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Initial Assessment
(Preliminary Economic Assessment NI 43-101)
Technical Report on the Sunshine Silver Mine Project

Big Creek, Idaho

Project No. 117-8302006

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LIST OF ACRONYMS

Acronym	Definition
Avg	average
EPCM	engineering, procurement and construction management services
FS	Feasibility Study
G&A	General and Administrative
IA	Initial Assessment
LOM	Life of Mine
MWM	Meteoric Water Mobility
NSR	Net Smelter Return
PEA	Preliminary Economic Assessment
QA/QC	Quality Assurance/Quality Control
ROM	Run of Mine
SOP	Silver Opportunity Partners, LLC
SSMRC	Sunshine Silver Mining & Refining Company
TR	Technical Report
TSF	Tailings Storage Facility
USD	US Dollar
WRSF	Waste Rock Storage Facility
WTP	Water Treatment Plant

LIST OF ABBREVIATIONS

Abbreviation	Definition
cm	centimeters
d	Day
dmt	dry metric tonne
dst	dry short ton
ft	Feet
g	Gram
g/cm^3	grams per cubic centimeter
gpt	grams per tonne
ha	Hectare (hectares)
kW	kilowatt
L	liters
l/s	Liters per second
lb	pound
m	Meter
Ma	Million years ago
masl	Meters Above Sea Level
mg/L	milligrams per liter
mm	millimeter
opt	ounces per ton
oz	ounce
pcf	pounds per cubic foot
ppm	parts per million
psi	pounds per square inch
SG	specific gravity
stph	Short tons per hour
T	Tonnes (metric)
toz	Troy ounce
tpd	tons per day
tpd	Tonnes per day
wT	Wet tonne

ABBREVIATIONS OF THE PERIODIC TABLE

actinium = Ac	aluminum = Al	americium = Am	antimony = Sb	argon = Ar
arsenic = As	astatine = At	barium = Ba	berkelium = Bk	beryllium = Be
bismuth = Bi	bohrium = Bh	boron = B	bromine = Br	cadmium = Cd
calcium = Ca	californium = Cf	carbon = C	cerium = Ce	cesium = Cs
chlorine = Cl	chromium = Cr	cobalt = Co	copper = Cu	curium = Cm
dubnium = Db	dysprosium = Dy	einsteinium = Es	erbium = Er	europium = Eu
fermium = Fm	fluorine = F	francium = Fr	gadolinium = Gd	gallium = Ga
germanium = Ge	gold = Au	hafnium = Hf	hahnium = Hn	helium = He
holmium = Ho	hydrogen = H	indium = In	iodine = I	iridium = Ir
iron = Fe	juliotium = Jl	krypton = Kr	lanthanum = La	lawrencium = Lr
lead = Pb	lithium = Li	lutetium = Lu	magnesium = Mg	manganese = Mn
meltnerium = Mt	mendelevium = Md	mercury = Hg	molybdenum = Mo	neodymium = Nd
neon = Ne	neptunium = Np	nickel = Ni	niobium = Nb	nitrogen = N
nobelium = No	osmium = Os	oxygen = O	palladium = Pd	phosphorus = P
platinum = Pt	plutonium = Pu	polonium = Po	potassium = K	prasodymium = Pr
promethium = Pm	protactinium = Pa	radium = Ra	radon = Rn	rhodium = Rh
rubidium = Rb	ruthenium = Ru	rutherfordium = Rf	rhenium = Re	samarium = Sm
scandium = Sc	selenium = Se	silicon = Si	silver = Ag	sodium = Na
strontium = Sr	sulphur = S	technetium = Tc	tantalum = Ta	tellurium = Te
terbium = Tb	thallium = Tl	thorium = Th	thulium = Tm	tin = Sn
titanium = Ti	tungsten = W	uranium = U	vanadium = V	xenon = Xe
ytterbium = Yb	yttrium = Y	zinc = Zn	zirconium = Zr	

UNITS OF MEASURE

All dollars are presented in US dollars unless otherwise noted. Common units of measure and conversion factors used in this report include:

