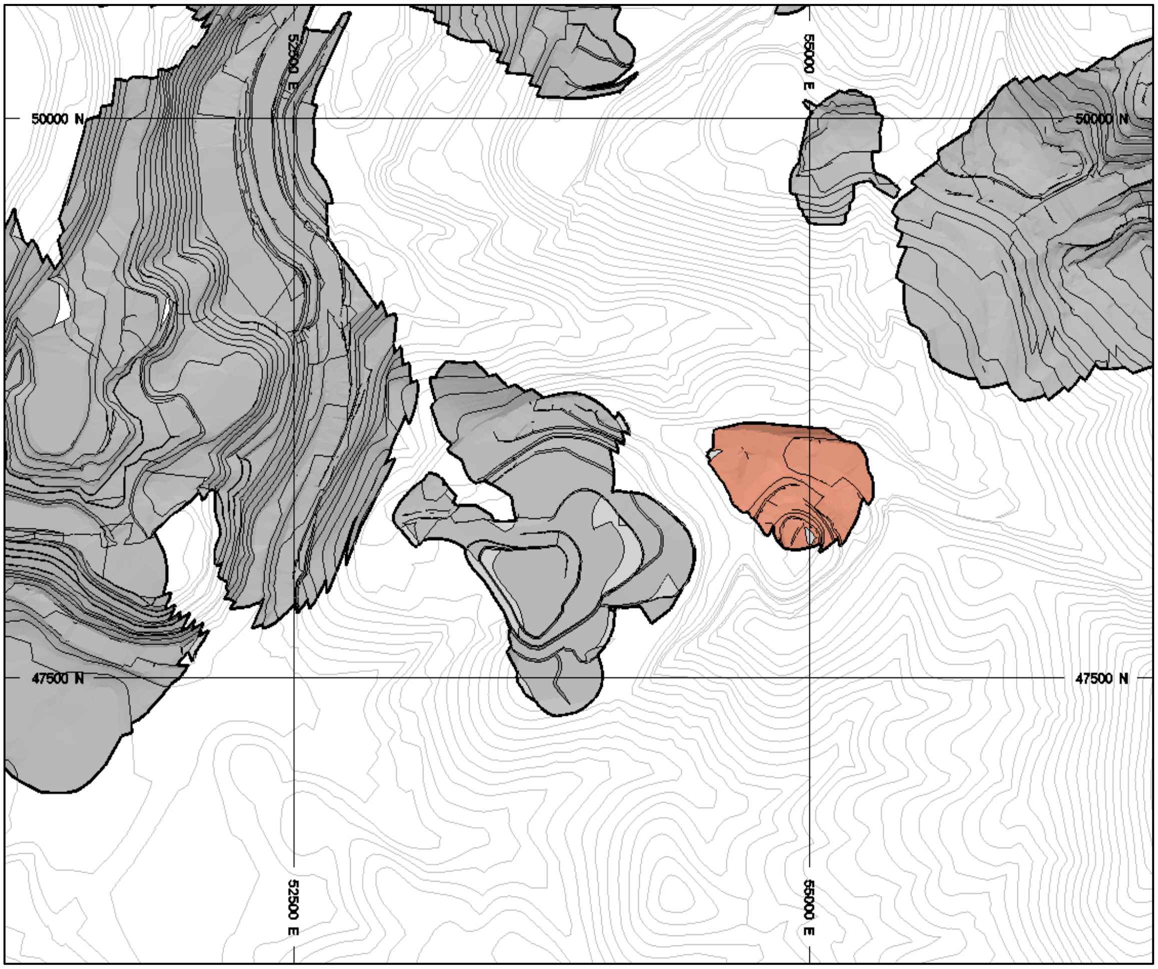
Source: SRK. 2018

Figure 16-13: Pit phase – Central Ultimate



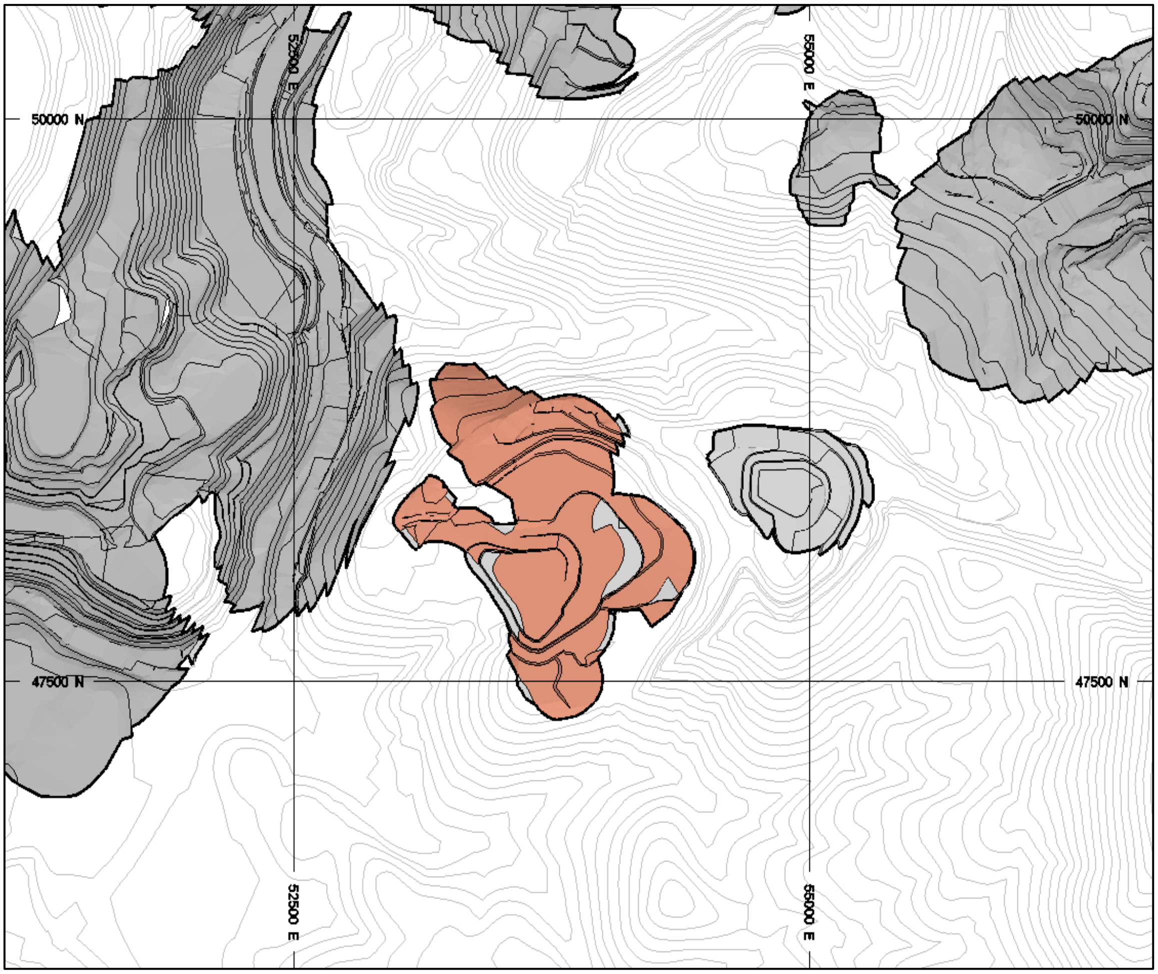
Source: SRK. 2018

Figure 16-14: Pit phase – Jasperoid 1 (JH 1)



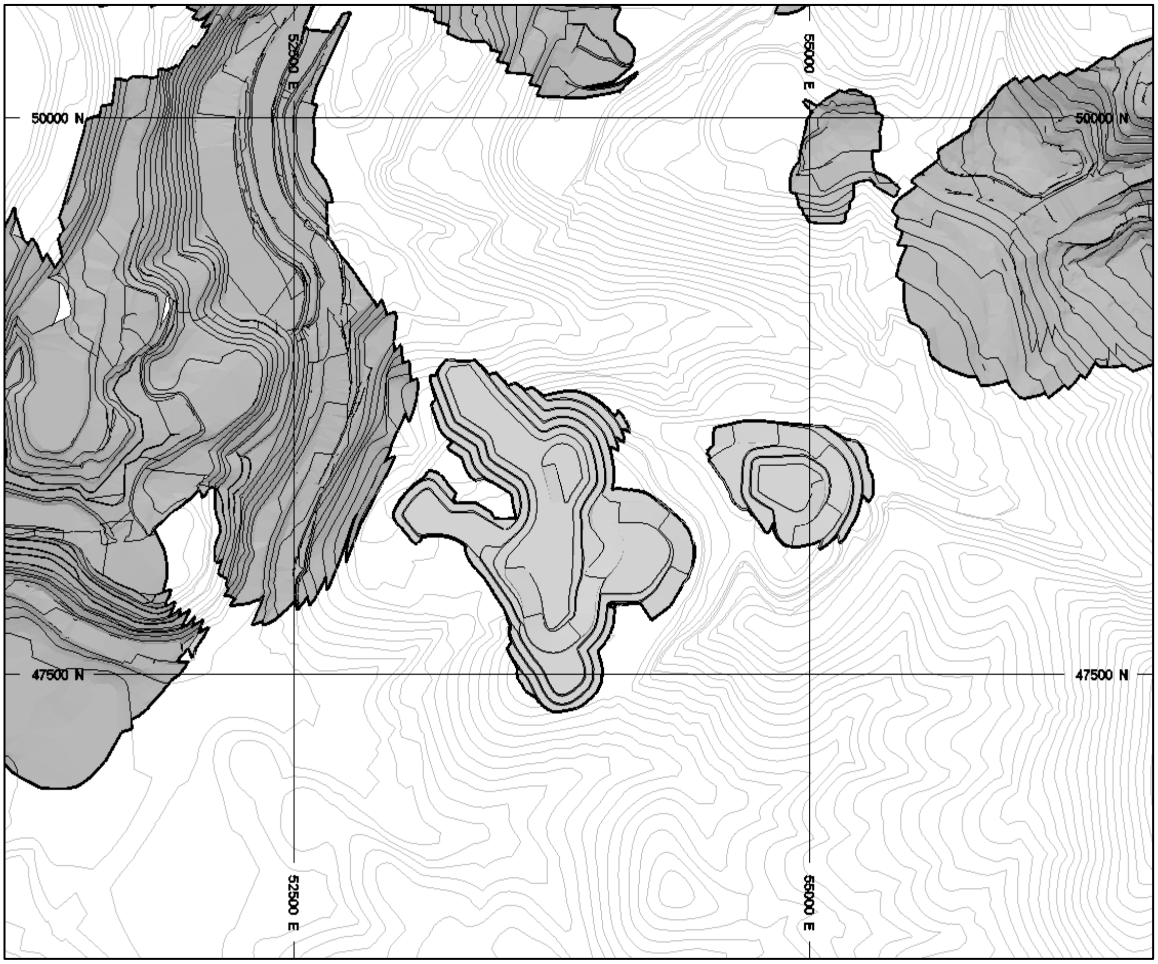
Source: SRK. 2018

Figure 16-15: Pit phase – Jasperoid 2 (JH 2)



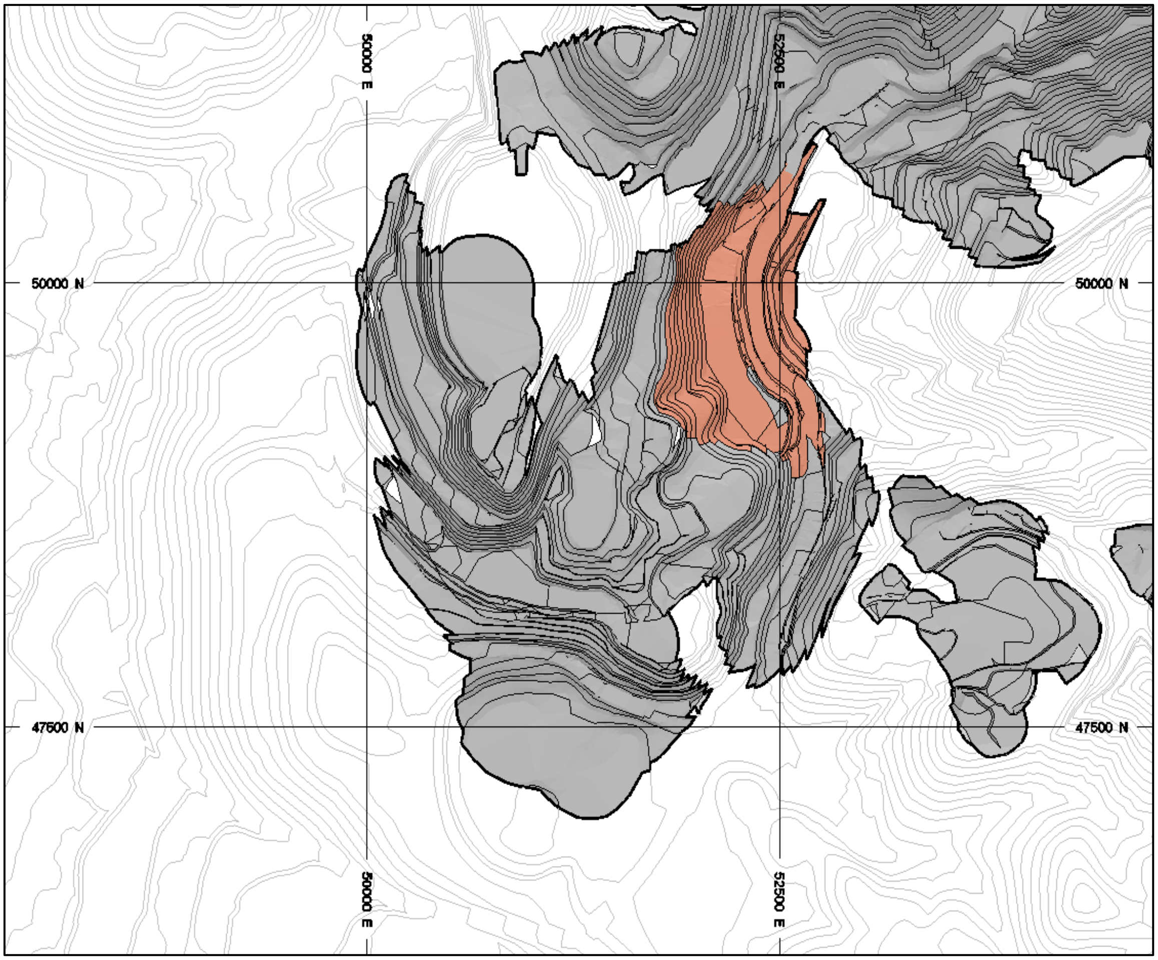
Source: SRK. 2018

Figure 16-16: Pit phase – Jasperoid 3 (JH 3)



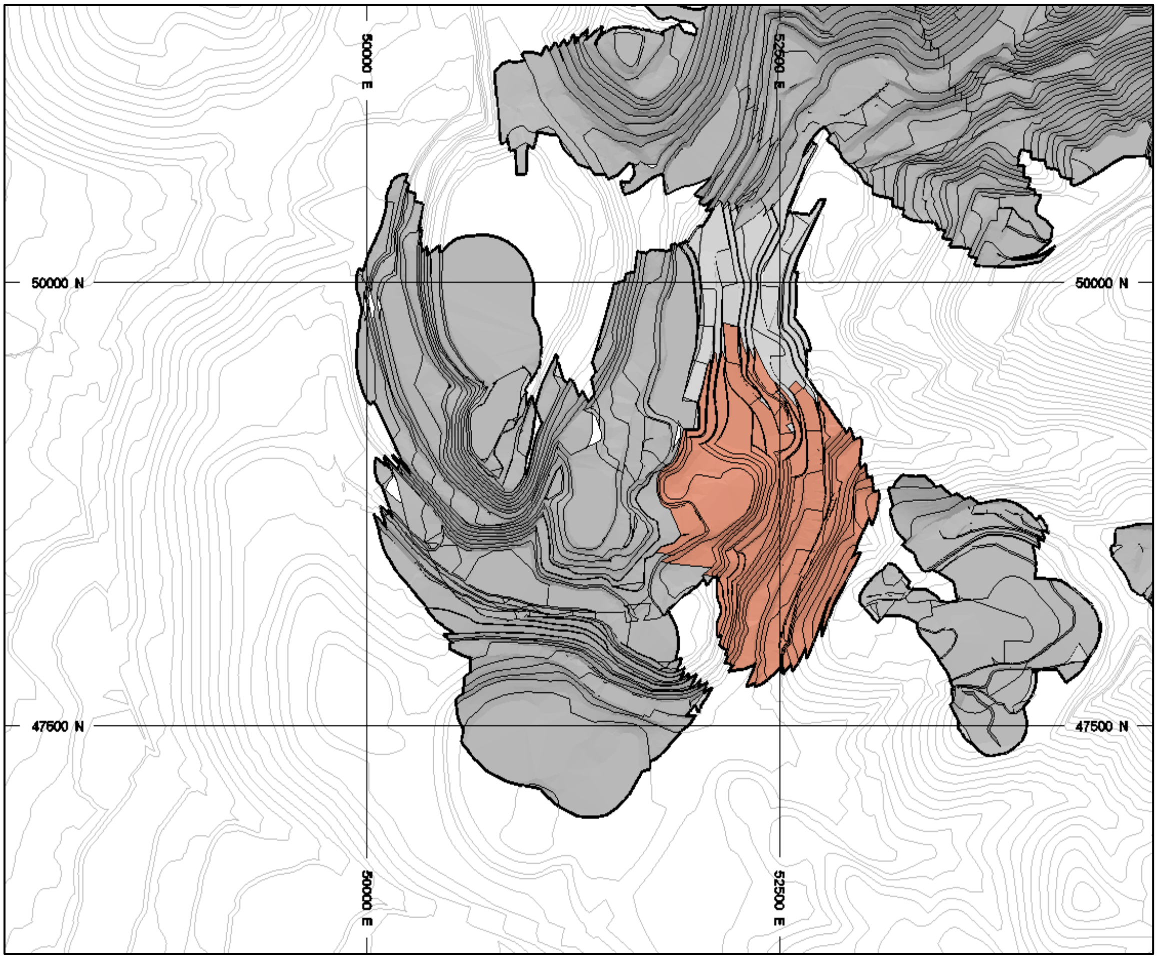
Source: SRK. 2018

Figure 16-17: Pit phase – Jasperoid Ultimate



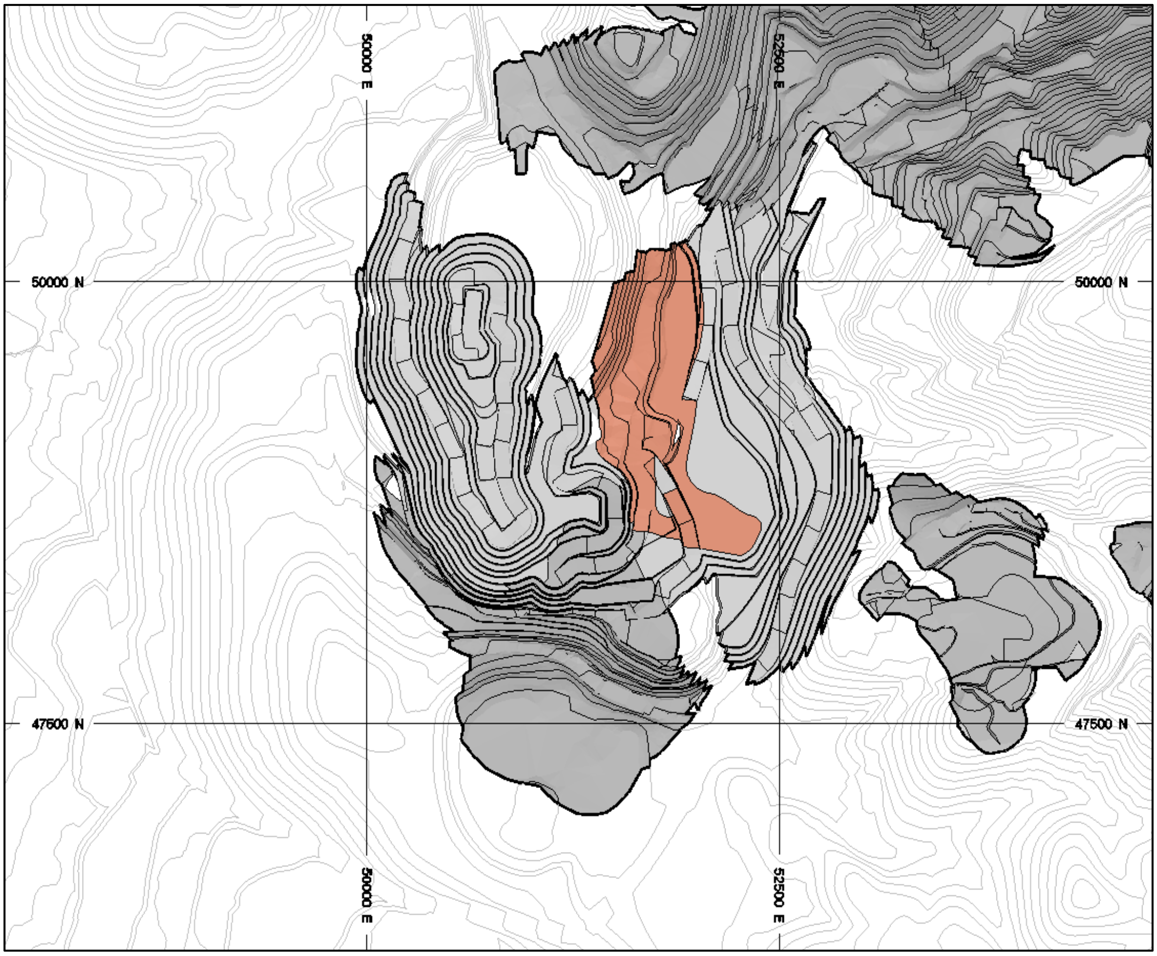
Source: SR.K 2018

Figure 16-18: Pit phase – Main 1a (M 1a)



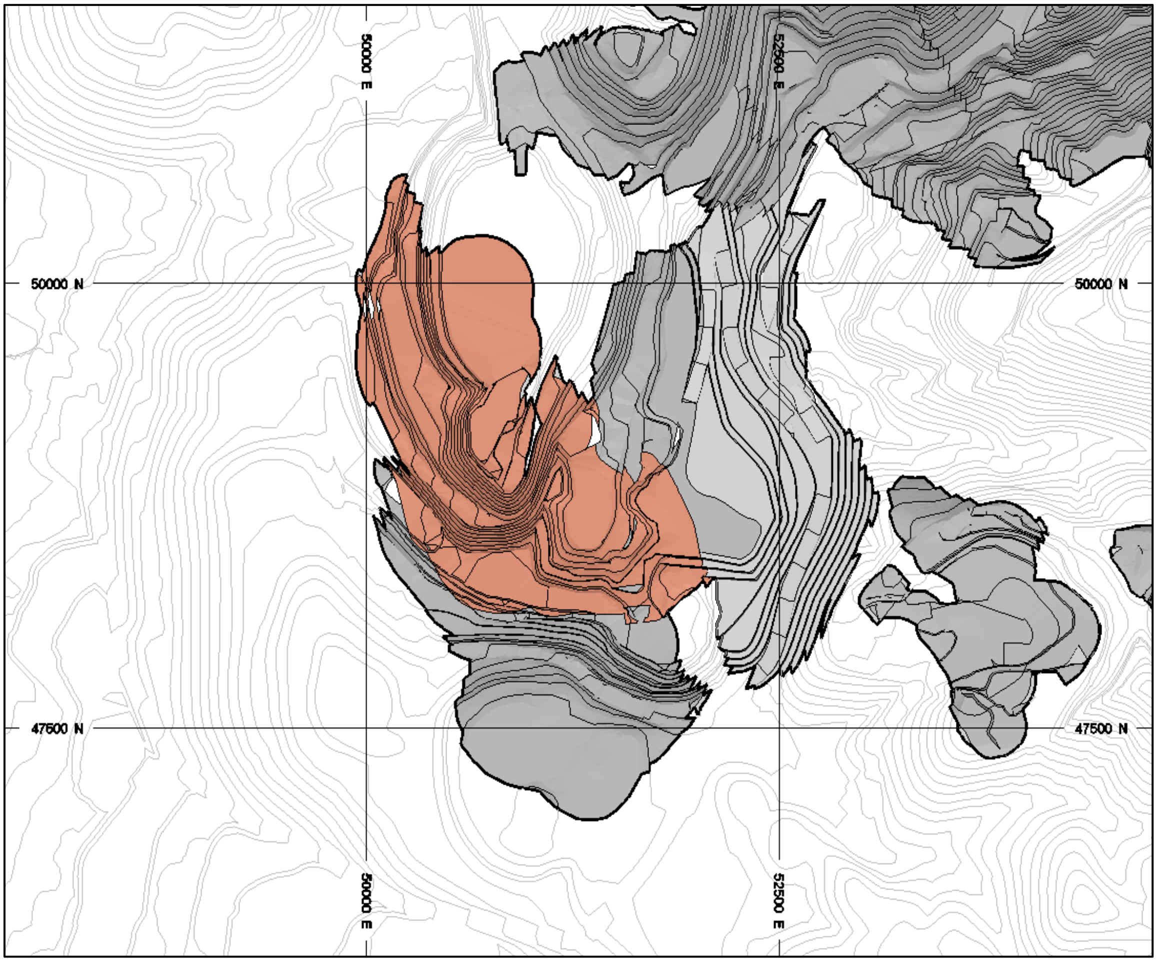
Source: SRK. 2018

Figure 16-19: Pit phase – Main 1b (M 1b)



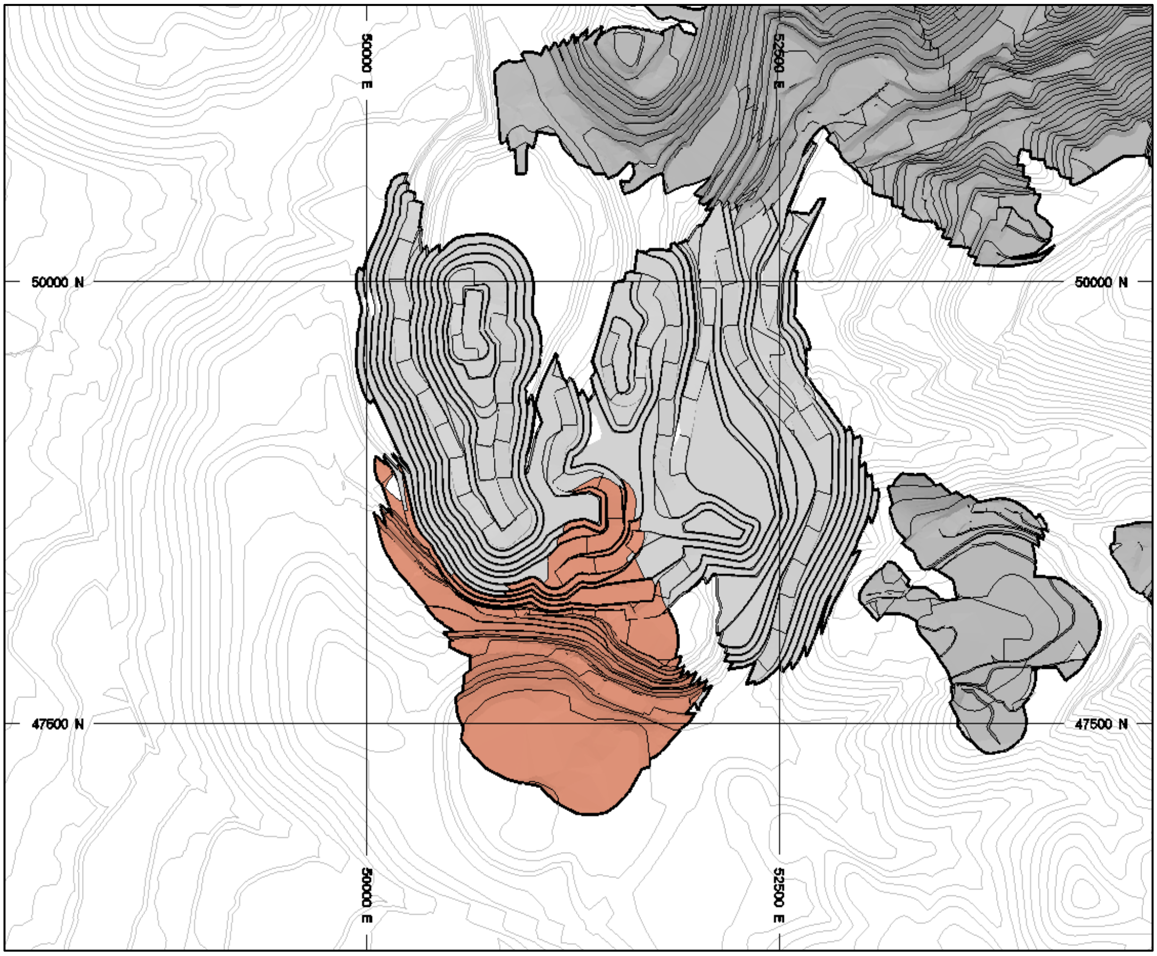
Source: SRK. 2018

Figure 16-20: Pit phase – Main 1c (M 1c)



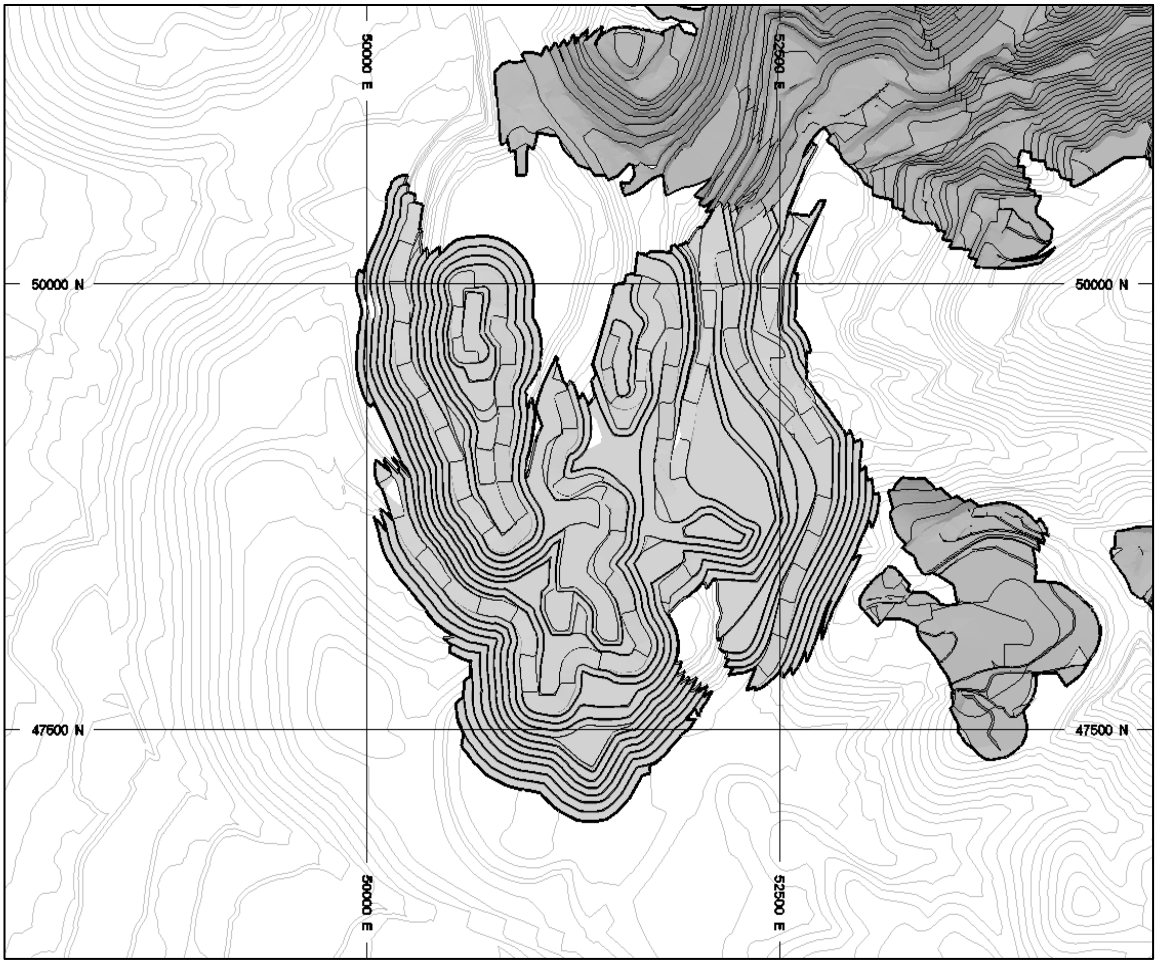
Source: SRK. 2018

Figure 16-21: Pit phase – Main 2 (M 1a)



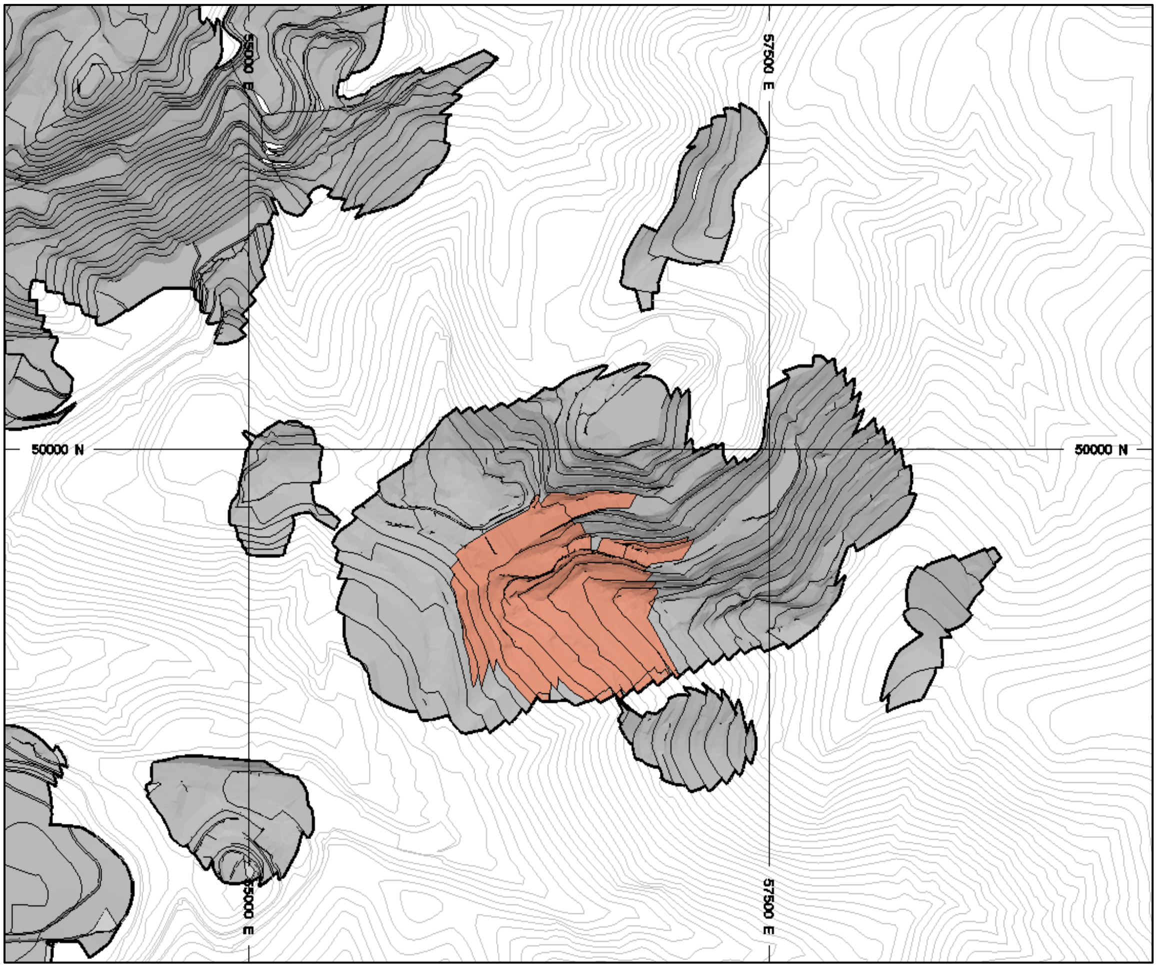
Source: SRK. 2018

Figure 16-22: Pit phase – Main 3 (M 3)



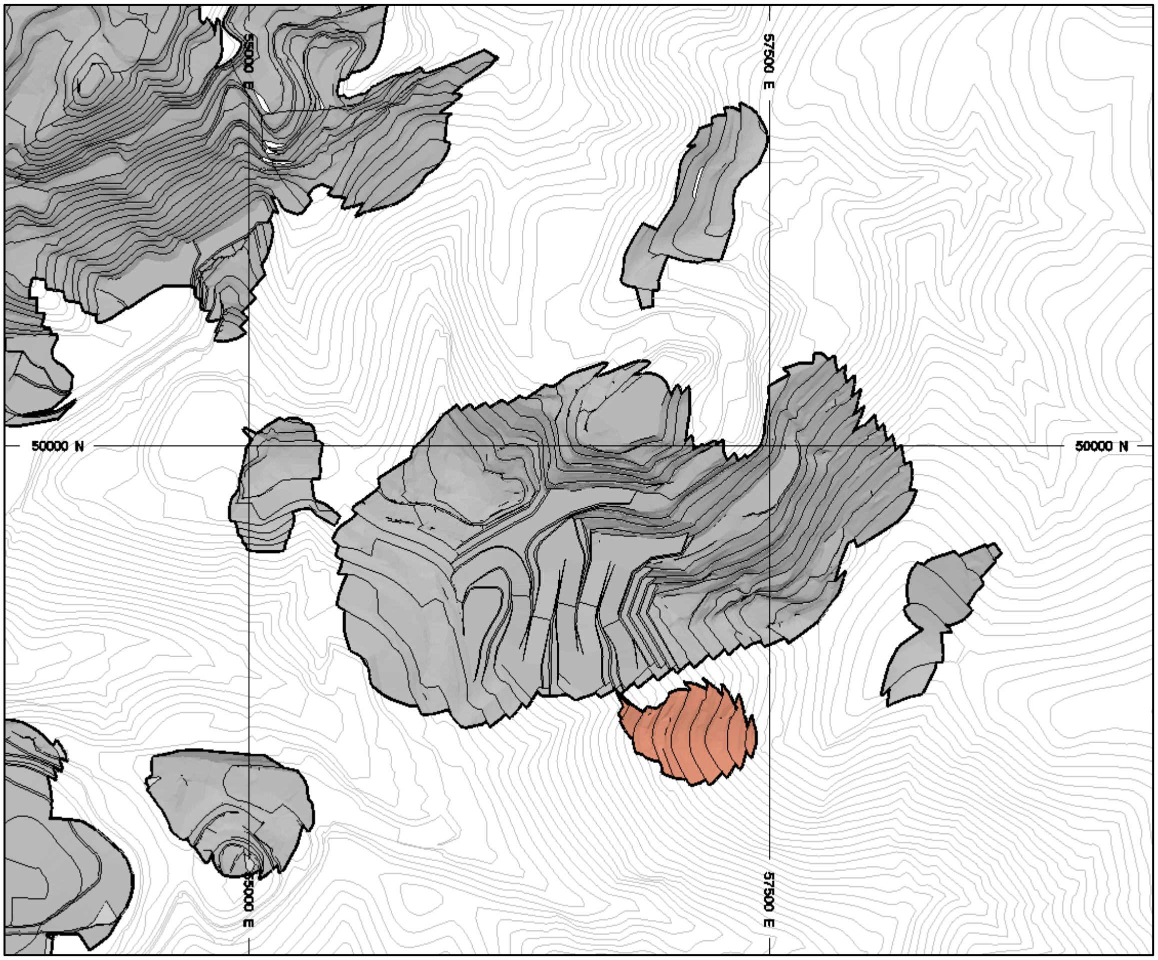
Source: SRK. 2018

Figure 16-23: Pit phase – Main Ultimate



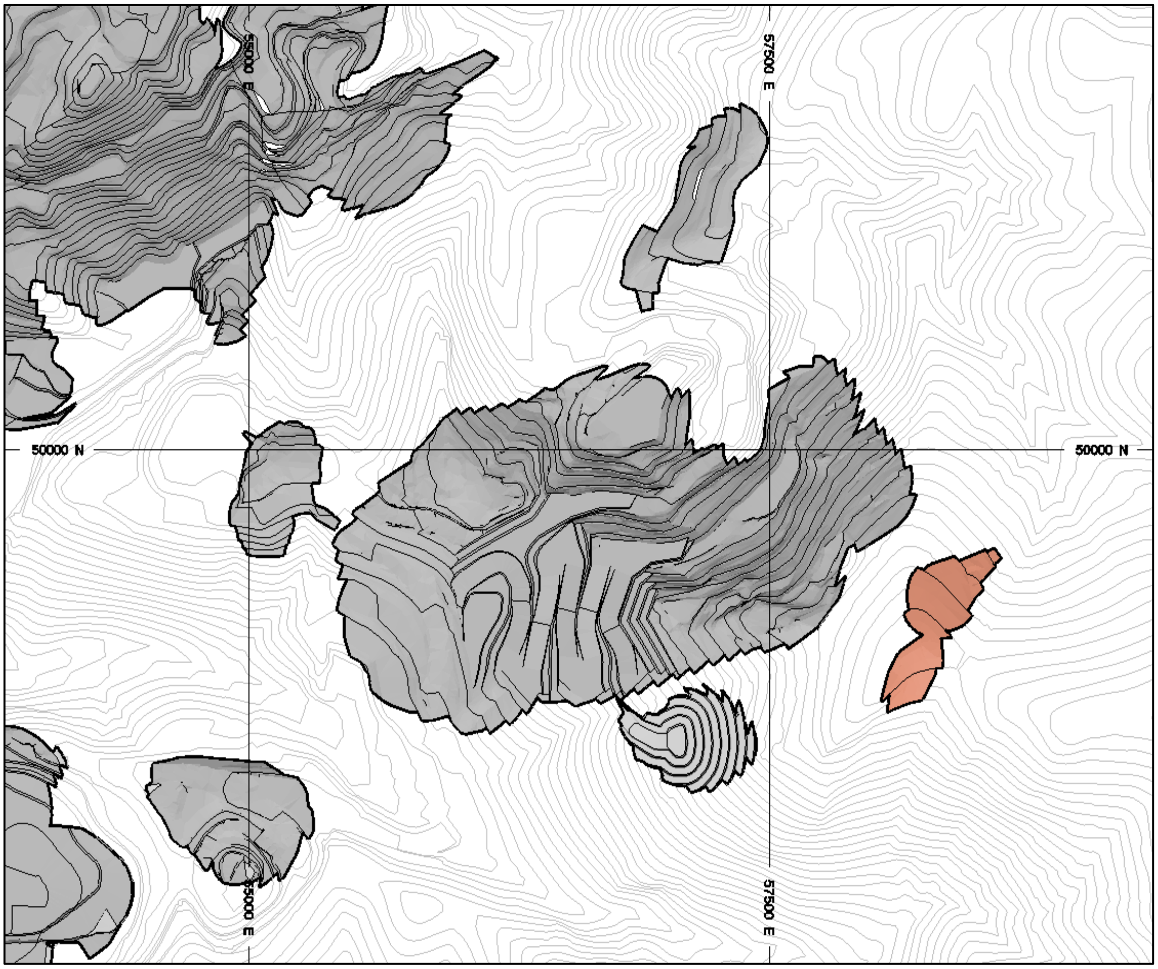
Source: SRK. 2018

Figure 16-24: Pit phase – Radio Tower 1 (RT 1)