Weight

1 oz (troy) = 31.1035 g

Analytical Values

	percent	**grams per metric ton**
1%	1%	10,000
1 g/t	0.0001%	1.0
10 ppb		
100 ppm		

1 SUMMARY

1.1 Introduction

The Sunshine Mine Project is a silver project located within the Coeur d'Alene Mining District in northern Idaho and is owned by Silver Opportunity Partners LLC (SOP), a wholly owned subsidiary of Sunshine Silver Mining & Refining Corporation (SSMRC), based in Denver, Colorado. This Technical Report (TR) has been prepared for SSMRC by, or under the supervision of, independent Qualified Persons in support of SSMRC's disclosure of scientific and technical information for the Sunshine Mine Project.

SSMRC contracted Tetra Tech, Inc. (Tetra Tech) to prepare an Independent Initial Assessment (Preliminary Economic Assessment NI 43-101) Technical Report. Information has been brought forward from previously prepared Technical Reports and are referenced where appropriate.

The Sunshine Mine is an existing underground mine with more than 100 years of operating history. Mine operations have largely been suspended following a succession of bankruptcies by prior operators, most recently Sterling Mining Company (Sterling). In May 2010, SOP acquired Sterling's assets related to the Sunshine property in a bankruptcy proceeding. Through this purchase, SOP obtained the majority of the operation facilities and equipment at the Sunshine Mine, including Sterling's operating lease held with Sunshine Precious Metals, Inc. (SPMI) on the mine, which contained a purchase option granting Sterling the right to purchase title to the Sunshine Mine. Sterling exercised this purchase option prior to its sale to SOP. SOP closed on the exercise of the purchase option of the lease from SPMI in July 2010, thus obtaining title to the mine and adjoining facilities, and SOP closed on the purchase of the nearby Sunshine Refinery in October 2013. Since acquiring the Sunshine Mine property in 2010 and the Refinery in 2013, SSMRC, through SOP, has embarked on a program to rehabilitate the mine and supporting infrastructure in preparation for executing its plan to return the mine to commercial production within two years of receiving project approval and funding.

The following sections summarize the scope, methodologies, and results of this TR, including recommendations for future work.

1.2 Location

The Sunshine Mine is located approximately 60 km east of Coeur d'Alene, Idaho along I-90. From I-90, the property is accessed at the Big Creek exit south, and approximately two and one-half miles via a paved county road, which parallels Big Creek. The property is located about 7.25 km southeast of the town of Kellogg, Idaho, which hosts a full complement of services. The closest major airport and metropolitan center are located in Spokane, Washington, approximately 110 km west of Kellogg.

The geographic coordinates of the Sunshine Mine are latitude 47°30'6" north and longitude 116°4'10" west.

1.3 Ownership

The Sunshine Mine is located in the Coeur d'Alene Mining District, which contains one of the world's largest concentrations of silver. The Sunshine Mine property is comprised of patented and unpatented mining claims, which are both owned and leased from third parties, for a total project area of

9,391 hectares (ha). Some of the properties are subject to royalties with the royalty terms varying for each property. The majority of the Sunshine Mine property is subject to a net smelter return (NSR) royalty formed under a 2001 settlement between the prior mine operator, the U.S. government and the Coeur d'Alene Indian Tribe, which settled environmental claims seeking reimbursement for remediation, restoration, and other actions to address environmental damages to the Coeur d'Alene River and other natural resources in the Silver Valley. **Table 1-1** lists the property mineral rights and claims.

Table 1-1: Property Mineral Rights and Claims

Silver Opportunity Partners (SOP) Sunshine Mine				
Location	Owner	Patented Claims	Unpatented Claims *	Hectares
Core	Mine Holdings	165	140	2,207
Core	Metropolitan Lease	2	67	413
Core	Sun South		158	1,259
Core	Silver Hill	13[1]	28	234
Core Total		180	393	4,113
Exploration	Pine Creek		148	1,235
Exploration	Snow Storm		24	201
Exploration	Rock Creek Lease	1	113	1,058
Exploration	East Silver Belt		155	1,234
Exploration	Central Silver Belt		80	798
Exploration	Falls Creek	39[2]	90	752
Exploration Total		40	610	5,278
Total Hectares				9,391

1 Chester, Bismark, Mineral Mountain
2 Coeur d-Alene Mine

Please refer to **Appendix A** of this TR for additional information regarding the claims.