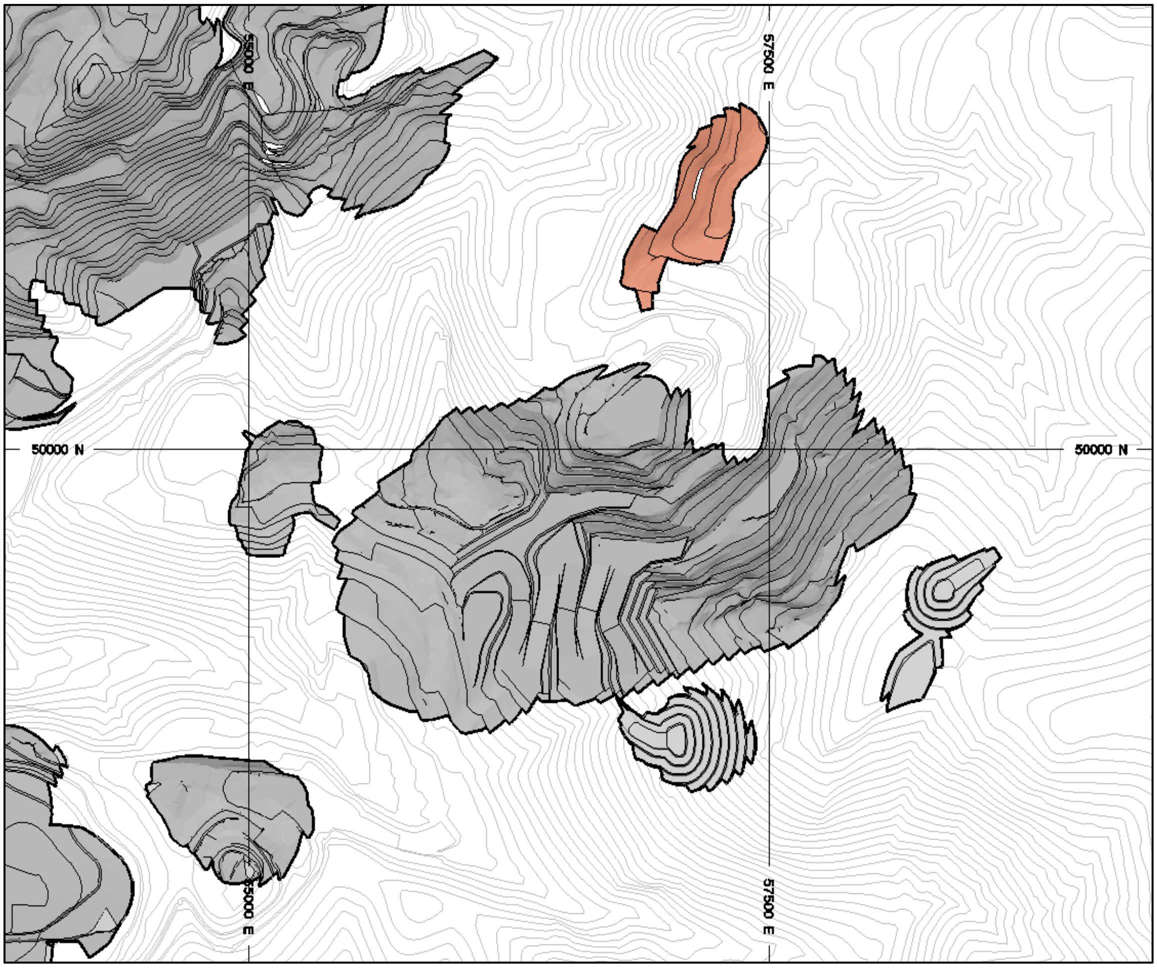
Source: SRK. 2018

Figure 16-25: Pit phase – Radio Tower 2 (RT 2)



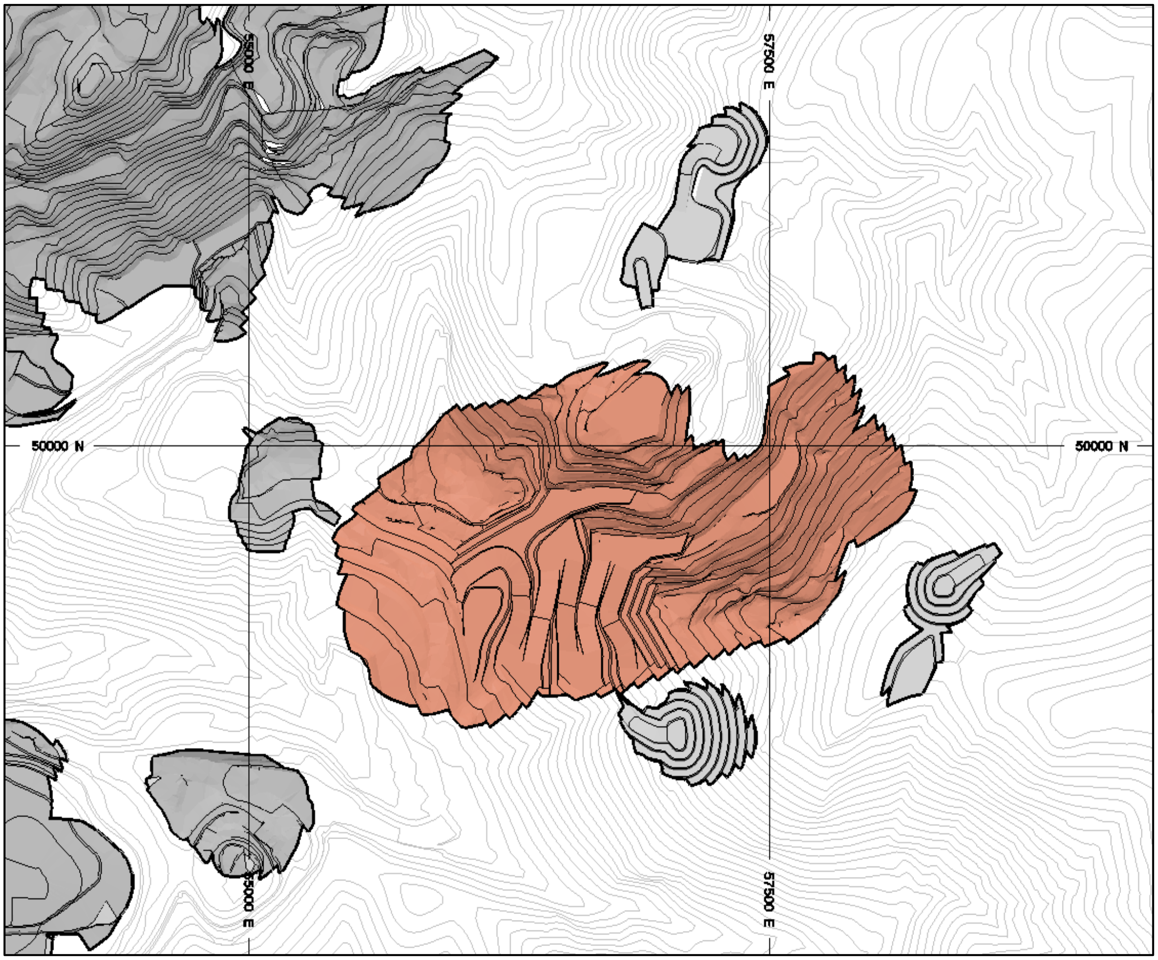
Source: SRK. 2018

Figure 16-26: Pit phase – Radio Tower 3 (RT 3)



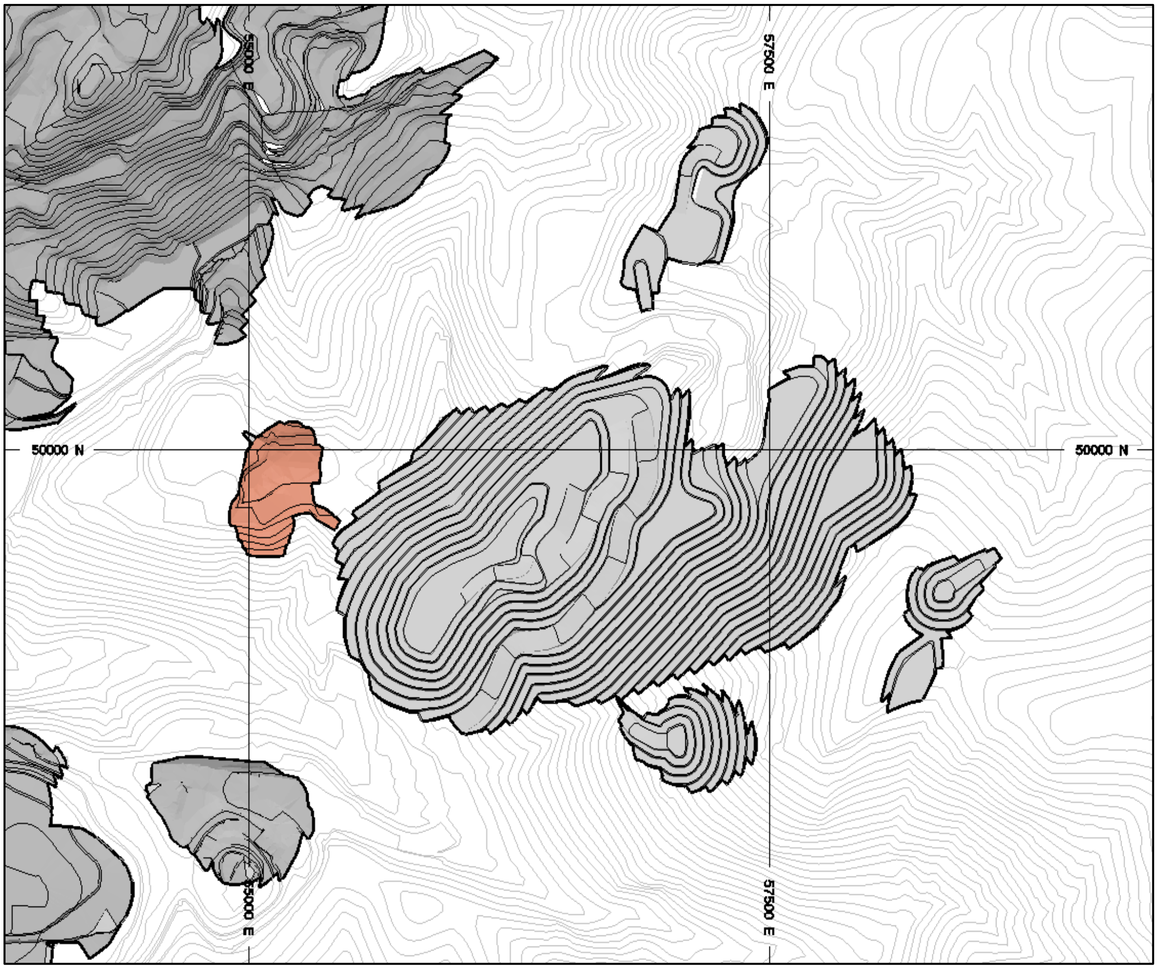
Source: SRK. 2018

Figure 16-27: Pit phase – Radio Tower North (RT N)



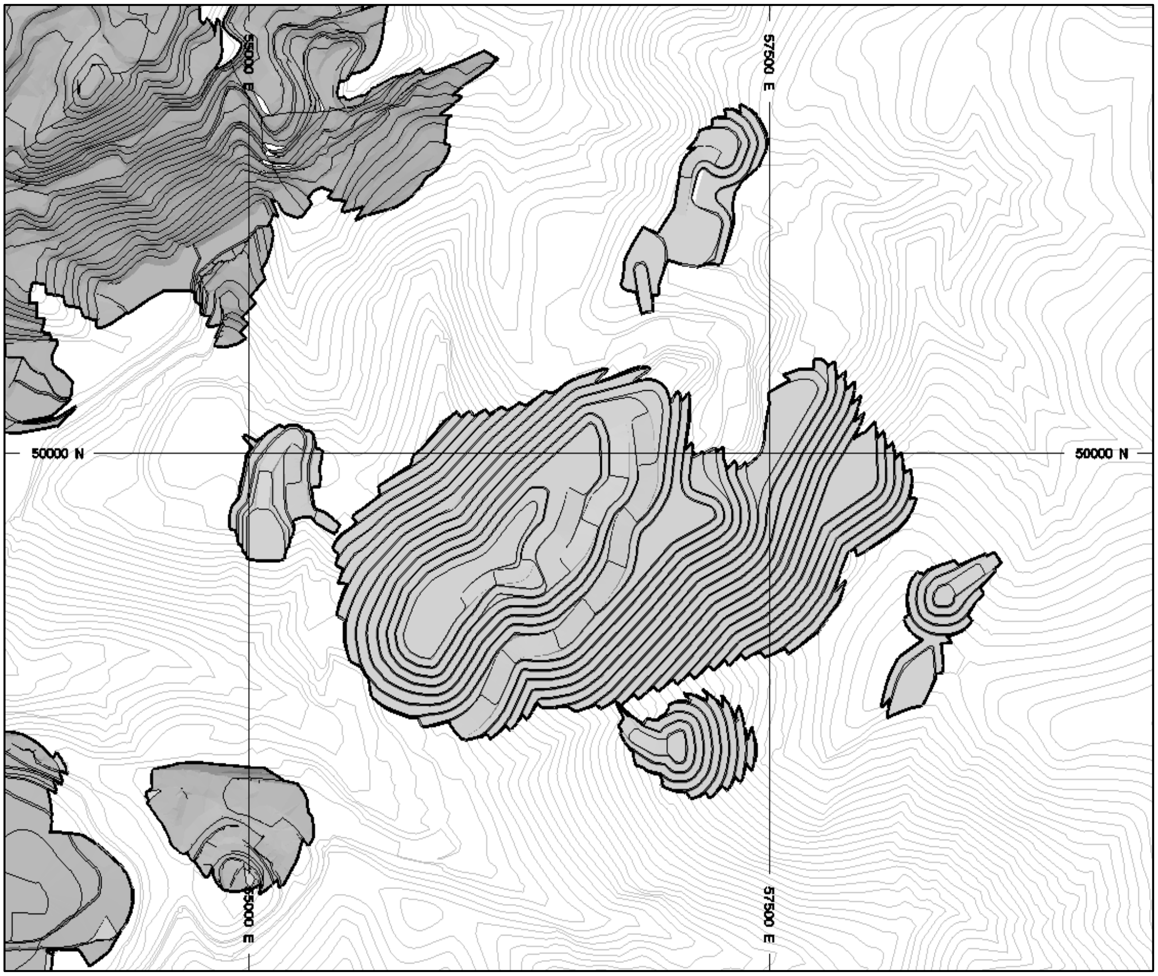
Source: SRK. 2018

Figure 16-28: Pit phase – Radio Tower 4 (RT 4)



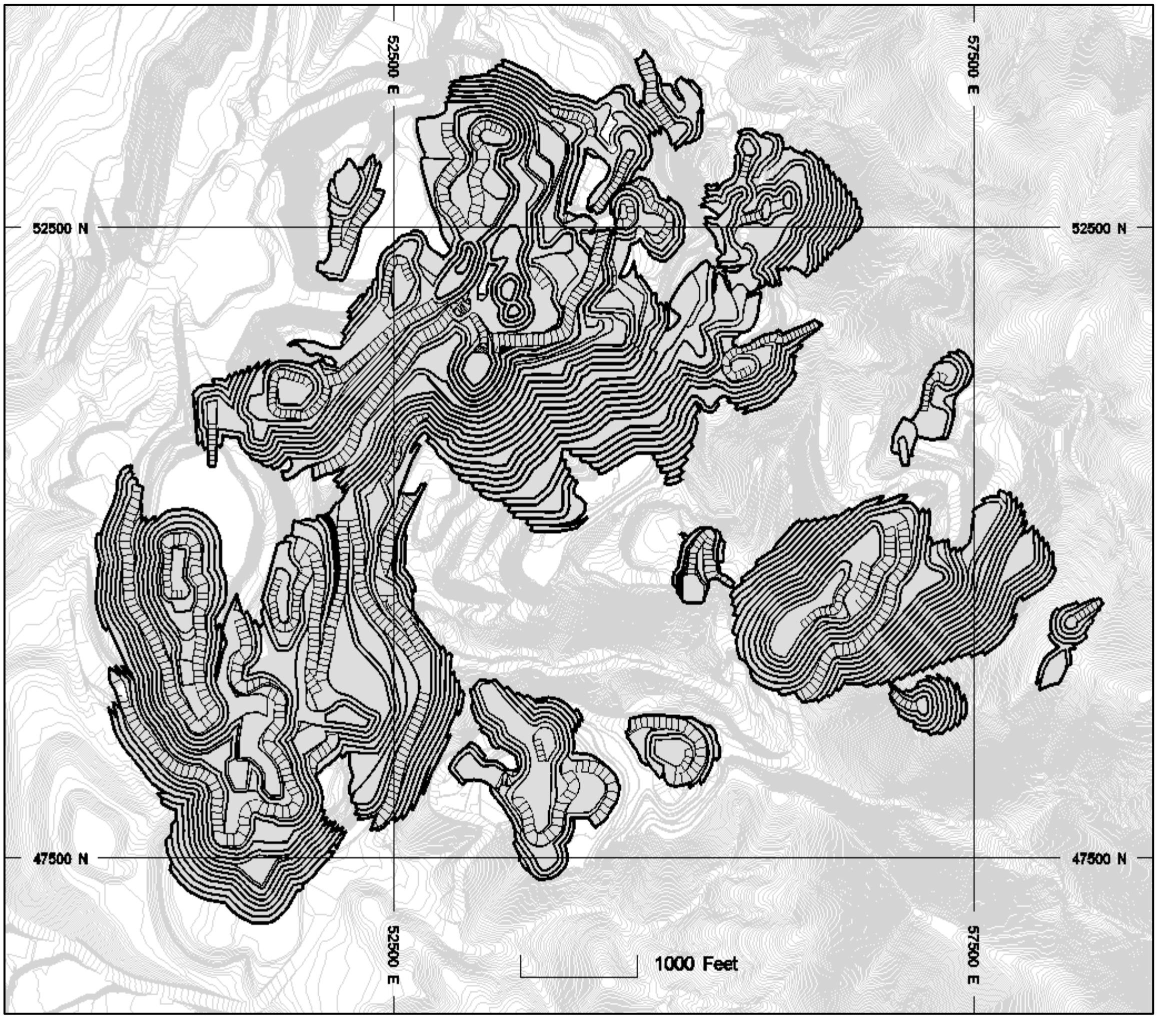
Source: SRK. 2018

Figure 16-29: Pit phase – Central Top (CT)



Source: SRK. 2018

Figure 16-30: Pit phase – Radio Tower Ultimate



Source: SRK. 2018

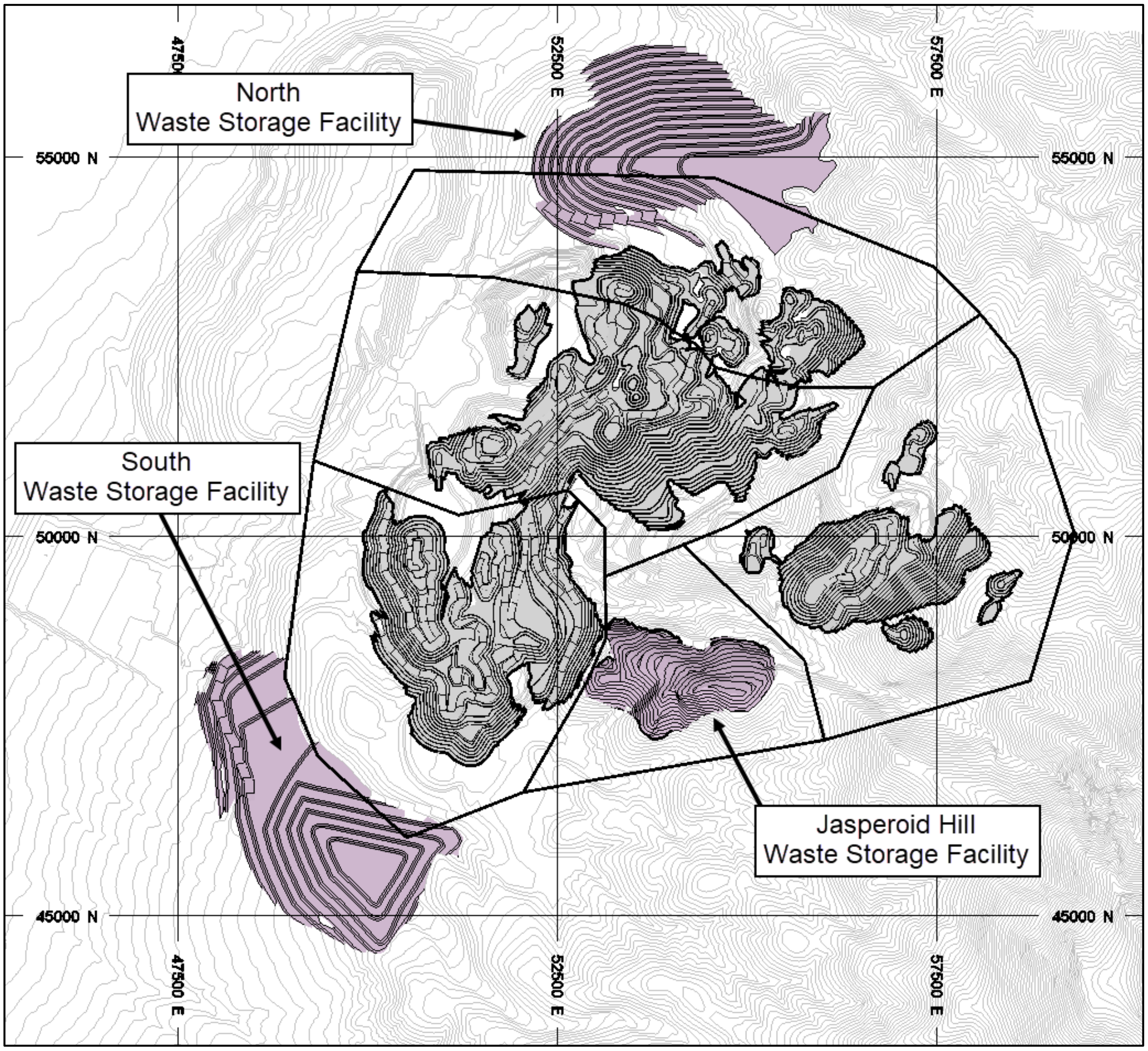
Figure 16-31: Ultimate pit design

16.5 Waste Rock Storage Facility Designs

The PFS includes three WRSFs, the South Waste Rock Storage Facility Jasperoid Hill Waste Rock Storage Facility and North Waste Rock Storage Facility shown in Figure 16-32.

Material is routed to each facility based on the shortest cycle time available.

For the PFS, all waste is assumed to be non-acid generating (NAG), so no special waste handling or segregation has been contemplated.



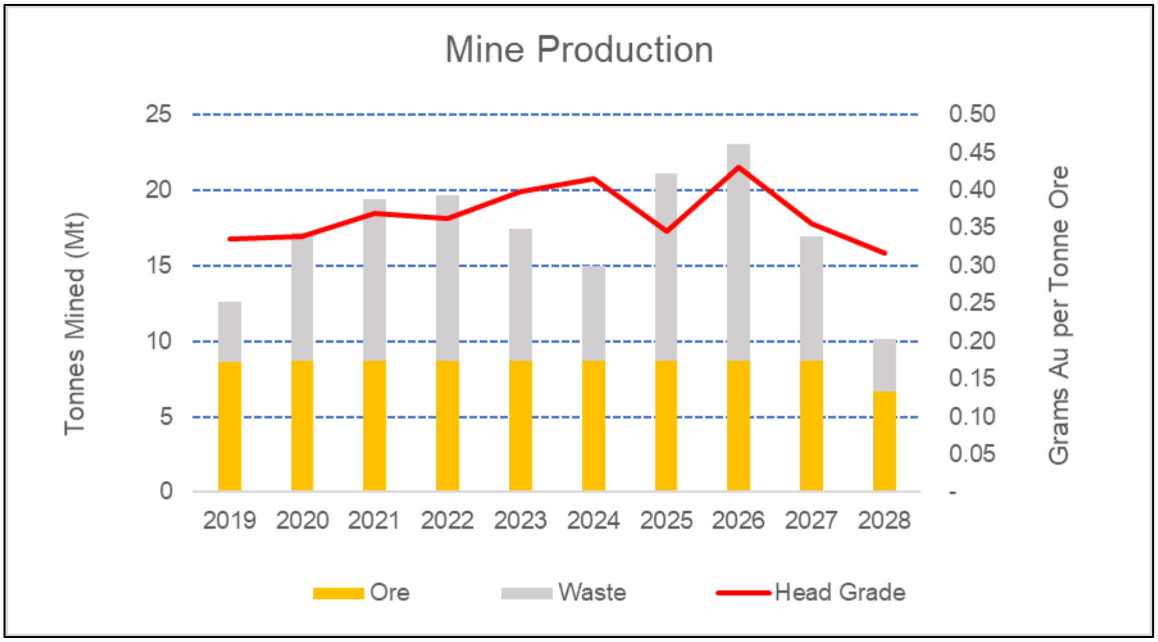
Source: SRK. 2018

Figure 16-32: Waste rock storage facilities

16.6 Mine Production Schedule

SRK's production schedule starts with the November 1st, 2018 as-mined surface. The current operation is delivering between 650,000 tpm to 700,000 tpm of ore to the crusher. The PFS production schedule ramps up to 800,000 tpm delivered to the crusher in April 2019 and continues that mining rate through the end of the mine life in 2028. The mine schedule was limited by truck hours, with only 10 trucks for production mining in 2019 and ramping up to 12 trucks from 2020 through LOM. In 2026 stripping requirements mandate a 16-size truck fleet. It is expected that as replacement equipment is brought in, older equipment will be maintained well enough to meet the stripping requirement.

The annual mine production schedule is provided in Figure 16-33.



Source: SRK, 2018

Figure 16-33: Florida Canyon Mine – annual production schedule

16.7 Mining Operations

16.8 Drilling

Drill hole spacing is primarily sixteen feet by sixteen feet, utilizing a 6.75-inch diameter bit. Penetration rates are approximately 80 to 90 feet per hour. Four drills are currently used at the site, the cost and timing of replacement drills are listed in section 21.1.2.

16.9 Blasting

Most of the mined material is rock and will require blasting. Small size material is critical to meet crusher tonnage targets and the mine adjusts the powder factor based on the rock type. Currently the powder factor rangers from .40 to .53 pounds of explosive per ton of rock. A down hole service contractor is used to provide and load explosives into blast holes. Most of the material is broken with ammonium nitrate fuel oil (ANFO), a small portion of the material is blasted with heavy ANFO. The composition of heavy ANFO is 75% heavy ANFO and 25% emulsion product.

16.10 Loading

Currently, the mine is loading the fleet with three CAT 993K, 24 yd^3 front-end loaders. These three loaders exceed the capacity of the truck fleet due to long haul cycles. So additional tonnage could be moved if truck availability exceeds availability assumptions.

Two CAT 992G 15 cubic yard loaders and one CAT992D 13 cubic yard loader are used to feed the crusher and load trucks moving material from the crusher stockpile to the heap.

16.11 Hauling

Fifteen CAT785 150-ton haul trucks are used to haul material from the pit to the crusher stockpile and waste storage areas. Four of the fifteen trucks are parked and in need of major component rebuilds. Major component rebuilds are scheduled as truck requirements increase in the mine schedule. Four used trucks were financed with a three-year-lease in 2018 and are expected to be in service through 2028. Seven of these trucks will reach the end of their service life before the end of the mine life and the replacement schedule is shown in section 21.1.2. The majority of the 150-ton fleet will be kept on site to meet truck requirements throughout the mine life.

Five, CAT 777, 100-ton trucks comprise the haulage fleet that moves material from the crushed ore stockpile to the pad. Only two are required at this time and three are not in-service requiring major rebuilds. They are assumed to be rebuilt as the crusher stockpile to heap haulage times increase.

16.12 Support Activities

Roads and dumps will be constructed and maintained by a fleet of support equipment including three CAT graders, seven CAT D9/D10 track dozers, and one CAT690 rubber tire dozer. Additionally, two CAT777 water trucks are used to control dust primarily through the spring and fall seasons. One of the three graders is a rental. Replacement support equipment and timing are discussed in Section 21.

16.13 Ancillary Equipment

The economic modeling outlined in Section 22 accounted for ancillary support equipment including: light plants, crane, forklift, tire manipulator, field service and maintenance vehicles, and light vehicles.

16.14 Dewatering

The bottom seven benches of the Main 2 pit design are expected to encounter ground water. No provision for dewatering costs are included in the mine plan as this is expected to be of minimal impact based on previous experience mining in that pit. A review of the potential impacts of groundwater on the mining cost as well as on the pit slope stability for any pits encountering ground water is recommended.

17 Recovery Methods

17.1 Historical Operations

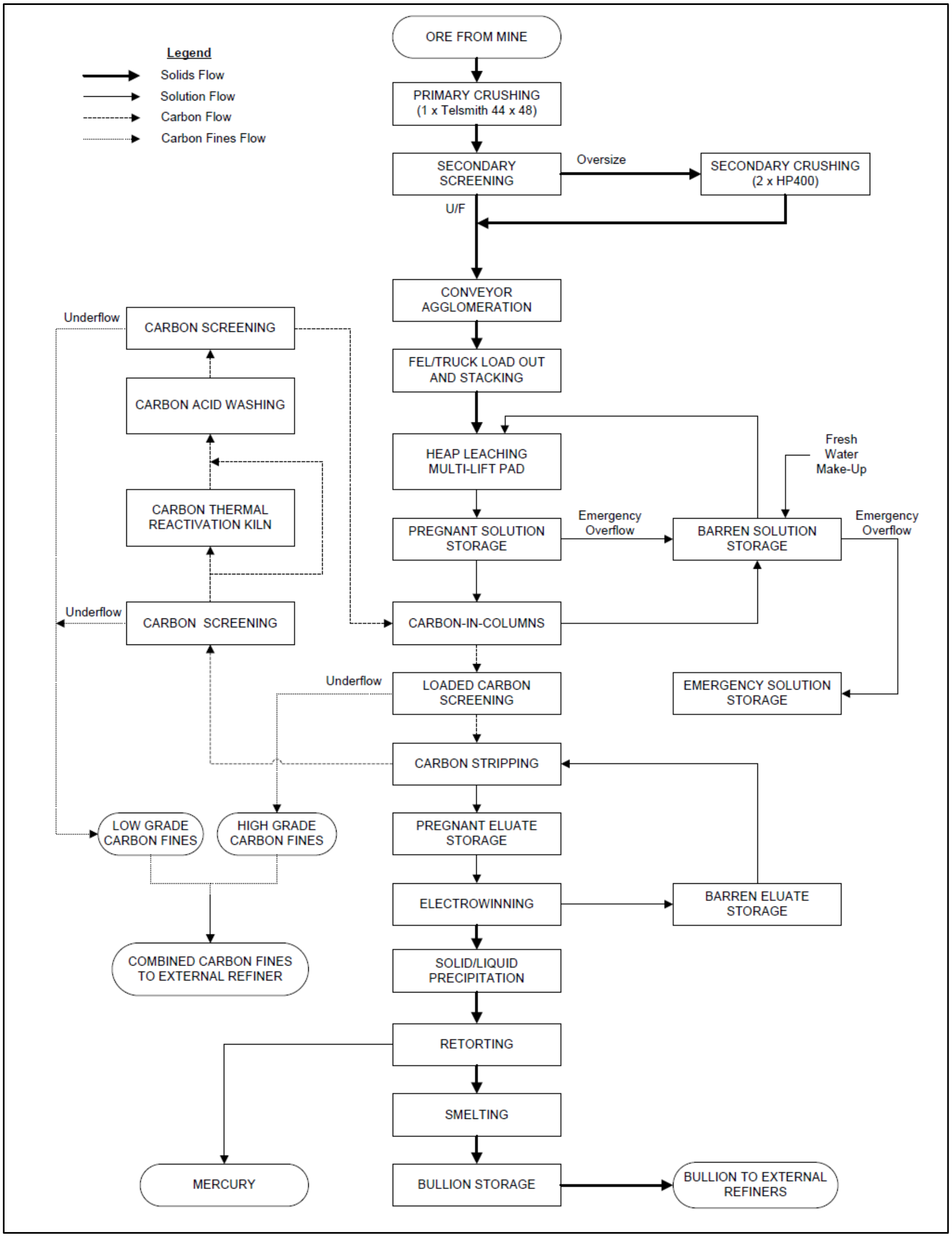
Between 1986 and 2005, the Florida Canyon Mine processed ore using a combination of crushed ore and ROM heap leaching. Higher grade ore (0.018-0.030 oz/ston, average 0.023 oz/ston) was crushed to approximately 80% passing ¾ inch, agglomerated and stacked on a multi-lift leach pad at a nominal rate of 5.5 Mtons per year. Lower grade ore (0.010-0.018 oz/ston, average 0.012 oz/ston) was processed using a multi-lift pad at an as-received particle size from the mine, or ROM, at an nominal rate of 3.8 Mtons per year. The stacked ore was leached with dilute cyanide solution, dissolving the gold and silver which was subsequently processed using carbon adsorption (carbon-in-column: CIC) or Merrill-Crowe (zinc precipitation) processes. Between 1986 and 2005, Florida Canyon had produced roughly 2.02 Moz gold.

Between 2006 and 2011, the production rate decreased with most of the ore processed as ROM (35 Mtons). Approximately 7 Mtons were crushed and leached. Ore stacked on the leach pads ceased during 2011. Between 2006 and the end of 2016, an estimated 268,000 oz of gold were produced. This includes residual gold recovered from the leach pads between 2012 and 2015.

In late 2016, crushing operations were re-started with the first ore placed under leach in April 2017. Prior to start-up of operations at Florida Canyon in 2016, modifications were made to the existing processing facilities, including the following:

- Construction of a new leach pad and associated solution ponds
- Relocation of the crushing circuit
- Modifications to the crushing circuit flowsheet to include agglomeration
- Construction of a new CIC circuit
- Relocation of one of the CIC circuits

The current process block flow diagram is shown in Figure 17-1.



Source: SRK, 2018

Figure 17-1: Process block flow diagram for Florida Canyon Gold Mine

17.2 Crushing and Agglomeration

Ore is crushed in two stages to 80% passing 1-1/2 inches. ROM ore is delivered from the mine via truck to the ROM stockpile adjacent to the primary crusher. A loader feeds ore from the stockpile to the primary crusher dump pocket. Capital expenditures are planned in 2019 to eliminate the re-handling of ore ahead of the primary crusher. Ore passes over a primary vibratory grizzly with nominal bar spacing of 6 to 4.5 inches. The grizzly undersize reports directly to the primary crusher product conveyor. The grizzly screen oversize reports to the primary crusher (44" x 48" Telsmith jaw crusher) with a closed sized setting of 4 inches. Ore from the primary crusher product conveyor is split into two streams which feed two secondary screen feed conveyors operating in parallel. The secondary screen feed conveyors discharge to the secondary screens (8 ft by 20 ft Telsmith double deck screens). Screen oversize reports to the secondary crushers, two Metso HP 400 cone crushers operating in parallel. Screen undersize reports to the one of the two secondary crusher product belts which is then transferred to the product conveyor belt. Lime is added to the ore for pH control which then reports to the agglomeration blender where agglomeration aid is added. Material from the agglomeration unit is deposited on a small stockpile and subsequently loaded into haul trucks for stacking on the heap leach pads.

The planned crushing plant throughput is 800,000 tons/month. The average instantaneous crushing plant throughput is 1,400 t/h at the planned crushing plant operating availability of 78%.

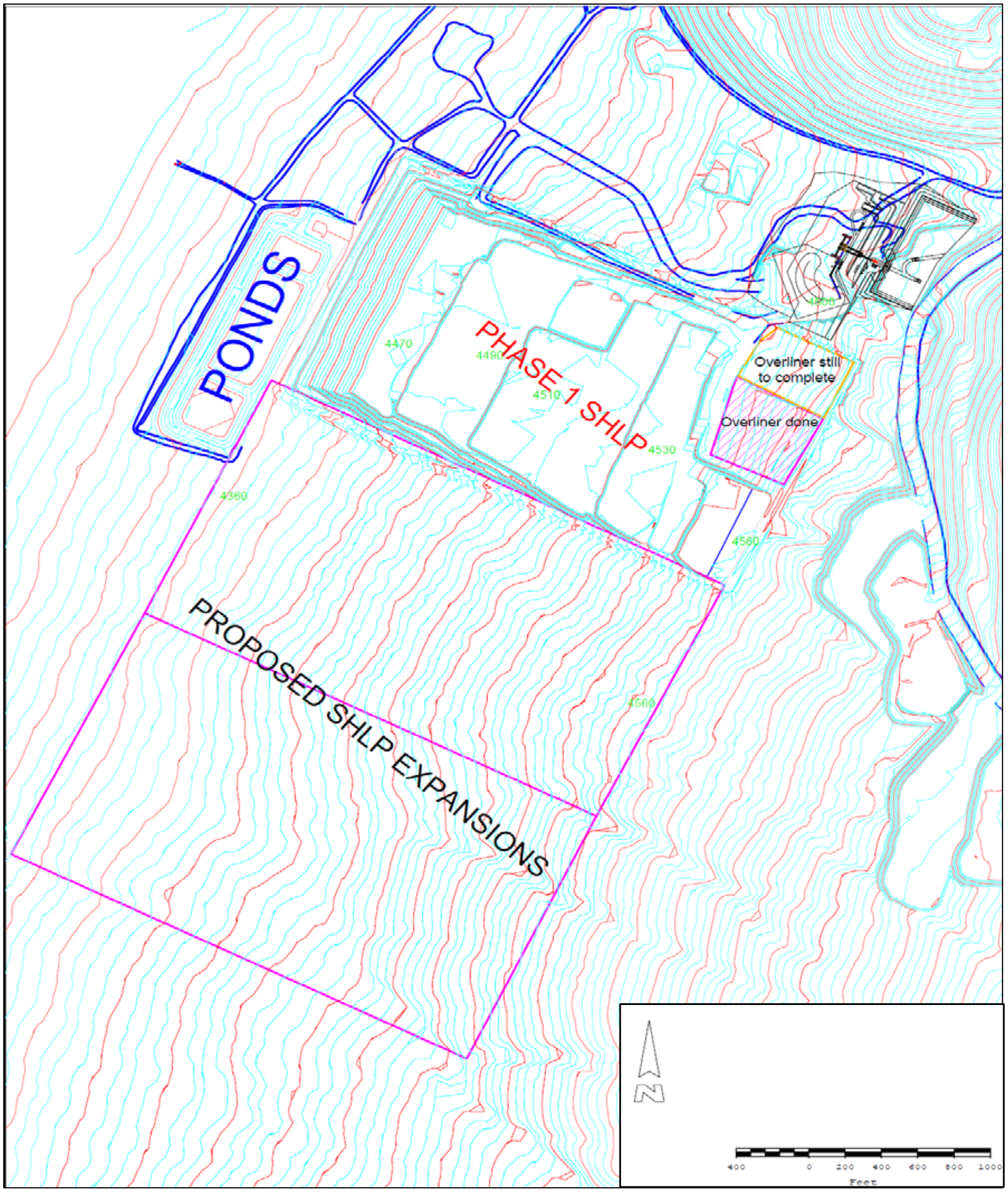
17.3 Ore Stacking and Heap Leaching

Crushed and agglomerated ore is loaded into haul trucks at the crusher stockpile using a front-end loader. The ore is truck dumped onto the lined heap in 20-foot lifts and leveled using a low ground pressure dozer. The leveled material is ripped using the same dozer to minimize compaction and improve permeability. For the initial lifts, lift height varied between about 10 and 30 feet, owing to the topography of the pad. A total of 11 lifts are planned, for a nominal ultimate height of 200 ft.

The new leach pad was planned to be constructed in three phases. Phase I installation of the leach pad liner was completed at approximately four million square feet. Phases 2 and 3 will add another nine million square feet once installed. The leach pad liner consists of a compacted clay base layer covered by an 80-mil HDPE (high-density polyethylene) liner. A herringbone configuration of four-inch Advanced Drainage Systems (ADS) drainage pipes is placed on top of the liner at 20-foot spacing between lines. After drainage pipe placement, the liner is covered with 3-7 feet of screened over-liner material, with a top size of 1.5 inches to facilitate solution drainage and to protect the liner. The drainage system collects solution at the liner surface and draining to the solution collection ditch which discharges into the pregnant solution pond.

Barren solution is applied to the surface of the heap using drip emitter lines installed at three-foot spacing between lines, with Yellowmine PVC pipe or HDPE used as the headers on top of the heap. Drip emitters are purchased with two-foot spacing between emitters. The nominal solution application rate to the heap is 0.0028 gpm/ft^2. Total barren solution pumping capacity is currently about 5,000 gpm. At the nominal application rate, irrigation area is approximately 1.79M ft^2. The primary leach cycle is currently 60 days. Additional leaching of the ore is done as additional lifts are added and subsequently leached.

Barren solution pH is maintained at pH 10-10.5 and sodium cyanide concentration adjusted as needed. Sodium cyanide solution is added into the barren pump suction (to avoid increasing the concentration in the barren pond). Sodium cyanide consumption is projected to be 0.5 lb/ston, as NaCN. Lime is added to the crusher product as pebble lime (CaO).



Source: SRK, 2018

Figure 17-2: Layout of heap leach pad showing Phase 1 stacked to the 5th lift and future planned leach pad liner area for Phases 2 and 3

17.4 Solution Management

Pregnant solution is collected and contained in a double layer HDPE-lined pregnant solution storage pond. The solution is covered with 4-inch diameter bird balls for bird protection and to help reduce evaporation. Barren solution is collected and contained in a double layer HDPE-lined barren solution storage pond. Like the pregnant pond, the solution is covered with four-inch diameter bird balls for bird protection and to help reduce evaporation. Both ponds overflow into an emergency solution storage pond. The active pond capacities allowing for five feet of freeboard are approximately 4.0 million US gallons for the barren pond, 15.6 million US gallons for the pregnant pond and 6.3 million US gallons for the contingency pond. The total pond capacities including freeboard are approximately 6.7 million US gallons, 24.8 million US gallons and 10.7 million US gallons, respectively.

17.5 Carbon Adsorption and Carbon Handling

Pregnant leach solution (PLS) is processed via two trains of CIC operating in parallel. These are referred to as E1 and E2. Train E1 is composed of five 12.0-ft diameter columns operating in series. The E2 train is configured as five columns, each being 8.0-ft diameter also operating in series. The carbon content of the individual column is 7 tons and 4.5 tons for trains E1 and E2 respectively.

The PLS feed to the CIC trains is first screened to remove any trash or debris and then reports to the CIC trains. PLS flows by gravity downstream through each of the columns with the carbon being transferred upstream in a counter current configuration. The precious metal loading being the highest in the first column and lowest in the fifth column. Carbon exiting the CIC trains is screened to recover any suspended carbon contained in the solution.

Carbon is transferred between columns using an air-lift system to minimize carbon attrition. Loaded carbon is transferred out of the first tank into a tanker truck for delivery to the centralized elution circuit using the air-lift system. Stripped carbon is transferred into the 5 column and subsequently transferred up the train until it is loaded.

17.6 Carbon Elution

Loaded carbon is transferred by tanker truck to the carbon elution and regeneration circuit in three-ton batches. Carbon is screened at 35-mesh and delivered to the carbon strip vessel. The loaded carbon is stripped with hot solution at an average flow rate of 50 gpm for approximately nine hours. The solution is made up of electrowinning barren solution supplemented by softened water make-up and 0.6-0.8 lb/ston (0.3-0.4 g/L) NaOH. using a propane-fired heater to a temperature of 275˚F and operating pressure of 55 psi. Overall strip efficiency is generally above 90%.

17.7 Carbon Thermal Reactivation

After the elution process, the stripped carbon is delivered either to acid wash or is sent to the regeneration kiln before being acid washed. Roughly 25% of the carbon being processed is regenerated in the kiln. The kiln is propane fired and is a vertically configured combustion air unit. It takes between 18 and 36 hours to process a three-ton batch of carbon through the kiln. The kiln operates at 1100-1150˚F.

17.8 Carbon Acid Washing

Stripped carbon is transferred to the acid wash circuit either directly after elution or after thermal reactivation. Acid washing is performed on three-ton batches of carbon using a solution containing about 2-3% hydrochloric acid. The dilute acid is circulated in the tank until the pH stabilizes; typically, at 2-4 pH. The final solution is discharged to one of the solution ponds at the site. The carbon is delivered to a tanker truck for delivery back to the CIC circuits.

17.9 Electrowinning

The pregnant strip (eluate) solution is processed via two Zadra-type electrowinning cells configured in series. The cells are fitted with steel wool cathodes and stainless-steel anodes. Solution is circulated through the two cells at a nominal flow of 22 gpm. The carbon strip solutions, preg and barren, are monitored during electrowinning for control.