1.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Sunshine Mine is in the Big Creek Valley at an approximate elevation of 850 meters above sea (masl) level. The topography is typical of northern Idaho's countryside, hilly to mountainous and forested. Sunshine's main production shaft, the Jewell Shaft, and the mill are located above the base of a steep mountain, while the hoist room and other infrastructure facilities are located on a relatively level piece of property at the base of the mountain.

Climate in the area is typical of the northern-US with snow, rain, and fog in the winter. Snowfall in the winter and the changing topography can restrict access to some surface facilities at higher elevations. Average rainfall in the area is approximately 83.8 cm annually.

Kellogg, Idaho, with a population of approximately 2,080, and Wallace, Idaho, with a population of approximately 760, are the two nearest towns to the mine and are home to many of the mine staff. The mining history of the Idaho Silver Belt ensures a ready source of skilled and unskilled labor. Efforts are made to stimulate the local economies as much as possible, with the local area having numerous vendors that supply services to the mining industry such as welding, steel supply, transportation, and project consumables. Spokane, Washington is the largest city in the area, which has an international airport and many industry supplies and services.

Electrical power is supplied by Avista, a large northwest U.S. power supplier with long historical ties to the mining industry in the Coeur d'Alene district. The district is tied to the main northwest power grid, and outages are rare. Power supply is ample for the life of the Sunshine Mine with potential local substation, and possibly transmission line upgrades, currently being evaluated by Avista. The main power source for the mine is a power line that parallels Big Creek Road and terminates at the Avista substation on the Sunshine Mine property. From the substation, power is distributed to numerous smaller substations throughout the property.

1.5 History

The Sunshine Mine operation started in 1884, when the Blake brothers, Dennis and True Blake, arrived from Maine and staked the Yankee Load (sic) mining claim on the east slope of Big Creek. Throughout its history, the Sunshine Mine was able to remain in production by continually advancing new Resources. Between the period of 1934 and 2007, published historical Reserves have remained between 20 and 50 million contained ounces. A total of 365 million ounces have been produced from mines on what is now the Sunshine Mine property.

1.6 Geologic Setting and Mineralization

The district is hosted by the rocks of the Precambrian Belt Supergroup. These Middle Proterozoic age sedimentary rocks were deposited approximately 1.47 to 1.6 billion years ago. At various times, these rocks were faulted, leached, altered, and re-mineralized. The Belt Supergroup has been divided into the Pre-Ravalli, Ravalli, Piegan, and Missoula groups. Within the Coeur d'Alene Mining District, rocks of the Pre-Ravalli, Ravalli, and Piegan groups can be found. The formations comprising the Ravalli group are the preferred host rocks for silver mineralization in the district. The Ravalli formations are from older to younger Burke Formation, Revett Formation, and St. Regis Formation.

Mineralized material in the Coeur d'Alene Mining District occurs in veins hosted in weakly metamorphosed sedimentary rocks of the Belt Supergroup. Most of the mineralized material is from the Revett and St. Regis Formations of the Ravalli group. This thick sequence, up to 20 km, of middle Proterozoic-age strata covers a large area of northern Idaho, western Montana, and southeastern British Columbia. The sedimentary rocks are predominately fine-grained siliciclastic with subordinate carbonate-bearing units.

Over 40 veins have been named and mined at the Sunshine Mine. The Sunshine and Chester Veins have each produced over 90 million ounces of silver. The majority of veins strike east-west and dip about 65° to the south. Locally, dips range from 45° to 90°. Strike lengths locally exceed 610 m and dip lengths are two to three times greater than the strike length. Major veins are located between the faults at an angle of 25° to the bounding faults. Veins vary in width from a few inches to over 9 m but are typically between 0.30 m to 1.50 m thick. Mineralized material includes tetrahedrite and galena, with siderite and quartz as the principal gangue minerals. Accessory minerals include bornite, pyrargyrite, and magnetite.