Gold-silver sludge is washed from the cathodes using a pressure washer. The wet sludge is decanted and transferred to in-line filters for final liquid/solid seperation. The filtered sludge is then dried and prepared for smelting.

17.10 Electrowinning Sludge Drying and Retorting

The Florida Canyon ore contains relatively low levels of mercury. Mercury is soluble in cyanide solution and consequently will load on carbon, reporting to the electrowinning sludge. To mitigate the presence of mercury in the electrowinning sludge, the mercury is transferred to the mercury retorts where it is dried, and the mercury volatized off under a vacuum. The retort exhaust reports to a water-cooled condenser where the mercury is condensed and transferred to flasks for shipment. The gas phase exiting the condenser passes through several stages of carbon canisters to recover any residual mercury present

17.11 Smelting

The retorted electrowinning sludge is removed from the retort pans, mixed with flux and loaded into an induction furnace. The sludge is processed in batches of 100 lbs for smelting to produce doré bars. Upon completion of the melt and fusion process, the charge is poured into bar molds with the slag reporting to slag cones. The slag is shipped off-site for processing and precious metal recovery. The doré bars are removed from the molds, cooled, cleaned, sampled, weighed and stamped with bar identification number and readied for shipment. Analyses of the doré are performed in the on-site assay laboratory..

17.12 Sampling and Metallurgical Accounting

The crusher plant production is measured using a weightometer located on final product conveyor, prior to the radial stacker loadout. This weightometer is equipped with integral calibration weights that are used for calibration. The weightometer is checked and calibrated on maintenance down days, normally once a week.

The crusher is equipped with a cross-belt sampler located on the final product conveyor. Beginning in July 2018, samples are cut every hour the crushing circuit is in operation. The individual shift samples are delivered to the laboratory, composited by shift and submitted for assay and sample splits for metallurgical testing. There are capital expenditures planned in 2019 to improve the quality/representativeness of this important metallurgical sample.

Process solution samples are collected by shift using wire samplers to sample pregnant and barren solutions for the E1 and E2 CIC circuits. The wire samplers used at Florida Canyon are typical and widely used in the industry. Solution samples are collected each shift and submitted for assay. Corresponding solution flow to each of the CIC circuits is measured and recorded by shift. The assays and solution flows are used to calculate gold adsorbed onto carbon for each CIC circuit. Carbon in the CIC columns are inventoried monthly with samples taken and submitted for assay. The overall gold mass balance is calculated using the gold shipments for the month plus the net change in inventory. This is compared to the solution gold balance around the CIC circuits monthly.

17.13 Analytical Laboratory

The Florida Canyon analytical laboratory runs samples for the mine and process operations. These include blast hole assays, as well as process solution and doré samples.

- Hot CN soluble assays on all blast hole samples.
- Fire assays currently on 20% of all samples over 0.005 oz/ston by hot CN soluble assay
- Fire assays on manual and automatic samples of the crusher product
- Heap and CIC solution samples
- Carbon, slag and doré samples

17.14 Quality Control Procedures

For each batch of 20 samples analyzed by the hot CN soluble assay or fire assay procedure, a standard (known) reference sample, a blank and two duplicates are also run, giving a total of 24 samples. In addition, 5% of all ore samples (blast holes and crusher product) analyzed in the laboratory are sent out to McClelland Laboratories in Reno, NV, for repetition using the hot CN soluble assay procedure.

17.15 Metallurgical Testing

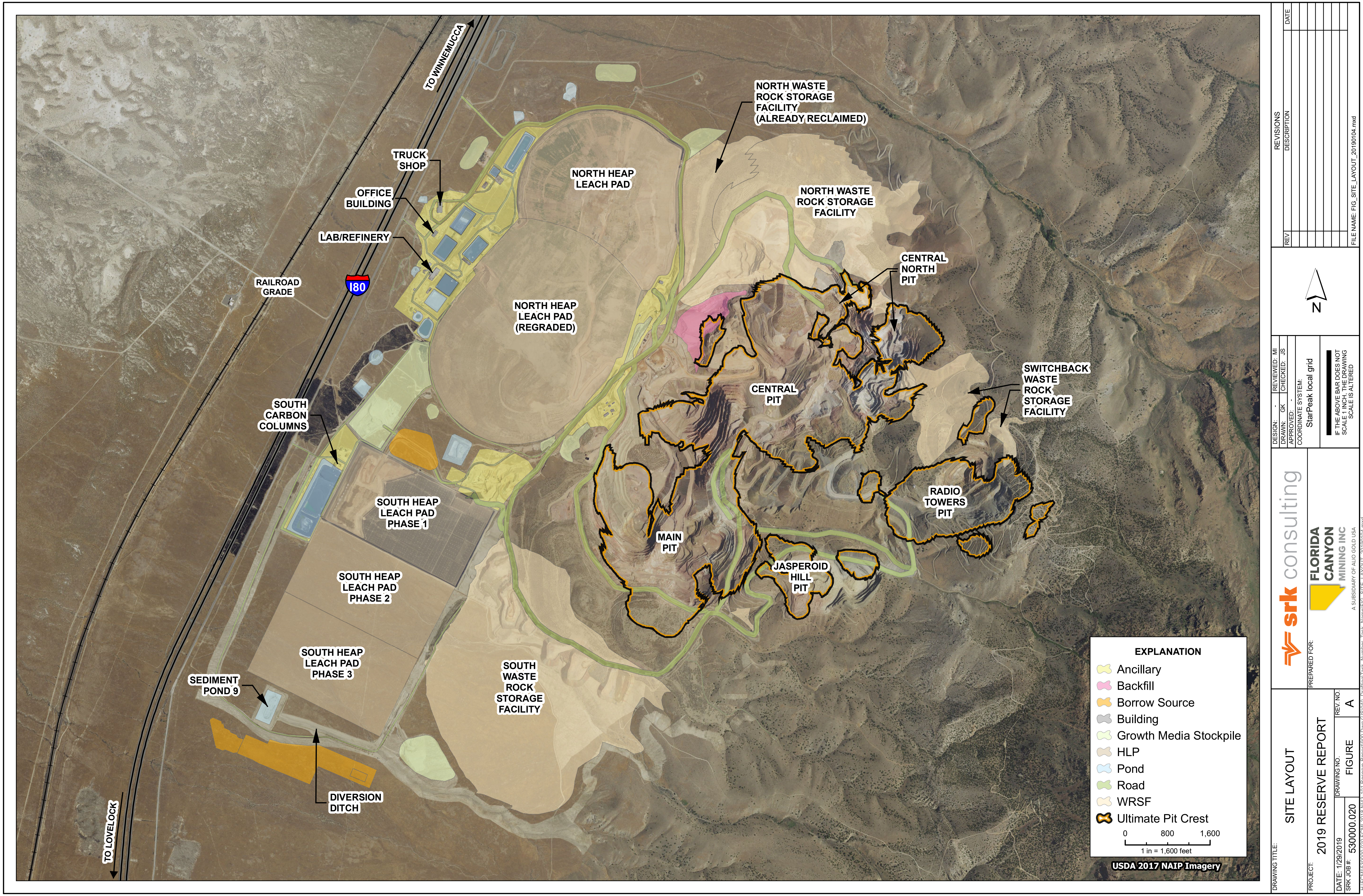
The Florida Canyon metallurgical laboratory can perform several standard metallurgical test used to monitor and optimize the heap leach operation. Monthly crusher composites are run to determine metallurgical performance on an ongoing basis. Additional metallurgical testing is done as part of the optimization process at Florida Canyon. Available column test work data was previously discussed in Section 13.

18 Project Infrastructure

18.1 General Site Layout

The Florida Canyon Mine has a well-established project infrastructure and is located adjacent to I-80, a major highway crossing the United States, traversing the active gold mining areas of Northern Nevada. In general, the site parallels I-80 in a northeast/southwest direction, the Union Pacific Railroad runs parallel to the highway approximately one-half mile northwest of the interstate. Existing infrastructure includes power, water, maintenance facilities, lab, office, gold processing and refining plants. Other existing infrastructure include open pits, waste rock repositories, heap leach pads, ponds and roads. The overall site layout is show in Figure 18-1.

Figure 18-1: General site layout



18.2 Access Roads and Logistics

The site is easily accessible by roads and logistics for mining goods and services are excellent. Major mining vendors are in Winnemucca, Nevada, Elko, Nevada, Reno, Nevada and Salt Lake City, Utah. Major components for mine mobile equipment are rebuilt in Reno and exchange components are typically available within one day. Process goods and services are also available either locally in Winnemucca or Elko and most parts are available within one day. Parts can be delivered by “hot shot” vendors that drive from airports or vendor locations in Reno, Salt Lake City and Elko, 24r hours per day, seven days a week. Doré bars are shipped from site to a refiner in Salt Lake City by a security firm that services multiple mines in the area.

18.3 Power

Power is transmitted via a 60-kV overhead transmission line owned, operated and maintained by NV Energy, who is the major provider of energy in the state of Nevada. NV Energy supplies most of the mines in Nevada, as well as the cities of Reno and Las Vegas. The utility is governed by the Nevada Public Utilities Commission who provides oversight on behalf of customers. Power is received from the 60-kV line by an onsite substation. FCMI bears the responsibility for owning, operating and maintaining the onsite substation, as well as all the power infrastructure on the mine side of the onsite substation. This infrastructure includes both underground and overhead power lines that feed 25-kV of electricity to distribution transformers after the voltage is stepped down from 60 to 25kV by the onsite transformer. Several distribution transformers drop the voltage down to operational requirements at the crusher, process plant, refinery and ancillary facilities. Critical areas of the process plant and refinery are backed up with diesel generators. Switch gear is installed in critical areas to isolate line power from generated power in the event of a power outage or interruption. FCMI employs personnel to maintain the mine electrical system and hires contractors to repair major issues with the system. Contractors are in Winnemucca, Elko, Reno and Salt Lake City, typically within a maximum of one day’s notice of a major power event.

18.4 Water

Water supply requirements are met with ground water wells. Water is pumped from the wells to supply leaching, process, dust control and drinking water. Florida Canyon has 2,415 acre-feet of water rights, which are adequate to meet the mines needs. Some groundwater is geothermal in nature and is pumped to two cooling ponds before distribution via a pipe to a water tank. Water is transported by pipe from the water tank to leaching, crushing, processing and stand pipes that supply water to large water trucks that apply water to haul roads.

18.5 Open Pit Mines and Waste Rock Storage Facilities

Multiple open pits and waste rock storage facilities exist on the site. Some of the previously mined open pits are partially backfilled. Future mining primarily mines the outer edges and below existing pits. Four primary mine areas comprise future and past open pits; jasperoid, main, central and radio tower. Mining waste is currently hauled to the South Waste Rock Storage Facility (South WRSF), in the future waste will continue to be hauled to the South WRSF, North WRSF, and backfill the Jasperoid pit once it is mined out. Reclaimed WRSFs also exist on the site.

18.6 Heap Leach Pads

Two heap leach pads are located on the site and referred to as the North Pad and South Pad. The North Pad is filled to capacity and all crushed material is now placed on Phase 1 of the South Pad. Two more phases will be built in the future to process the current reserve, Phase 2 and Phase 3, respectively. Solution is applied to approximately one-third of the North Pad system and a contained piping system allows for solution to flow to the South Pad, providing operational flexibility. South Pad makeup water can flow directly from the fresh water system or use solution from the North Pad to South Pad. Approximately one-third of the North Pad is available to leach material should economics warrant and an engineering review confirm the feasibility of doing so. The remainder of the North Pad is reclaimed.

18.7 Process Ponds

Both the North and South Pad systems have existing pregnant, barren, storage and contingency ponds. Several ponds are not in use in the North Pad system, ponds in the South Pad system will be used for the remainder of the mine life.

18.8 Gold Recovery Plant, Laboratory

A total of six sets of carbon columns are onsite, four at the North Pad system and two at the South. The maximum capacity is approximately 9,000 gallons per minute. Gold adsorption is almost exclusively done at the two South Pad column sets with a maximum flow of 5,000 gallons per minute. Carbon is transferred from the carbon columns to a gold recovery plant and stripped of gold in the elution and electrowinning circuits of the plan. The barren carbon is then acid washed, regenerated and returned to the carbon columns. Gold captured through the elution and electrowinning process is refined at the plant. A lab is also located at the plant processing pit samples, solution samples and bullion assays. Metallurgical testing is also housed in the laboratory facility.

18.9 Crushing Plant

A crushing plant was moved from the Standard Mine to the South Pad. The plant consists of a jaw crusher, two cone crushers, two screens, an agglomerator, as well as belts that transport crushed material to a radial stacker. Trucks haul the crushed material from the radial stacker to the leach pad.

18.10 Ancillary Facilities

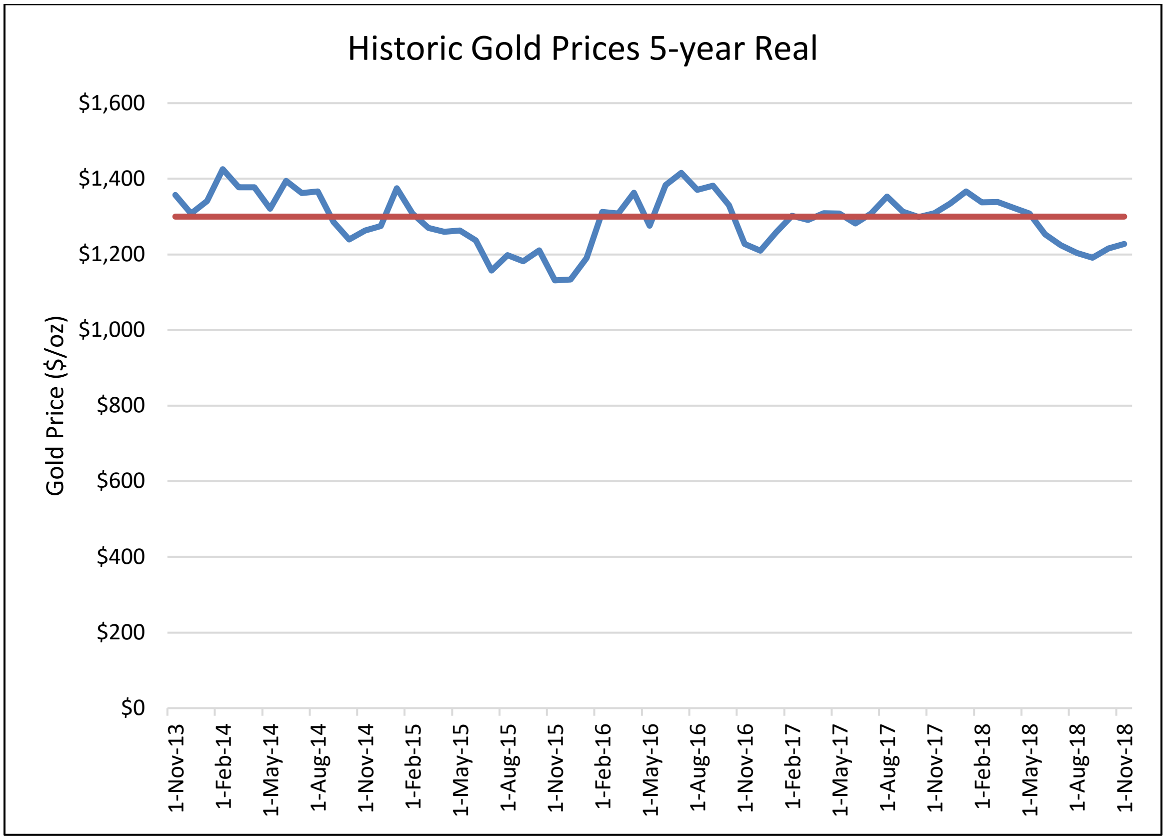
A mobile maintenance shop, process maintenance shop, warehouse, offices, truck wash pad and fuel farm comprise the majority of ancillary facilities at the site. The mobile maintenance shop includes two bays and the warehouse includes supplies for mobile equipment, crushing equipment, process parts and smaller items for support departments

19 Market Studies and Contracts

The mine produces doré bars of gold that are shipped to precious metals refineries. Security companies ship the bars to the refineries.

No contracts are in place for hedging or forward sales at the effective date of this report.

Gold is the only commodity evaluated in the economic analysis and the price used in the analysis is $1,300 per ounce of gold with sensitivity to other prices evaluated.



Source: SRK, 2018

Figure 19-1: Historic gold prices 5-year real

20 Environmental Studies, Permitting and Social Community Impact

The following sections discuss reasonably available information on environmental, permitting and social or community factors related to the Florida Canyon Mine. Where appropriate, recommendations for additional investigation(s), or expansion of existing baseline data collection programs, is provided.

SRK Environmental Specialist, Mark Willow, a Qualified Person in accordance with Companion Policy 43-101CP to National Instrument 43-101 – Standards of Disclosure for Mineral Projects, has visited the Florida Canyon Mine on several occasions over the past few years, and is familiar with the conditions on the property and any potentially available material information that could affect project development.

20.1 Environmental Studies

20.1.1 Environmental Baseline Data

Since the Florida Canyon Mine is partially located on public lands administered by the U.S. Department of the Interior, Bureau of Land Management (BLM), approval of the mine Plan of Operations (PoO) or any amendment thereto, requires an assessment and disclosure of potential environmental and limited social impacts as part of the BLM's obligations under the National Environmental Policy Act (NEPA).

The Florida Canyon Mine Amended Plan of Operations #20 (referred to herein as APO 20) (ASW 2013) proposed changes to the previously amended and approved PoO, referred to as APO 18. The proposed changes were analyzed under NEPA in the Florida Canyon Mining, Inc. South Expansion Project Environmental Assessment DOI-BLM-NV-W010-2013-0061-EA (FCMI APO 20 EA) (BLM 2014). The FCMI APO 20 EA included baseline data collection and impact assessment for a number of resources, including:

- Air quality
- Cultural resources
- Environmental justice
- Invasive, non-native species
- Migratory birds
- Native American Religious Concerns
- Water quality (surface water/groundwater)
- Economics and social values
- Historic trails

- Noise
- Paleontology
- Public access
- Rangeland management
- Soil
- Special status species
- Vegetation
- Visual resources
- Wildlife

The FCMI APO 20 EA also included an assessment of Cumulative Impacts, which is a standard requirement by the BLM and NEPA. The final EA was offered for public comment from August 19 through September 19, 2014. Four comment letters were received and the FCMI APO 20 EA was revised accordingly. Subsequently, a Finding of No Significant Impact (FONSI) and Decision Record (DR) were issued on November 26, 2014. Additional environmental protection measures and BLM recommended mitigation were outlined in the DR for:

- Migratory birds, special-status species, and wildlife
- Cultural and paleontological resources
- Air emissions
- Nighttime lighting
- Native American religious concerns
- Erosion and sediment control
- Petroleum products/hazardous materials/solid and liquid waste
- Spill prevention, control and countermeasures
- Growth media storage and stockpile management
- Site-wide monitoring
- Vegetation and non-native invasive species
- Public safety, access and signage, etc.

Given our extensive experience with EA development for mining projects in Nevada, and specifically for the BLM, it is SRK's opinion that the environmental studies and baseline data collected for the project (specifically APO 20) are appropriate and have adequately identified the environmental impacts associated with project implementation.

20.1.2 Protection and Species Mitigation

As noted above, the FCMI APO 20 EA included an impact assessment of Special Status Species. No federally listed endangered or threatened species or their critical habitats are known to occur within the biological resources assessment area. However, based on field surveys and an evaluation of habitat features, BLM sensitive species are present or have the potential to occur within or near the Project Area. Field surveys conducted by AMEC (2014) recorded two sensitive plant species and 21 sensitive animal species utilizing habitats within the Assessment Area, including 4 raptors, 2 migratory birds, 2 small mammals, and 13 bats.

The FCMI APO 20 EA concluded that APO 20 would result in loss of habitat and individuals of two species of sensitive plants present in the Project Area; the sand cholla and Lahontan beardtongue. In fact, the FCMI APO 20 EA found that the implementation of APO 20 could extirpate the local population of Lahontan beardtongue (Penstemon palmeri var. macranthus), which may be at risk from hybridization with the Palmer penstemon (Penstemon palmeri var. palmeri) seeded on areas reclaimed after past mining activities at Florida Canyon. As such, the BLM recommended mitigation measure be implemented to protect this species.

No mitigation measures were proposed for the sensitive animal species in the FCMI APO 20 EA. This issue will need to be revisited during any future expansion efforts and PoO amendments.

20.2 Environmental Management Planning

Major management plans for Florida Canyon are described in the following sections. In addition, FCMI holds a number of permits which also have various environmental management requirements.

20.2.1 WPCP Management Plans

Environmental management plans are required under the State of Nevada Water Pollution Control regulations at NAC 445A.398 as part of a site's Water Pollution Control Permit (WPCP). The Florida Canyon Mine WPCP was last updated in December 2016. The 2016 renewal application includes an Operating Plan in Appendix F, which includes the following sections:

- Section 2 - Fluid Management Plan (as required by NAC 445A.398.2)
- Section 3 - Monitoring Plan (as required by NAC 445A.398.3)
- Section 4 - Sampling
- Section 5 - Emergency Response Plan (as required by NAC 445A.398.4)
- Section 6 - Temporary Closure Plan (as required by NAC 445A.398.5)
- Section 7 - Tentative Permanent Closure Plan (as required by NAC 445A.398.6)

Because there are less than 30 consecutive days when the average daily temperature is below freezing at the Florida Canyon Mine, a Seasonal Closure Plan was not included in the WPCP application, as per NAC 445A.399.

20.2.2 Waste Rock Management

The WPCP sampling and reporting requirements includes quarterly sampling of waste rock with static testing requirements, followed up by kinetic testing depending on results received. The APO 20 also describes special waste rock management practices for unoxidized sulfide rock. Geochemical evaluations have shown that that waste rock material generated at the Florida Canyon Mine to date generally has an overall net acid-neutralizing potential. However, a small portion of the waste rock to be produced (0.2%) is unoxidized sulfide rock. Waste rock management practices described in the following paragraphs, are included in APO 20 (ASW 2013). The APO 20 mine plan estimates the sulfide material tonnage to be approximately 376,470 tons. This material will be handled in accordance with special waste rock handling procedures, outlined below.

Following blasting and as part of ore/waste control measures, sulfide rock types exposed are segregated in blocks and removed separately from the oxide ore or left in place. Sulfide waste has been historically segregated from oxide (non-reactive) waste and placed within the primary north waste rock storage facility thought placement is also authorized for the south waste rock storage facility. The non-oxide cells within the waste rock storage facilities are designed to isolate potentially reactive waste rock from water, air, and the plant root zone, and to prevent unrestricted infiltration of surface water through potentially reactive waste. The cells are also positioned on topographic highs between existing drainage channels and drainage diversions to minimize accumulation of subsurface water within the cell.

Sulfide material cells are constructed by end-dumping sulfide material between 50-foot lifts of oxide material. Following the placement of a 50-foot lift of oxide material growth medium is applied to the regraded waste rock storage facility surface to a minimum thickness of 1-foot to provide a suitable rooting medium for the reclaimed waste rock storage facility. Overall, waste rock storage facility surfaces are graded to a minimum slope of 3 percent away from the reclaimed crest towards the existing ground surface to promote runoff of direct precipitation. Diversion channels prevent run-on of stormwater from the adjacent ground surface.

20.2.3 Known Environmental Issues

Nitrate Plume

First identified through groundwater monitoring in 2000, the migration of nitrate from beneath the Florida Canyon HLP has been an issue with the Nevada Division of Environmental Protection – Bureau of Regulation and Reclamation (NDEP-BMRR). Several Findings of Alleged Violation (FOAV) and Orders have been issued on this matter; the first, for the release itself and the second for failing to properly address the release (and source). The final FOAV, which was issued on February 18, 2015, effectively shut down the heap from further solution application. The Florida Canyon Mine - Heap Leach Facility Final Permanent Closure Plan WPCP#NEV86001 (Knight Piésold, 2013) was then developed and submitted to the agency for review and approval. The plan involves closure of the center portion of the Florida Canyon HLP, making sure that leach solution applied to the northern portion of the facility would not migrate to the area under closure. One of the process ponds would be converted to an evaporation/transpiration test cell and drain-down from the closed portions of the Florida Canyon HLP would be managed per the plan (NDEP 2016).

The 2016 WPCP renewal included the following permit limitations regarding fluid application on the Florida Canyon HLP:

> *Pursuant to the February 2015 Finding of Alleged Violation and Order, the limit of process solution or fresh water application, shall be no closer than 450 feet north of the northern extent of the Stage III separation berm between Stage III HLP expansion and the 1995 HLP expansion. This limit will be surveyed and marked with permanent signs indicating to operators and inspectors the limit, on the ground, at intervals at a maximum distance of 500 feet between each sign and shall be visible from the sign on either side. The South Heap Leach Pad Phase 1 through 3 is exempt from this restriction.*

A report has been submitted to the NDEP-BMRR with quality assurance that the center portion of the Florida Canyon HLP has been closed in accordance with the closure plan. Ongoing monitoring and pumpback well operation will continue until the site remediation is completed. Pumpback system operations and reporting have been incorporated into the WPCP (NDEP 2016).

20.3 Required Permits and Status

A summary of the Florida Canyon Mine permits is included in Table 20-1. In some cases, the Florida Canyon Mine permits overlap with Standard Mine, as indicated. Permit status is discussed in the following sections.

Table 20-1: Current permits for Florida Canyon (as of August 20, 2018)

Regulatory Agency	Permit Name/Description	Status	Company	Number
Federal Permits				
BLM	Approved Plan of Operations Amendment APO 20	Approved Dec. 11, 2014	FCMI	APO 20 / BLM Case File Number N64628
BLM	FCMI APO 20 EA and FONSI	Approved November 2014	FCMI	DOI-BLM-NV-W010-2013-0061-EA
USGS	Production Report	--	FCMI	--
USFW	Biological Evaluation	--	FCMI	--
USACE	Clean Water Act 404 Permit	Changes to be filed in 2019	FCMI	SPK-1993-00562, SPK-1994-00672, SPK-1996-25191, SPK-1997-25143, SPK-1998-25164, SPK-2001-25091, SPK-2002-25128

Regulatory Agency	Permit Name/Description	Status	Company	Number
U.S. EPA	Hazardous Waste	Conditionally Exempt Small Generator	FCMI/ SGMI	NV0000441535
FCC	Radio Station Authorization	Expires 1/16/2026	FCMI	Registration No. 0014282289
FCC	Radio Station Authorization	Expires 8/23/2021	FCMI	Registration No. 0020884532
U.S. DOJ/BATF	Federal Explosives License/Permit	Permit held by Southwest Energy	Southwest Energy (Contractor)	9-NV-013-20-7L-00248
State				
NDEP-BMRR	Water Pollution Control Permit	Expires August 12, 2021	FCMI	NEV0086001
NDEP-BMRR (Reclamation Branch)	NAC 519A Reclamation Permit APO-20	Effective November 23, 2016	FCMI	#0126
NDEP-BAPC	Class II Air Quality Operating Permit	Issued July 9, 2018	SGMI, FCMI	AP 1041-0106.03
NDEP-BAQP	Mercury Operating Permit to Construct: Phase 2	Issued July 12, 2010	FCMI	AP 1041-2256
NDEP-BWPC	Mining Stormwater General Permit	Annual renewal due June 30, 2019	FCMI	MSW-176
NDEP-BWPC	Mining Stormwater General Permit	Annual renewal due June 30, 2019	SGM	MSW-175
NDEP-BWPC	Stormwater Pollution Prevention Plan (SWPPP)	Approved. Renewal expected in 2019	FCMI	--
BSDW	Permit to Operate a Public Water System	Annual renewal due October 31, 2019	FCMI	PE=0884-POU
BSDW	Permit to Operate a Public Water System	Annual renewal due October 31, 2019	FCMI	PE=0884-NTNC
NDOW	Industrial Artificial Pond Permit	Expires October 31, 2021	FCMI	S39296
NDOW	Industrial Artificial Pond Permit	Expires December 11, 2021	FCMI	S39299
NDWR	Florida Canyon Expansion Pond (Application for Approval of the Plans and Specifications for the	Issued. Permit fees paid annually	FCMI	J-501

Regulatory Agency	Permit Name/Description	Status	Company	Number
	Construction, Reconstruction or Alternation of a Dam)			
NDWR	Florida Canyon Utility Pond (Application for Approval of the Plans and Specifications for the Construction, Reconstruction or Alternation of a Dam)	Issued. Permit fees paid annually	FCMI	J-468
NDWR	Multiple Pond Locations (Application for Approval of the Plans and Specifications for the Construction, Reconstruction or Alternation of a Dam)	Issued. Permit fees paid annually	FGMI, SGMI	J-458
NDWR	South Process Ponds (Application for Approval of the Plans and Specifications for the Construction, Reconstruction or Alternation of a Dam)	Issued. Permit fees paid annually	FCMI	J-727
NDEP	PCS Waiver	Expires September 9, 2019	FCMI	SW513
Nevada Board for the Regulation of Liquified Petroleum Gas	Liquefied Petroleum Gas Storage	Annual renewal due January 2020	FCMI	5-5450-01 & 5-5450-02
TRI	Toxic Release Inventory State	Annual reporting due July 1st.	FCMI/SGMI	N/A
NSFM	Nevada State Fire Marshal Hazardous Materials Permit	Expires February 28, 2019	FCMI	76468
NDEP	Class III Waivered Landfill	Expires January 13, 2021	FCMI	SW342a
NDEP-BWPC	On-site Sewage Disposal System - General Septic	Annual renewal due June 30, 2019	FCMI	GNEVOSDS09 L0095
Pershing County	Nevada Business License - Florida Canyon Mining, Inc.	Expires February 29, 2020	FCMI	NV19991176060
Pershing County	County of Pershing Business License	Expires June 30, 2019	FCMI	License No. 007113

FCMI also has water rights and appropriations, as well as monitor well waivers issued by the Nevada Division of Water Resources (NDWR) for 25 production and monitoring wells at both mines. Water rights issues are discussed in Section 20.3.2.

20.3.1 Federal Permitting

A mine PoO which describes the construction, operation, reclamation, and closure of each facility, along with a cost estimate for financial surety that presents the reclamation and closure costs if the federal agency is forced to reclaim the mine, is typically required for mining operations that are located on (or partially on) public lands administered by a federal agency. In Nevada, this is most often the BLM, as it is concerning the Florida Canyon Mine. This PoO also functions as the Reclamation Permit application for the NDEP-BMRR, who regulate mining on State and private lands (see below).

The “complete” PoO has to provide sufficient detail in order to identify and disclose potential environmental impacts during the mandatory NEPA review process, under which the potential impacts associated with project development are analyzed through the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS). It is important to remember that EAs and EISs are public disclosure documents, not permit or approval documents. They are intended to disclose what, if any, environmental impacts may occur from the project and guide the decisions of the public land managers. The primary difference between the two types of NEPA documents is that an EA is prepared when no significant impacts are expected, or the potential impacts are unknown, and an EIS acknowledges the potential for significant impacts, and analyzes and discloses what those potential impacts are.

The BLM will generally look at several triggers to determine whether an EA or an EIS is the most appropriate document to disclose potential environmental impacts. These triggers include, but are not necessarily limited to:

- Number of acres that are proposed to be disturbed. The BLM will typically, but not always, consider 640 acres of proposed disturbance the threshold level for preparing an EIS. Depending on other factors, discussed below, projects less than 640 acres may still have to have an EIS prepared.
- If the proposed project is projected to have significant impacts to a critical element or resource, an EIS will have to be prepared.
- The BLM’s perception of how defendable an EA would be to the public. If the BLM anticipates that there are factors that may not pass an appeal by Non-Governmental Organizations or public opposition is expected to be significant, they are likely to determine that an EIS is necessary from the beginning.

The most recent Florida Canyon Mine PoO is APO 20 (BLM Case File N64628). APO 20 was evaluated under NEPA under the FCMI APO 20 EA (BLM 2014). A FONSI and Decision Record were issued for the FCMI APO 20 EA in November 2014.

On August 15, 2017, President Donald J. Trump issued Executive Order (EO) 13807 titled Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure. While EO 13807 was specifically targeted at large infrastructure project, the Secretary of the Interior, through his Order 3355 issued on August 31, 2017, broadened the scope of the streamlining efforts to include all U.S. Department of the Interior (including the BLM) NEPA analyses. The various BLM districts in Nevada have been attempting to interpret and implement Order 3355 to the best of their abilities. In the event that modifications to the PoO are proposed which would require analysis under NEPA, the project could be affected by these changes.

The other federal permits associated with topics in Table 20.1 which may be required can generally be acquired in much shorter timeframes than PoO authorization. Their discussion henceforth is limited.

20.3.2 State Permitting

The State of Nevada requires a number of operational mining permits regardless of the land status of the project. The following are the principal state permits required for mining, regardless of land ownership.

Water Pollution Control Permit – NDEP-BMRR

A WPCP is issued by the Department of Conservation and Natural Resources, NDEP-BMRR, to an operator prior to the construction of any mining, milling, or other beneficiation process activity. The need for a WPCP is not dependent on whether a water discharge is intended, or the quantity of ore to be extracted or processed. Facilities utilizing chemicals for processing ores are generally required to meet zero discharge performance standards. A separate permit may be issued for certain activities at a specific facility, or a permit may be issued for all activities at a single facility. A WPCP is required for the extraction of ore or previously processed material for beneficiation at any site. The WPCP is intended to ensure that Nevada's waters are not degraded by mining operations.

The Florida Canyon Mine is currently permitted under WPCP NEV0086001 which is valid until August 12, 2021.

Reclamation Plan – NDEP-BMRR

The Reclamation Branch issues a Reclamation Permit to an operator prior to construction of any exploration, mining, milling or other beneficiation process activity that proposes to create disturbance over 5 acres or remove in excess of 36,500 tons of material from the earth. The Reclamation Permit, which is issued in conjunction with the BLM 43 CFR § 3809 PoO (when mixed land status is involved), is intended to ensure that the lands disturbed by mining operations are reclaimed to safe and stable conditions to ensure a productive post-mining land use. Both the BLM PoO and NDEP-BMRR Reclamation Permit must include a financial surety to ensure that reclamation will be completed.

The Florida Canyon Mine is currently permitting for reclamation under the state Reclamation Permit #0126, and by the BLM under approval of APO 20 and the FCMI APO 20 EA.

Air Quality Operating Permit – NDEP-BAPC

Air quality permits are issued by the Bureau of Air Pollution Control (BAPC). While permitted separately in other regards, the Class II Air Quality Operating Permit covers both the Florida

Canyon Mine and Standard Mines. The Florida Canyon Mine is covered under Class II permit AP1041-0106.03 and Mercury Operating Permit to Construct: Phase 2 (AP 1041-2256).

Water and Stormwater – NDEP-BWPC

Water-related issues (e.g., stormwater discharges, sanitary septic systems, and underground injection control) are generally regulated by the Bureau of Water Pollution Control (BWPC). Stormwater discharge permits are required for certain activities by U.S. EPA regulations at 40 CPR § 122.26(b)(14). In compliance with this regulation, the BWPC will issue General Permit (NVR300000) for Stormwater Discharges Associated with Industrial Activity from Metals Mining Activities. The Stormwater Pollution Prevention Plan (SWPPP) is required under this permit.

Water Appropriations – NDWR

The NDWR is responsible for quantifying existing water rights; monitoring water use; distributing water in accordance with court decrees; reviewing water availability; and, reviewing the construction and operation of dams (among other regulatory activities).

Florida Canyon owns 2,634 acre-feet (ac-ft) of permitted and certificated underground water rights for the Florida Canyon Mine (Table 20-2). Florida Canyon's water rights are managed and maintained by TEC Civil Engineering Consultants and are currently in good-standing with the NDWR. An inventory of water rights for Florida Canyon and Standard mines is provided in Table 20-2.

Table 20-2: Florida Canyon Mine water rights

Permit	Cert. #	Well ID	Div. Rate (cfs)	Duty (AFA)	Notes
48997	13237	PW-2	0.68	102.24	PBU filed for Permit 61203 on 2/1/2011. No certificate issued yet. Permits 87181 & 87182 transferred from PW-1 Well (former Permits 48998 & 57097. Total combined duty of all permits is 321.31 AFA
57096			0.1	32.78	
61203			0.11	79.64	
87181			0.9	58.62	
87182			0.2796	48.03	
61707		PW-5	0.100	72.40	
61643		PW-6	1.080	780.98	
61644		PW-7	1.100	796.37	
76621		WS-1	1.000	327.67	PBU for Permit 76621 filed 7/23/2013. No certificate issued yet. Total combined duty of both Permits is 527.67 AFA.
84125			0.6104	200.00	
80979		WS-3	0.300	44.61	Total combined duty of both permits is 89.22 AFA
82831			0.29	44.61	
50061	13953	Trailer 1	0.045	3.13	Total combined duty of both permits is 7.46 AFA
50248	14448	Trailer 2	0.190	4.32	
79819-E		MW-16D	0.020	20.50	Total combined duty of all Environmental Permits is 20.50 AFA. No Proof of Beneficial Use is required
		MW-I	0.030		
79820-E		MW-16	0.010		
		MW-16B	0.020		
		MW-GA	0.030		
		MW-K	0.030		
		MW-M	0.020		
		MW-N	0.020		
		MW-O	0.030		
80098-E		MW-V	0.010		
82357-E		MW-29	0.300		
82358-E		MW-31	0.150		
87426-E		MW-KA	0.020		
1054	27	Humboldt Spring	0.025	18.1	Ownership is confirmed by NDWR.

Source: Enviroscientists, 2016

Other State Permits

Other state permits generally required for mining operations in Nevada include:

- Approval to Operate a Solid Waste System – NDEP, Bureau of Waste Management (BWM)
- Hazardous Waste Management Permit – NDEP, BWM
- Drinking Water Supply Facilities – NDEP, Bureau of Safe Drinking Water (BSDW)
- Industrial Artificial Pond Permit – Nevada Department of Wildlife (NDOW)
- Petroleum Contaminated Soils waiver – NDEP

- Liquified Petroleum Gas Storage – Nevada Board for the Regulation of Liquified Petroleum Gas, etc.

These permits can be acquired in much shorter timeframes. Their discussion henceforth is limited.

20.3.3 Local Permitting

A Special Use Permit is generally required by the county; usually a copy of the PoO is sufficient information for the county to review and issue this permit. In some cases, building permits are required as well.

Florida Canyon Permit Compliance

The permits required for operation of the Florida Canyon Mine appear to be in place, and, with a few minor exceptions, in effect. The major operating permits for the mine are the BLM Plan of Operations approval of subsequent amendments (APO 20) which authorize the use and disturbance of federal lands, the WPCP NEV86001 which authorizes the process facilities, and the Class II Air Quality Operating Permit (AP1041-0106.03) which essentially authorizes the mine to operate and control all air emissions.

The other major State permit, the Reclamation Permit #0126 was authorized as part of the approval process for APO 20 on November 4, 2014. The approved permit contains one Schedule of Compliance requirement, which requires FCMI to "Complete installation of all permanent contact and non-contact storm water diversion structures consistent with approved engineering designs".

In addition, the 2016 WPCP renewal includes specific facility conditions and limitations including the following schedule of compliance items:

1. Prior to introducing solution into the Process Pond S-1, the Permittee shall complete relining of the pond in accordance with a Division approved design and submit a construction report with as-built drawings and Quality Assurance/Quality Control information. Permit modification fees may apply.
2. Upon closure of the Barren Pond, when cessation of operation allows for removal of the piping and other infrastructure presently blocking access to the existing liner anchor trench, and prior to conversion of the pond to an evapotranspiration cell, the Permittee shall submit to the Division an application for Permit modification proposing replacement of the primary liner using a conventional anchor trench design. The secondary liner, welded to the existing, anchored liner, may remain after testing of the weld, according to a procedure approved by the Division, confirms that it is sound over the entire length.

20.3.4 Future Permit Amendments

Plan of Operation Amendments and NEPA

SRK understands that FCMI intends to implement a slightly modified schedule and footprint for pit development at Florida Canyon, which would push outside several of the pit footprints identified in APO 20 (and previous plan amendments). An increase in disturbance will require the approval of both the NDEP-BMRR (Reclamation Branch) under Reclamation Permit #0126 and the BLM under Plan of Operations N64628. Since APO 20 included in the Proposed Action for which the EA was prepared, the expansion of the Phase 7 Pit, this “activity” has already (and fairly recently) been analyzed under NEPA. As such, the minor excursions in the pit footprints proposed should theoretically be approved through a Determination of NEPA Adequacy (a.k.a., DNA) as opposed to another EA or even an EIS. However, when dealing with a regulatory agency such as the BLM, permitting approaches are never a certainty.

Should the BLM rationally approve the pit expansions under a DNA, FCMI could reasonably expect the authorization to require 4 to 6 months for approval. If the BLM resolves to prepare a second EA in as many years, FCMI may have to wait up to 12 months for final approval and issuance of the FONSI.

Water Pollution Control Permit

Water Pollution Control Permit NEV86001 would not be affected by this modification, and no further permitting or changes to this authorization should be necessary based on simple disturbance footprint alterations. If, however, FCMI decided to alter processing facilities such as changes to the heap leach pad footprint or capacity, a modification of the WPCP would be required.

Air Quality Permit

The permitting branches in the BAPC issue air quality operating permits to stationary and temporary mobile sources that emit regulated pollutants to ensure that these emissions do not harm public health or cause significant deterioration in areas that presently have clean air. A Class II permit, which has been issued to FCMI and covers both Florida Canyon and Standard (AP1041-0106.03), is issued for facilities that emit less than 100 tons per year for any one regulated pollutant and emit less than 25 tons per year total Hazardous Air Pollutants (HAPs) and emit less than 10 tons per year of any one HAP. This permit essentially acts as the facility operating permit, as no mining or processing can occur without it.

The Class II permit is currently limits crusher throughput to 1,600 tons per hour and 14 Mtons per year. In the event that FCMI would consider increasing crusher throughput, this permit would need to be modified. The remaining permits activities would be limited to scheduled renewals and updates of older permits. No material permitting issues are anticipated.

Radio Tower

RPG’s proposed expansion of the Radio Tower pit is likely to result in the removal of the hill on which two radio towers and one access road are located; thus, necessitating the removal and/or relocation of those facilities. Notwithstanding the legal and financial costs of such an action, FCMI will need to address the permitting consideration of this action. Typically, communication sites on federal public lands are granted under simple rights-of-way (ROW), which should be eclipsed by the underlying mineral rights, and is typically not a high-risk issue. There are three ROW grant authorizations associated with the Radio Tower pit, which include the following serial numbers:

- NVN-005656

- NVN-006407
- NVN-022262

Agreements for the relinquishment of the ROWs should be investigated more closely with FCMI.

20.4 Social and Community Requirements

Employees for the operating work force of the Florida Canyon Mine generally come from Winnemucca or Lovelock, Nevada. The FCMI APO 20 EA determined that the mine would result in a temporary positive effect on mine-related employment and income in terms of labor income and secondary employment. It was also concluded that net mineral proceeds, property and sales and use taxes would also increase during the life of the assessed action.

Other current projects in central Nevada have clearly demonstrated the need for open and transparent communications and negotiations with the local government, businesses, and residences, as well as the need for a clearly defined Social Management Plan (SMP). Without the support of this close-knit community, the approval within the local community and other stakeholders to operate may not be earned.

20.5 Mine Closure

20.5.1 Regulatory Requirements

Florida Canyon has a closure plan submitted to agencies per requirements for closure described in detail in the Water Pollution Control regulations (NAC 445A) in Nevada. Agency-approved closure plans for Florida Canyon reside in WPCP #NEV0086001 and a final permanent closure plan was submitted for the Florida Canyon HLP.

Relevant documents are the following:

- Water Pollution Control Permit #NEV0086001 Major Modification Florida Canyon Mine South Area Expansion, Section 7 - *Tentative Permanent Closure Plan*
- *Florida Canyon Mine Heap Leach Facility Final Permanent Closure Plan* (Knight Piésold, 2013).

In addition, the Florida Canyon Mine is permitted under Reclamation Permit #0126. Under this reclamation permit, FCMI is limited to 2,943.2 acres of surface disturbance. Both the BLM's 43 CFR § 3809 and State of Nevada's mine reclamation regulations (NAC 519A) require closure and reclamation for mineral projects. Closure of process facilities is also regulated with the WPCP and the NAC 445A. The reclamation procedures currently used at the mine incorporate the following basic components, as described in APO 20 (ASW 2013):

- Establishment of stable topographic surface and drainage conditions that would be compatible with the surrounding landscape and serve to control erosion.