1.7 Deposit Types

The Sunshine Mine mineral deposits are narrow, high-grade vein deposits, which characteristically strike east-west and dip steeply (average 65°) to the south. The combination of faults, folds, fractures, and favorable host rocks created suitable conditions for mineral emplacement by silver-rich and silver-base metal veins. **Figure 11-1** shows the general relationship between the principal productive veins and the four major faults. Historically, underground drilling and drifting were the most productive exploration tools.

1.8 Exploration

The objectives of the exploration program at the Sunshine Mine are to discover new high-grade veins and mineralized shoots in historical areas that have nearby development, explore for new large veins in unexplored or under explored areas, and to systematically replace Reserves as they are mined. Prior exploration work carried out at the Sunshine Mine created historic Resources. It is necessary to describe historic exploration work as it includes the methods utilized by prior owners/operators Sunshine Mining Company, Sterling, and the current owner SOP. Exploration work consists of the same methods as practiced by Sunshine Mining Company through 2001, except defined resource and Reserve categories will now be classified in accordance with International Standards. Mine staff completed surveys and exploration work in the past and this practice continues incorporating new advancements in practice, method, and technology. A significant example of this, the Sterling Tunnel, was driven to join the Sunshine and ConSil Tunnels and has allowed underground diamond drilling exploration to be resumed in the Upper Country mine area in conjunction with ramp and drift development.

1.9 Drilling

The current drill database contains approximately 3,498 underground drill holes. The longest underground hole is 914.4 m. It is not uncommon for holes to be approximately 457 to 610 m long. Long underground exploration holes are required to locate structures and veins because the majority of historical development, except in the West Chance, has been on the vein structures themselves; thus, drilling platforms for shorter holes at appropriate angles to the targets have not been available.

The recent drilling for exploration, delineation, and development conducted at SSMRC has been performed with diamond core drills. Work was completed by a local contract core drilling company, Dynamic Drilling Inc. from Osburn, Idaho. They operated one to three Hagby Onram-1000 diamond drills underground in the Sterling Tunnel. Down-hole surveys were attempted on all diamond drill holes. The primary survey tool was a Reflex EZ-AQ multi-shot down-hole survey camera. Core diameters ranged from 2.7 cm to 4.76 cm. Core recovery was generally very good, exceeding 90%. Core recovery can be difficult in certain faulted or sheared areas. The diamond drillers would change from wireline tools to conventional tools before encountering proven areas of loss, which significantly improved recovery. Recovery issues did not materially impact the reliability of the results.

All drill hole and sample information is stored in an Access® database for reporting purposes. When drill hole samples are used for polygonal or accumulation methods of Resource modeling, they are corrected back to true horizontal thickness. Diamond drill holes are typically designed to intersect mineralization as close to perpendicular as possible. Drill hole assaying is typically conducted to break out distinct mineralogies within single vein intercepts, however, to be compatible with level and stope channel sampling, assay data was composited across single vein intercepts. Down-hole directional surveys were conducted on all drill holes, since hole deviation is common. A Reflex EZ-AQ multi-shot down-hole survey instrument was used for measuring the deviation angles.

To date, three new vein structures have been defined with drilling from the Sterling Tunnel elevation. Two new silver-copper veins have been defined in the immediate hanging wall of the historic Sunshine Vein and are named the West Chance Link Vein and the South Yankee Boy Split Vein. A total of 16 holes have been drilled by SSMRC targeting the West Chance Link Vein and all encountered silver mineralization. Additionally, a new lead-silver vein, named the "10 Vein" was discovered 61 m within the footwall of the Sunshine Vein. To date, 12 drill holes have crosscut the new vein. All veins carry economic silver-copper or lead-silver values. Drilling will continue to define the vertical and lateral limits of the new vein structures.