- Establishment of soil conditions conducive to establishment of a stable plant community through stripping, stockpiling, and application of a suitable growth media.
- Revegetation of disturbed areas to establish a long-term, productive biotic community compatible with proposed post-mining land uses.
- Reduction or elimination of potential environmental impacts.
- Protection of public safety through stabilization, removal, and/or fencing of structures or landforms that could constitute a public hazard.
- Consideration of the long-term visual character of reclaimed areas.

Aside from concurrent reclamation, described below, it is proposed that reclamation activities will be performed in 2 separate timeframes, initial reclamation activities following the cessation of mining and reclamation activities following the proposed post-closure monitoring period.

Factors that could result in changes to the Mine include but are not limited to:

- Delineation drilling of the deposits continues in an effort to better define the precise limits of the ore body. Depending upon this work, the ultimate pit limits could shift.
- The quantity of overburden that can be economically removed to reach the reserves tend to change with time as costs and mining technology change.
- Gold price fluctuations affect economic pit limits.

20.5.2 Reclamation Bonding and Closure Cost Estimates

Pursuant to state and federal regulation, any operator who conducts mining operations under an approved PoO or reclamation permit must furnish a bond in an amount sufficient for stabilizing and reclaiming all areas disturbed by the operations. Conceptual reclamation and closure methods were used by FCMI to evaluate the various components of the project to estimate the reclamation costs. Version 1.1.2 of the Nevada Standardized Reclamation Cost Estimator (SRCE) was used by FCMI to prepare the Florida Canyon Mine reclamation bond cost estimate as part of the Reclamation Permit application. The SRCE uses first principles methods to estimate quantities, productivities, and work hours required for various closure tasks based on inputs from the user. The physical layout, geometry, and dimensions of the proposed project components were based on the current understanding of the site plan and facilities layout. These included current designs for the main project components including the well field infrastructure, and process plant components. Equipment and labor costs were conservatively estimated using state and BLM-approved costs for the 2017 calendar year. The regulatory-required, third-party conducted, reclamation bond cost estimate for the Florida Canyon Mine (as calculated for the December 2017 submittal) was approximately $30M. The first-party (FCMI-conducted) closure cost estimate, provided by FCMI and used in the technical economic model, is $16.8M, and considers the reduced labor and equipment rates of self-implementation over state/federal rates used for bonding, and has taken credit for partial, concurrent cash bond releases during the first few years of reclamation when the majority of the earthworks are customarily completed. SRK did not verify the assumptions or validate the closure cost estimate used and recommends that the calculation be revisited when more accurate labor and equipment rates are available from the site.

20.5.3 Existing Bonding at Florida Canyon

FCMI has two separate sureties as required by the NDEP and BLM, a trust fund for long-term management of groundwater fluids associated with the leach pad (Florida Canyon Long Term Trust Fund) and a reclamation surety to fund short-term closure and reclamation of the disturbance associated with mining operations. According to NAC 519A.350 these surety instruments can take several forms:

The surety may be one or combination of the following:

- A trust fund
- A bond
- An irrevocable letter of credit
- Insurance
- A corporate guarantee
- Any combination thereof

Although the total liability must be covered by any combination of the above surety types, the type and amount of bond type will vary by site. The financial strength of an operating company will dictate the amount of the bond that can be secured from a third party, and the remainder is usually posted as a cash equivalent financial surety (e.g., Certificate of Deposit). Currently, 10% of the Florida Canyon bond is backed with collateral and 10% of the Standard Mine bond is backed with collateral. The remainder of these appear to be guaranteed by insurance companies.

21 Capital and Operating Costs

21.1 Capital Cost Estimates

The Florida Canyon Mine is an ongoing operation. For the purposes of this technical report, all capital spent to date is considered a sunk cost. Additional capital is now needed to replace current equipment, construct leach pads, replace process equipment and improve crusher production. These capital costs are required to sustain operations. A summary of mine capital expenditures is shown in Table 21-1.

Table 21-1: Capital cost estimate

Item	LOM Total ($ 000)	2019 ($ 000)	2020 ($ 000)	2021 ($ 000)	2022 ($ 000)	2023 ($ 000)	2024 ($ 000)	2025 ($ 000)	2026 ($ 000)	2027 ($ 000)
Mine	39,286	0	8,072	5,397	6,717	6,698	6,534	3,231	2,019	617
Process	7,319	875	1,100	2,811	2,533	0	0	0	0	0
Leach pad	24,577	7,869	5,511	5,686	5,511	0	0	0	0	0
Owner and infrastructure	1,980	0	330	330	330	330	330	330	0	0
Total capital	73,163	8,744	15,013	14,225	15,091	7,028	6,864	3,561	2,019	617
Total contingency	8,739	1,531	1,978	1,984	1,960	466	433	246	109	32
Total capital and contingency	**81,901**	**10,275**	**16,991**	**16,209**	**17,052**	**7,494**	**7,296**	**3,807**	**2,128**	**649**

Source: SRK, 2018

21.1.1 Basis for Capital Cost Estimates

Capital costs for the mining equipment fleet and the replacement loaders for the crushing plant were based on supplier budgetary quotations. Items that did not have a direct quote (rubber-tired dozer, water truck) were factored from similar sized equipment. The budgetary quotation included delivery and on-site assembly. A 7.1% Pershing County sales tax was added to the quotation. Equipment costs were assumed to be leased and the capital portion of the leasing cost was included in the capital costs.

Process equipment installation cost was factored as a percentage of the purchase price.

Leach pad capital costs were developed from first principles. Contractor and material costs from 2018 leach pad construction quotations for a northern Nevada project were used as a basis for costing leach pad construction.

All capital costs are in 2018 US dollars.

21.1.2 Mining Capital Cost

All mining equipment capital costs assume replacement of existing equipment. The equipment will be replaced to minimize the cost of maintaining a fleet with high operating hours and increase equipment availability. Equipment purchase cost, which includes delivery, assembly and sales tax, and equipment replacement is shown in Table 21-2.

Table 21-2: Equipment purchase schedule

Mining Equipment	Price ($ 000)	LOM quantity	2019	2020	2021	2022	2023
CAT 993 Loader	3,122	**2**		1		1	
Cat 785 Trucks	2,329	**8**		4	2	2	
Cat 16G Motorgrader	1,135	**2**		2			
Cat D9 Dozer	1,170	**2**			1		1
Cat D10 Dozer	1,555	**1**		1			
DM45 Drill	1,392	**2**		2			
Cat 777 Water Truck	1,499	**1**			1		
RT Dozer	2,142	**1**					1

Source: SRK, 2018

The purchase of the equipment is assumed to be through a leasing agreement.

Only the capital portion of the equipment lease was included in the capital cost estimate. The interest portion of the lease payments was excluded. Total cost of the interest over the life of the leases total $6.7M.

No salvage value for the existing equipment was included in the economics.

Other mining capital included the relocation of the radio towers. The $1.525M cost of relocation was supplied by the owner of the towers. The cost for two used service trucks and one used lube truck were based on recent purchases of similar equipment. The cost for upgraded mine planning software was included in capital.

21.1.3 Process Capital Costs

Process equipment capital includes:

- Improving the primary crushing system feed system
- Replacing equipment in the processing plan
- Replacing loaders used at the primary crusher

A feeder will be added in front of the primary crusher to allow more efficient feeding. Capital costs assumed that a new feeder available from Alio's San Francisco mine would be moved to Florida Canyon. Installation costs were factored based on the cost of a new feeder.

Replacement of the kiln, strip vessel and thermal fluid heater are scheduled in 2020. The purchase price of these items was based on vendor quotations. These items are for replacement of existing equipment, and it was assumed that electrical, piping and control system changes would be minor. The installation cost was assumed to be 50% of the purchase price. Sales tax on the purchase price was also included in the capital estimate.

Direct purchase of two new Caterpillar 992 loaders and a used mechanic truck were also included in the capital cost estimates. These items are replacements for existing equipment.

21.1.4 Leach Pad Capital

Leach pad capital cost was estimated from first principles using equipment, labor and materials costs from a similar 2018 project in northern Nevada. Costs were estimated assuming four equal sized leach pads would be constructed adjacent to the current leach pad. Designs have not been completed on these pads. Estimates were made on the earthwork quantities from similar projects. Timing of the leach pad construction is based on a stacking plan, assuming 800,000 tons stacked per month. The cost for the designing and permitting the phases was also included in the capital.

The leach pad capital cost also includes costs for constructing a diversion channel around the entire leach pad build out area. Costs for the diversion channel are based on a contractor bid.

21.1.5 Other Capital Costs

Allowances were made for purchases of light vehicles and other miscellaneous capital for the remainder of the mine life.

21.2 Operating Cost Estimates

21.2.1 Basis for Operating Cost Estimates

Since the Florida Canyon Mine has been in continuous operation after declaring commercial production in December 2017, LOM operating costs were estimated based on the mine's proposed 2019 operating budget, dated November 5, 2018, in combination with first principle cost estimates where necessary. The 2019 operating budget was also compared to 2018 actual costs to determine the appropriateness of the 2019 budgeted figures. Adjustments were made to the estimated LOM operating costs as required to ensure they were representative of estimated steady-state operating conditions from April 2019, when the mine is estimated to be producing at a rate of 800,000 tons of ore per month, to the end of the mine life.

Certain assumptions were also made for estimating purposes. These included continued use of the existing equipment fleet in the mine, at the crushing plant, and on the leach pad in the same manner and methodologies as during 2018, with the exception that the existing crusher dump pocket would be upgraded in early 2019 so as to obviate the need for a crushing plant feed loader. It was also assumed that equipment would be replaced as per the LOM capital replacement schedule with no adjustment to operating costs except for the mine haulage trucks. For the mine haulage trucks, hourly costs were estimated for the older existing fleet as well as for new replacement trucks, and blended hourly rates were used to estimate haulage costs as new replacement trucks are added to the fleet.

21.2.2 Unit Cost Modeling

The unit cost model used in this report was based on the Florida Canyon 2019 operating budget dated November 5, 2018. Costs in this model included actuals from January 2018 through August 2018, followed by costs forecasted by Florida Canyon Mine staff for the period September 2018 through December 2019. Average costs during the period April 2019 through December 2019 were then utilized in estimating LOM costs in the cash flow estimate, as they were deemed to be most representative of steady-state operating conditions when the mine is estimated to be producing at an average rate of 800,000 tons of ore per month.

Analysis of the 2019 budget costs resulted in a decision to adopt the following unit costs as representative LOM costs:

Table 21-3: Unit costs used for LOM cost estimates

Cost Category	Unit Cost ($/ston processed)
Administration	0.59
Crushing	0.86
Processing	1.99

Source: THB, 2018

Mining costs from the 2019 budget analysis were not entirely used. Instead, LOM mining costs were based on a combination of the 2019 budget and estimated haulage truck hourly operating costs.

21.2.3 Total Mining Costs

A summary of the estimated mining costs is shown in Table 21-4. The grand total LOM mining costs are $332.3M, or $1.75 per ton material moved.

Table 21-4: Mining costs

Cost Component	Key Driver	Units	LOM ($ 000)	Unit Cost ($/ston)
Base Mining Cost	$0.79	$/ston mined	149,476	0.79
Mining Fixed Costs	$339,942	$/month	39,161	0.21
Haulage Operator Labor	$28,924	$/truck/month	39,366	0.21
Haulage "Equipment" Costs	$150.82	$/hr	104,346	0.55
Total Mining Costs			332,350	1.75

Source: THB, 2018

Total mining cost per ton of ore for the LOM equals $3.55 per ton.

21.2.4 Total Operating Costs

Total estimated operating costs for the Florida Canyon Mine by period are shown in Table 21-5. LOM operating costs are estimated at $7.01 per ton of ore.

Table 21-5: Total estimated operating costs

Item	Units	LOM	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ore Processed	tons	93,656,973	9,450,000	9,600,000	9,600,000	9,600,000	9,600,000	9,600,000	9,600,000	9,600,000	9,600,000	7,406,973
Operating Cost												
Admin	($M)	57.1	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Mining	($M)	332.3	27.3	33.4	36.2	36.3	34.3	32.3	37.5	44.6	31.3	18.9
Crushing	($M)	80.8	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.4
Processing	($M)	186.4	18.8	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	14.7
Total	($M)	656.6	60.0	66.5	69.3	69.4	67.4	65.4	70.6	77.7	64.4	45.8
Unit Operating Cost												
Admin	($/ston)	0.61	0.60	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.77
Mining	($/ston)	3.55	2.89	3.48	3.77	3.79	3.57	3.37	3.91	4.65	3.26	2.56
Crushing	($/ston)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Processing	($/ston)	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99
Total	($/ston)	7.01	6.35	6.93	7.22	7.23	7.02	6.82	7.35	8.1	6.71	6.18

Source: THB, 2018

21.2.5 Labour Cost

Estimated steady-state headcount levels for the administration, crushing, processing and mining departments for the LOM are shown in Table 21-6.

Table 21-6: Estimated steady-state headcount levels for the administration, crushing, processing and mining departments

Department	Hourly	Salary	Total
Administration/Other	5	18	23
Mining	90	6	96
Crushing	34	3	37
Process	26	3	29
Total	155	30	185

Source: THB, 2018

22 Economic Analysis

22.1 General

The economic analysis of the Florida Canyon Mine was undertaken using a discounted cash flow (DCF) model in Microsoft Excel. Cash flows in the model were based on January 01, 2019 US dollars with no escalation of costs or revenues. The model used beginning of period discounting of cash flows at a base-case discount rate of 5% and a valuation date of January 01, 2019. All cash flows prior to January 01, 2019 were considered sunk and were not used in the valuation except for tax analysis purposes. Financing costs, including the interest cost portion of existing and proposed mine equipment leasing, were excluded from the valuation except for the purpose of tax analysis.

Since the initial capital expenditures to bring the Florida Canyon Mine to commercial production have been spent prior to January 01, 2019, internal rate of return (IRR) and payback were not applicable to the economic analysis.

22.2 Summary of Results

- After-tax $NPV_{5\%}$ of $105M based on a $1,300 per troy ounce gold price
- LOM gold production of 734,000 troy ounces with a 9.8-year mine life
- LOM free cash flow of $138M, after tax, at $1,300 per troy ounce gold
- Capital expenditures of $81.9M expected over the LOM, including replacement of mining fleet
- LOM cash costs of $903 per troy ounce of gold and all-in sustaining costs of $1,058 per troy ounce of gold

Table 22-1: LOM annual project cash flow

Item	Total ($M)	2019 ($M)	2020 ($M)	2021 ($M)	2022 ($M)	2023 ($M)	2024 ($M)	2025 ($M)	2026 ($M)	2027 ($M)	2028 ($M)	2029 ($M)	2030 ($M)	2031 ($M)	2032 ($M)
Gross Revenue	954.4	80.9	87.6	95.3	93.8	103.1	107.4	89.2	111.1	92.1	62.7	31.3	-	-	-
Refining Charges	2.6	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.1	-	-	-
Royalties	43.9	3.7	4	4.4	4.3	4.7	4.9	4.1	5.1	4.2	2.9	1.4	-	-	-
Net Revenue	907.9	77.0	83.4	90.7	89.2	98.1	102.2	84.8	105.7	87.6	59.7	29.7	-	-	-
Mining	332.5	27.3	33.6	36.2	36.3	34.3	32.3	37.5	44.6	31.3	18.9	-	-	-	-
Processing	274.4	27.1	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	21	7.5	-	-	-
G&A	56	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	2.7	-	-	-
Total Cash Costs	*662.9*	*59.8*	*66.3*	*68.9*	*69*	*67*	*65*	*70.2*	*77.3*	*64*	*45.2*	*10.2*	-	-	-
Sustaining Capital	67.7	5.7	12.6	14.2	15.1	7	6.9	3.6	2	0.6	-	-	-	-	-
Total AISC	*777.1*	*69.4*	*83.1*	*87.7*	*88.7*	*79.1*	*77.1*	*78.1*	*84.8*	*69.1*	*48.3*	*11.7*	-	-	-
Other Capital	14.2	4.6	4.4	2	2	0.5	0.4	0.2	0.1	-	-	-	-	-	-
Tax	8.7	1.6	1.2	1.0	0.4	0.9	1.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2
Closure Costs	16.8	-	-	-	-	-	-	-	-	-	-	1.7	3.4	3.4	8.4
Free Cash Flow	**137.6**	**5.3**	**-1.1**	**4.6**	**2.7**	**22.7**	**28.4**	**10.4**	**25.8**	**22.6**	**14.1**	**17.7**	**-3.5**	**-3.5**	**-8.6**
Discount Factor (5%)		*1*	*0.95*	*0.91*	*0.86*	*0.82*	*0.78*	*0.75*	*0.71*	*0.68*	*0.65*	*0.61*	*0.59*	*0.56*	*0.53*
Net Present Value	**104.5**	**5.3**	**-1.0**	**4.2**	**2.4**	**18.7**	**22.2**	**7.8**	**18.4**	**15.3**	**9.1**	**10.9**	**-2.1**	**-2**	**-4.5**

Source: THB, 2018

A summary of all-in-sustaining-costs (AISC) can be found in Table 22-2.

Table 22-2: Summary of all-in-sustaining costs (AISC)

Item	LOM ($M)	LOM ($/oz)
Mining	333	453
Processing	274	374
General & administrative	56	76
Total cash costs	**663**	**903**
Refining Charges	3	4
Royalties	44	60
Sustaining capital	68	92
All-in Sustaining Costs	**777**	**1058**

Notes on annual cash flow forecast

- Note that pre-finance free cash flows exclude the interest component associated with $37.5M of proposed equipment leases which total approximately $6.7M based on current rates and terms available from CAT Financial. The pre-finance free cash flow also excludes both the interest and principal payments on $3.7M of existing leases. The inclusion of these finance charges would decrease the NPV of the project from $104.5M to $93.9M at $1300/oz gold.
- Non-cash costs were excluded from AISC.
- Closure costs net of future bond releases were estimated based on forecast disturbances at the end of the mine life totalling $16.8M. Future bond releases were estimated at $3.3M.
- Working capital was not included in the cash flow forecast.
- Reclamation bond premiums were classified as financing cash flows and are therefore excluded from the cash flow forecast and AISC.
- Free cash flow is defined as revenues less AISC, non-sustaining capital, taxes and closure costs and totaled $138M LOM. Discounting these cash flows using a 5% discount rate results in a net present value of $105M for the LOM.
- An Excel spreadsheet cash flow model dated 10 Jan 2019 prepared by Alio Gold, was fully relied upon for: a) determination of recoverable gold inventory on the leach pad as of the effective date of this report, b) process recovery assumptions, c) determination of refining charges and royalties, d) categorization of capital components, including contingency, into "sustaining" and non-sustaining or "other" categories, e) definition of AISC, including the exclusion of property taxes from AISC, f) the exclusion of equipment finance charges and reclamation bond premiums from the cash flow forecast, g) tax estimates (including allowable tax deductions), and h) closure costs.

22.3 Annual Production Schedule

Table 22-3 below summarizes the production schedule in US customary units for the Florida Canyon Mine which forms the basis for the calculation of revenues.

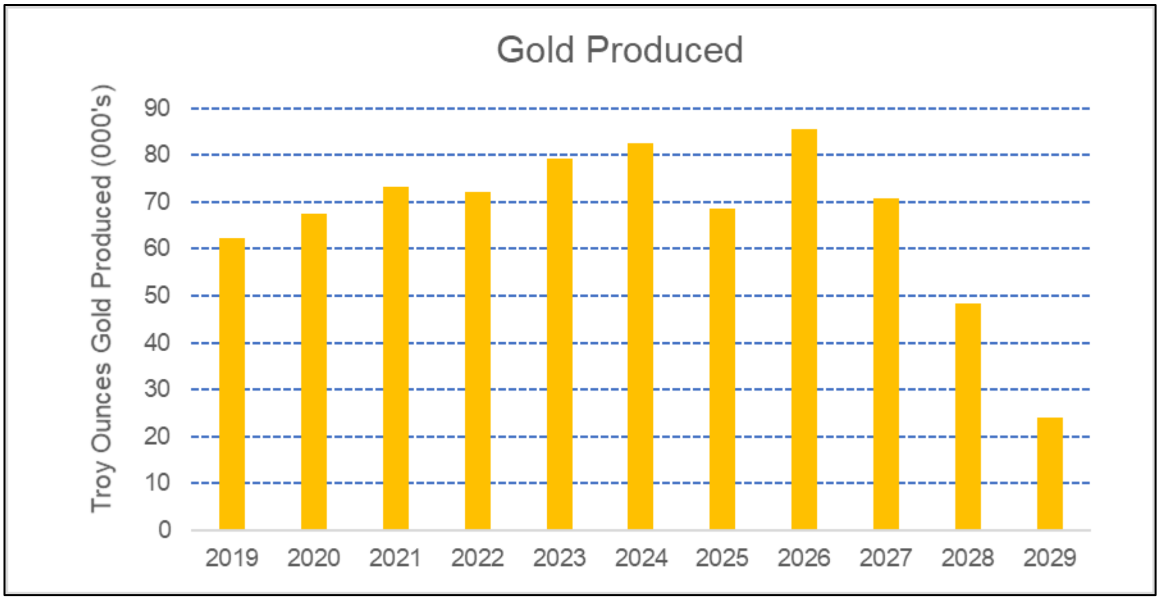
Table 22-3: Production schedule summary

Year	Ore Mined (st 000)	Waste Mined (st 000)	Strip Ratio (waste: ore)	Gold Grade (oz/ston)	Gold Produced (oz 000)
2019	9,503	4,426	0.47	0.010	62
2020	9,600	9,323	0.97	0.010	67
2021	9,600	11,802	1.23	0.011	73
2022	9,600	12,055	1.26	0.011	72
2023	9,600	9,595	1.00	0.012	79
2024	9,600	6,926	0.72	0.012	83
2025	9,600	13,693	1.43	0.010	69
2026	9,600	15,787	1.64	0.013	85
2027	9,600	9,111	0.95	0.010	71
2028	7,354	3,870	0.53	0.009	48
2029					24
Total	93,657	96,588	1.03	0.011	734

Source: SRK, 2018

The production schedule excludes actual production from November 1, 2018 to December 31, 2018. In addition, gold production in the final years of operation includes recovery of gold in inventory in the heap leach pads as of November 1, 2018. This inventory is subject to finalization of 2018 production reports and refinery adjustments. As such, mineral reserves are not exactly equal to scheduled gold production LOM.

Figure 22-1 shows the annual gold produced.



Source: SRK, 2018

Figure 22-1: Gold production

22.4 Pricing Assumptions

The base case gold price used for economic analysis was $1,300 per troy ounce of gold, and this price was determined to be appropriate for this study based on recent consensus market forecast report gold price forecasts (CMF, 2018) and the SRK database.

No benefit due to corporate hedging programs was applied to revenue calculations.

22.5 Process Recovery Assumptions

Gold production is defined as having occurred based on when it is absorbed onto carbon in the recovery circuit. Average metallurgical recovery per year was based on the ratio of gold produced to gold placed on the leach pad during a rolling six-month period. Since gold recovery was still in ramp up mode in late 2018, gold recovery averaged 67% in 2019, but 71% from 2020 through the LOM. The 71% metallurgical recovery applies to all gold placed on the heap, including that portion which was estimated in inventory as of November 1, 2018.

22.6 Capital Costs

Capital costs for the LOM are primarily to replace current mining equipment, construct additional leach pad capacity, upgrade process equipment and improve crusher production and efficiency. LOM capital costs were estimated at $81.9M. A portion of these costs are required to sustain operations ($67.7M), while a portion are targeted at reducing operating costs and improving reliability ($5.5M). A contingency was added to the capital cost estimates where appropriate, totalling $8.7M, all of which has been included with non-sustaining costs in “Other Capital” in the cash flow.

Sustaining capital is predominantly replacement of the existing mining fleet starting in 2020 and construction of four expansions to the existing heap leach pad. Total sustaining capital of $67.7M over the LOM equates to $92 per troy oz of gold produced, and is detailed in Table 22-4. AISC for the LOM are $777M, or $1,058 per troy oz of gold produced.

Table 22-4: LOM sustaining capital costs

Item	LOM ($ 000)	2,019 ($ 000)	2,020 ($ 000)	2,021 ($ 000)	2,022 ($ 000)	2,023 ($ 000)	2,024 ($ 000)	2,025 ($ 000)	2,026 ($ 000)	2,027 ($ 000)
Mine										
Mine equipment, leasing costs	**37,470**	-	6,395	5,258	6,717	6,698	6,534	3,231	2,019	617
Mine maintenance equipment	**471**	-	332	139	-	-	-	-	-	-
Mine total	**37,941**	**-**	**6,727**	**5,397**	**6,717**	**6,698**	**6,534**	**3,231**	**2,019**	**617**
Process										
Heavy mobile equip	**5,344**	-	-	2,811	2,533	-	-	-	-	-
Process total	**5,344**	**-**	**-**	**2,811**	**2,533**	**-**	**-**	**-**	**-**	**-**
Leach pad										
Mob/admin/EPCM	**330**	155	-	175	-	-	-	-	-	-
Pad	**22,044**	5,511	5,511	5,511	5,511	-	-	-	-	-
Miscellaneous	**20**	20	-	-	-	-	-	-	-	-
Leach pad total	**22,394**	**5,686**	**5,511**	**5,686**	**5,511**	**-**	**-**	**-**	**-**	**-**
Owner and Infrastructure	**1,980**	-	330	330	330	330	330	330	-	-
Owner and Infrastructure Total	**1,980**	**-**	**330**	**330**	**330**	**330**	**330**	**330**	**-**	**-**
Total sustaining capital	**67,660**	**5,686**	**12,568**	**14,225**	**15,091**	**7,028**	**6,864**	**3,561**	**2,019**	**617**

Source: SRK, 2018

22.7 Operating Costs

G&A costs are based on detail provided in Section 21.2.2, but exclude property taxes, which are included in the line item “Tax”.

Annual mining costs are based on detail provided in Section 21.2.3. In summary, mining costs were developed based on the existing owner mining unit operations and estimated truck haulage schedules and distances. As the existing truck fleet is replaced, maintenance costs were based on first principles for new equipment. Key mining consumables are as per Table 22-5.

Table 22-5: Key mining consumables

Item	Units	units/ston	$/unit	$/ston
Diesel	US Gallon	0.095	2.49	0.24
Explosives (ANFO & Heavy ANFO)	Pound (avdp)	0.37	0.26	0.09

Source: SRK, 2018

Annual processing costs are the sum of “Crushing” and “Process Costs” which are based on detail provided in Section 21.2.2. In summary, processing costs were estimated based on current operations, with adjustments to the operating cost following capital improvements to eliminate re-handling of ore ahead of the crusher. Process costs in 2029 are based on an assumption of the likely profile of residual leaching costs after mining ceases. Key process consumables are as per Table 22-6.

Table 22-6: Key process consumables

Item	Units	units/ston	$/unit	$/ston
NaCN	Pound (avdp)	0.48	1.17	0.56
Lime	Pound (avdp)	2.1	0.13	0.27
Dustreat 96119E	Pound (avdp)	0.085	1.01	0.09
Carbon	Pound (avdp)	0.035	0.96	0.03

Source: SRK, 2018

22.8 Royalties

Florida Canyon production is subject to two royalties payable to third parties based on gold revenues: a 2.5% NSR royalty and a 3.25% royalty based on NSR less allowable deductions. The two royalties equate to 4.6% of net revenues at $1,300 per troy oz gold price, or $60 per troy oz produced.

22.9 Taxation

Estimates for taxes payable include the Nevada Net Proceeds (NNP) tax of 5% of taxable income, US Federal tax at 21% of taxable income, property taxes and Nevada State Mining tax. Life of mine

NNP tax is estimated at $0.7M, LOM US Federal Tax is estimated at $3.3M, and of LOM property taxes are estimated at $4.7M.

22.10 Offsite Costs

Charges to refine ore into saleable gold are estimated at $3.48 per troy ounce of gold and are based on the current precious metals refining contract.

22.11 Sensitivity Analysis

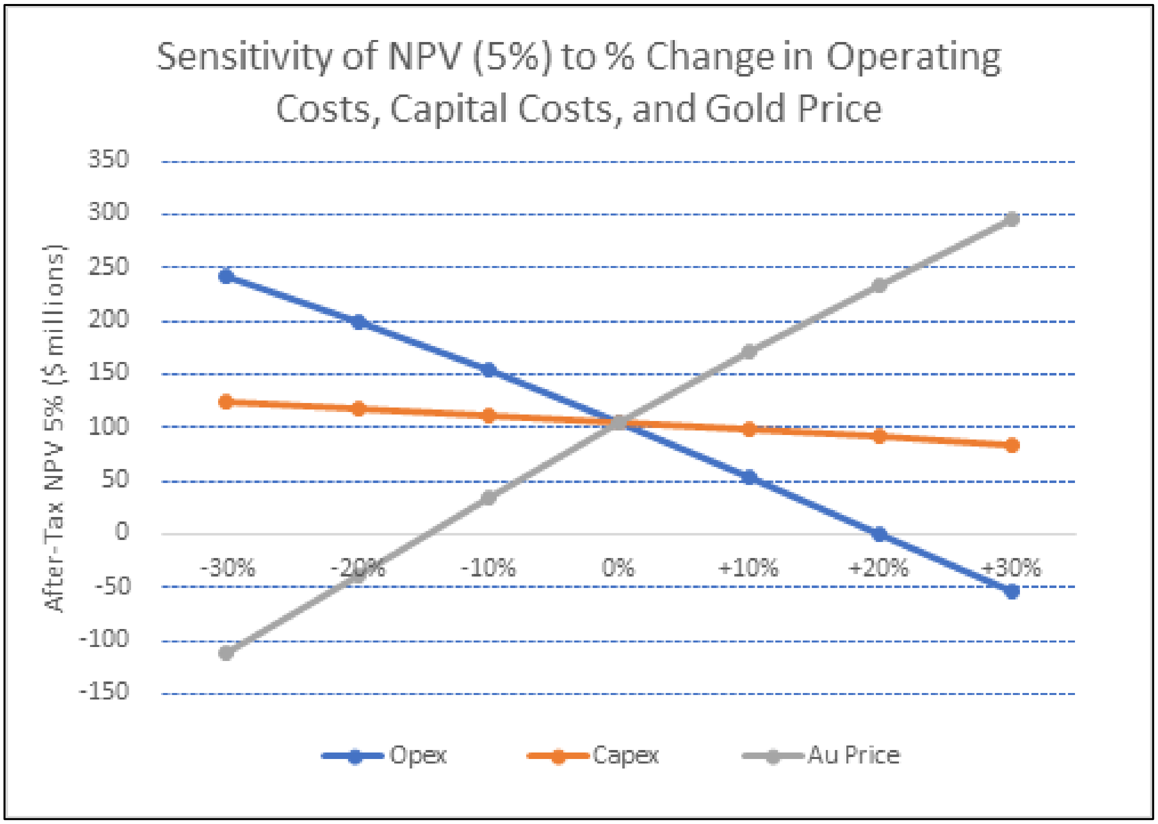
Sensitivity of NPV and LOM free cash flow to gold price are included in Table 22-7.

Table 22-7: Sensitivity of net present value and LOM free cash flow to gold price

Gold Price ($/oz)	NPV (5%) ($M)	LOM Cashflow ($M)
1,200	51	71
1,250	78	105
1,300	**105**	**138**
1,350	131	170
1,400	156	202
1,450	181	233
1,500	205	263

Source: SRK, 2018

Sensitivity of net present value to percent change in operating costs, capital costs, and gold price are shown in Figure 22-2 As illustrated, the Florida Canyon Mine NPV is most sensitive to gold price and operating costs.



Source: SRK, 2018

Figure 22-2: Sensitivity of NPV to percent change in operating costs, capital costs, and gold price

23 Adjacent Properties

There are no immediately adjacent properties that have bearing on the mineral resources or mineral reserves of Florida Canyon.

Alio Gold owns the contiguous property to the south, the Standard Mine project (see Figure 4-2). The Standard Mine located approximately four miles to the south of Florida Canyon, historically produced gold and continues to produce minor amounts of gold as of the effective date of this report. The Standard Mine shares no major processing facilties or infrastructure with the Florida Canyon Mine, and is not part of this technical report.

24 Other Relevant Data and Information

There is no other relevant data or information that has bearing on the current mineral resource estimate and mineral reserve estimate presented in this technical report.

Additional information is available for the project, after the effective date of the report. Additional actual information is compiled monthly, including but not limited to, mining operating data, heap leach processing information, detailed operational environmental monitoring and compliance information, project operating and capital costs. In general, this information is not considered as it was collected after the effective date of this report.

25 Interpretations and Conclusions

25.1 Mineral Resource Estimate

SRK concludes that the Florida Canyon gold deposit geology is sufficiently well understood from drilling and open pit mine exposures to allow for geological modeling of lithology, and alteration of host rock lithologies. Total project drilling in the database is 4,340 drillholes for 1,946,804 ft. Of the total number of drillholes, there were 55 historical core holes for 34,522 ft. Thus, the recent drilling of 18 in-fill RC drillholes in 2017 has added additional information for definition of local mineralization continuity but have minimal impact on the total drillhole database and the mineral resource. The majority of the total project drilling was conducted on a nominal 100-ft drillhole collar spacing; sufficient to define gold mineralization.

The drilling and sampling procedures were completed by industry standard methods and the analytical results have been sufficiently documented and verified as to allow the drillhole database to of use in mineral resource estimation.

The mineral resource presented in this technical report is based on data derived from over three decades of exploration and mining history and appropriate project drillhole database information to support the mineral resource estimate.

25.2 Mineral Reserve Estimate

SRK confirms that a mineral reserve estimate has been derived using the current open pit mining and heap leaching processing methods employed at Florida Canyon. Open pit mining and heap leaching have been ongoing at Florida Canyon for three decades. The metallurgy is understood within the accuracy of a PFS based on history and ongoing metallurgical test work. The mineral reserve is highly sensitive to gold price and recovery, which represents both an opportunity and a risk.

25.3 Pit Geotechnical and Hydrogeology

Further geotechnical technical and hydrogeology work is necessary to refine pit designs. The Central Radio Tower and Main Pit areas require further geotechnical study to define pit slopes. The Main Pit is mined below the water table, so the hydrgeoology model must be refined to permit and design a slope angle. Geotechnical work may also conclude that some slopes can be steepened. SRK believes the pit design slopes in the analysis meet PFS requirements but more detail is required to complete detailed pit designs and meet hydrology permitting requirements.

25.4 Pit Phasing and Access

Future mining will require complicated phasing and access due to steep topography and existing open pits. Significant design work is done in this study regarding pit phasing. This work meets the requirements for a PFS, but additional work will need to follow after more geotechnical and hydrology work is done.

25.5 Metallurgy and Recovery Plan

The metallurgical response of the FMCI ore types to date are well understood. Additional testing will be required as mining progresses deeper into the deposit and changes in processing requirements are possible, of which may be the required leach cycle. A lengthening of the leach cycle will require additional pad area to provide for the additional leach time required to maximize metal recovery.

The FCMI operations team is currently developing a proper process solution management plan. This work should continue so that gold recovery is maximized while reducing operating costs.

25.6 Environmental Studies Permits and Social or Community Impact

The Florida Canyon Mine is a fully permitted and authorized operation in a mining jurisdiction that is heavy regulated and overseen. Appropriate environmental studies and impact assessments have been completed as part of the state and federal permitting processes; however, additional efforts will be necessary for the currently proposed expansion plans. SRK does not believe that these modifications constitute a material change to the mine plan of operations, and therefore should not take more than 12 months to acquire once submitted, accepted, and deemed complete by the regulatory agencies involved.

SRK is not aware of any known environmental issues that could materially impact the FCMI's ability to extract the mineral resources or mineral reserves. However, at least one environmental issue is significantly relevant to the operations, and merits consideration; the migration of nitrate in groundwater beneath the Florida Canyon HLP has been an issue with the Nevada Division of Environmental Protection – Bureau of Regulation and Reclamation (NDEP-BMRR) since the year 2000. Several Findings of Alleged Violation (FOAV) and Administrative Orders have been issued on this matter. A trust fund has been established to financially deal with this issue.

The regulatory-required reclamation bond cost estimate for the Florida Canyon Mine (as calculated for the December 2017 submittal) was approximately $30 million. The first-party (FCMI-conducted) closure cost estimate, provided by FCMI and used in the technical economic model, is $16.8 million, and considers the reduced labor and equipment rates of self-implementation over state/federal rates used for bonding, and has taken credit for partial, concurrent cash bond releases during the first few years of reclamation when the majority of the earthworks are customarily completed. SRK did not verify the assumptions or validate the closure cost estimate used and recommends that the calculation be revisited when more accurate labor and equipment rates are available from the site.

25.7 Risks and Opportunities

The following risks and opportunities have been identified in the execution of the in the development of the LOM plan and mineral reserve.

25.7.1 Risks

Commodity Price Risk

There is a risk that gold prices may not be consistent with the assumptions made in this study.

Capital Cost Risk

There is a risk that capital costs may be higher due to the precision of the estimate for leach pads, equipment, etc. Estimated costs for leach pads are used with a 20% contingency since the pad design was not available at the effective date of the report. Equipment cost may escalate at the time of purchase.

Process Recovery Risk

There is a risk that the timing of gold recovery is aggressive.

Crusher Throughput

There is a risk that crusher throughput may not reach the average rate in the study without additional capital improvements.

Geotechnical Risk

Further geotechnical analysis is required in the Central, Main, and Radio Towers areas. Mine designs in these areas and all areas must be evaluated with further geotechnical analysis. The site’s observational approach to pit geotechnical conditions may lead to step-ins in areas where ground conditions are not as favorable as anticipated

Closure Cost Risk

Closure costs were estimated by Alio Gold using the basis of self performed closure costs. These costs could be higher for self-performing reclamation and would be higher with a contractor conducting closure activities.

25.7.2 Opportunities

Commodity Price Opportunity

Gold prices may be higher and lead to new pit optimizations that could increase reserves and cash flow.

Silver Production and Revenue

The Florida Canyon Mine has historically produced 0.88 troy ounces of silver for every troy ounce of gold, but no credit is given in this study for silver production and revenue, since silver is not modeled in the mineral reserve estimate.

Equipment Optimization

Mine and process equipment optimization could lead to lower operating costs which would lead to higher cash flows. An example would be to evaluate the use of conveyors to stack crushed ore on the leach pad to replace the present haul truck placement at lower operating cost.

Pit Design

Increased slope angles may be possible in some areas with further geotechnical studies. Access plays a key role in pit designs at Florida Canyon and there is the potential to further optimize the design to improve profitability.

Refinement of the Production Schedule

Truck cycle times are a primary driver in the mine production schedule, since the mine tends to be limited by trucks with excess loader capacity. Further optimization to develop shorter haulage times is warranted. More detailed pit phase design, with improved pit access, may decrease haulage time reducing the cost per gold ounce.

Increase the Mineral Resource

Additional oxide resources may be developed in the immediate mine area around current pits. A sulfide resource may also be developed within the same area. The sulfide mineralization is confirmed by drilling and further efforts may render resources and reserves with further drilling and advances in metallurgical technology.

Leach Pad Construction

An efficient leach pad design could reduce the estimated cut to fill volumes and haul lengths for materials to and from the leach pad construction.

26 Recommendations

Table 26-1 summarizes the cost estimates associated with proposed work program at the Florida Canyon Mine.

Table 26-1: Proposed work program cost estimates

Program Components	Cost Estimate ($ 000)
Evaluate & Digitize Historic Drillhole Logs	10,000
Review Blast Hole Grade Estimation Techniques	15,000
Detail Pit Access Design	50,000
Review Timing of Radio Tower Move	20,000
Detail Access Design of Central North & Radio Towers	50,000
Pit Geotechnical Central/Radio Towers Drilling & Design	1,200,000
Metallurgical Testing	300,000
Environmental Closure Study	50,000
Permitting Requirements Review	10,000
Total	**1,705,000**

Source: SRK, 2018

26.1 Mineral Resource Estimate

Exploration activities span multiple decades at Florida Canyon and there are some inconsistencies in the drillhole logs. While this presents limited risk to resource estimation, there may be an effect on the metallurgical understanding of the deposit.

SRK recommends that the historic logs be evaluated and digitized into a modern drillhole management system. The cost estimate for this work is about $10.000.

26.2 Mineral Reserve Estimate

SRK recommends that FCMI complete further engineering to refine four key criteria used in the pit design:

- Review blast hole grade estimation techniques and crusher sample accuracy to further define dilution quantities.
  - Estimated cost is $15,000
- Detail in-pit access design in all pits, particularly in the Central pit area (see section 16.3.).
  - Estimated cost is $50,000
- Review of the timing of mining the Radio Tower pit to assess the value and timing of the radio towers move (see section 16.4).
  - Estimated cost is $20,000

- Conduct detailed design and cost estimates for major external access development for the Central North and upper benches of the Radio Towers mining areas (see section 16.3).
  - Estimated cost is $50,000

The estimated costs provided assume outside consulting, this could be reduced if FCMI internal personnel conduct the work.

Further recommendations related to the reserve are discussed in Sections 26.3 through 26.5.

26.3 Pit Geotechnical and Hydrology

SRK recommends that FCMI conduct further geotechnical work, particularly in areas of past pit slope failures. There may be an opportunity to increase slope angles in some areas. A detailed analysis should be conducted (see Section 15.2.5).

- The Central high-wall and Radio Towers pit designs must be evaluated before mining.
  - SRK reduced the slope in the central highwall of the design to 32.5° versus Golder's recommendation of 35° to account for a geotechnical safety catch bench.
  - The existing Radio Towers pit exhibits a failure zone similar to the Central pit.
  - Opportunity may exist to steepen pit slopes with further geotechnical work.
- Ground water modeling in the Main Pit area must be completed in time for permitting and final slope design. The LOM plan assumes that no mining occurs below the water table before 2021.

The cost for this work is difficult to estimate and drilling is assumed to be required for this high-level estimate.

- Drilling & Test Work $1,000,000
- Geotechnical Design $200,000

26.4 Metallurgical Testing

Metallurgical work on the project is ongoing and a significant quantity of data has been collected since the effective date of this report. Following recommendations are advised.

- Track both gold and silver assays in all relevant metallurgical testing
- Implement fire assaying of 100% of blast holes containing heap leach grade in addition to CN Sol analysis
- Conduct crusher composite column test using a minimum 120-day leach cycle on an ongoing basis to assist in monitoring heap leach performance and to validate the recovery model
- Examine the relationship between cyanide soluble assays and fire assays and the recovery of gold and silver

- Conduct agglomeration and load cell-permeability tests at various blend ratios of clay/competent ore (e.g. 20%, 40%, clay blends) to determine agglomeration requirements (binder type, binder dosage, maximum allowable clay content, etc.), and associated column test recoveries
- Complete additional drilling to provide material to complete column leach tests on the Radio Towers and Jasperoid Pit zones
- Contact a sampling and test work program to develop a reasonable geometallurgical model of the Florida Canyon deposit. Program should include complete geochemical workup, as well as metallurgical test work to examine geometallurgical variability
- Future in-fill and exploration drilling should include cyanide soluble and fire assays for both gold and silver to facilitate development of the geometallurgical model
- The cost estimate for these recommendations is roughly $300,000, depending on the number of samples required to spatially model the deposit

26.5 Environmental Studies, Permitting, Closure Cost Estimates

Environmental studies are recommended to optimize the permitting strategy, ongoing bonding costs and closure cost estimates. Most of the major permits are in place for the operation, however some permits such as the water pollution control permit are ongoing as future leach pads are designed in detail.

- Review LOM plan to ascertain permitting requirements for leach pad construction, pit dewatering in Main Pit, future drill targets, etc.
- Develop a permitting strategy to determine scope, timing and cost to permit above mentioned requirements
- A detailed closure plan should be completed with costs based on using both a third-party contractor and in-house. These cost estimates would be used to refine bonding costs and closure cost estimates. This cost is estimated, assuming an outside consultant, at approximately $50,000
- Given that the property is a mature operation, which is fully permitted, the cost to review the future permitting requirements, assuming the work is done by outside consultants, is estimated at $10,000

27 Date and Signature Page

This technical report was written by the following "Qualified Persons" and contributing authors. The effective date of this technical report is November 1, 2018.

Qualified Person	Signature	Date
Mr. Allan V. Moran, CPG.	*"Original Signed"*	November 1, 2018
Mr. Timothy Carew, P.Geo.	*"Original Signed"*	November 1, 2018
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All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices

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