1.10 Mineral Resource Estimates

Resource estimation was completed by Tetra Tech in MicroMine® mining software utilizing data supplied by SSMRC. Tetra Tech was commissioned by SSMRC to develop a digital 3D estimation that includes all available information and can be evaluated at various cutoffs.

Utilizing drill hole and channel assay data, Tetra Tech created best fit vein surfaces and estimated Mineral Resources along those vein surfaces. Ordinary Kriging was used to estimate 3D points along a string type block model for 37 veins. The results of the Mineral Resource estimate, effective January 17, 2020, are tabulated in **Table 1-2**. This Mineral Resource has been diluted to a fixed mine width of 2 m and is an *in-situ* Resource estimate. A base-case cutoff of 343 gpt has been applied. Royalties do exist in certain areas of the mine and have not been considered for this Mineral Resource estimate.

Table 1-2: Mineral Resource Estimate Sunshine Silver Mine

Resource Classification	Cutoff Ag g/t Diluted	Tonnes Diluted	Grade Ag g/t Diluted	Ag Contained Ounces	Cu %	Pb %	Zinc %
Measured	343	1,129,000	843	30,750,000	0.13	0.41	0.02
Indicated	343	1,890,000	742	45,557,000	0.10	0.37	0.02
Measured + Indicated	343	3,019,000	780	76,307,000	0.11	0.39	0.02
Inferred	343	8,221,000	835	222,618,000	0.22	0.36	0.02

NOTES:
1) *343 gpt Ag cutoff grade has been estimated for the project using a silver price of $20.16/troy ounce and an average metallurgical recovery of 97%.*
2) *Cutoff includes an operating cost of $214.58/tonne of processed mineralized material.*
3) *Columns may not total due to rounding.*
4) *Mineral Resources are stated as diluted.*
5) *One troy ounce is equal to 31.1034768 grams and one Tonne is equal to 2,204.62 lbs.*
6) *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

1.11 Mining

A mine plan and production schedule were completed under the supervision of MDA, using the Mineral Resource estimate completed by Tetra Tech. The mine plan was later updated by Tetra Tech and the results of this plan are considered in the production schedule.

SSMRC completed a mine production schedule using a cutoff grade of 343 grams per tonne (gpt) silver. The mine was divided into two main areas by the 2300 Level. Material above the 2300 Level was called the Upper Country, while material below the 2300 Level was termed the Lower Country. Dilution was redefined in the Upper Country to a minimum mining width of 1.5 m for Alimak slusher mining or a minimum mining width of 2.1 m for mechanical cut and fill mining. The majority of the mineralized material and waste is expected to be delivered to the surface via the hoist in the Jewell Shaft with other material coming from the Sterling Tunnel.

A mine development schedule was also generated showing the estimated amount of development needed before mining can commence, and thereafter to sustain the planned mine production. Before development work in the Lower Country (defined as all levels below the 2300 Level) can begin, the Silver Summit shaft must be rehabilitated to provide a secondary escapeway for the mine and a new ventilation system must be installed. The ventilation system requires two new vent raises and a bypass drift on the 3100 Level. It is expected that the Silver Summit rehabilitation work can be completed within approximately 1.5 years and the ventilation system development can be completed within approximately 2.5 years of project commencement. According to current plans, mining of the Upper Country can begin immediately.

Production is scheduled to start two years after project commencement. Production from the mine is limited to the Upper Country stopes until the ventilation and secondary escapeway are completed. Mine production is expected to increase when the stopes are available to sustain a 1,090 metric (tpd) operation currently scheduled to occur 2.5 years after the start of production operations. The mine development schedule is shown in **Table 16-7** and the mine production schedule is shown in **Table 16-8**.

1.12 Processing

Preliminary processing assumptions are based on a flowsheet in which the process plant will produce two flotation concentrates; one silver and copper, and the other lead. While the grade and mineralogical characteristics for the silver are fairly constant, there are areas of the mine where lead is more prevalent and the amount of lead feed to the concentrator can be expected to be variable over time.

The concentrates will be produced from the crushing, grinding, and flotation of freibergite-rich mineralized material. The anticipated flotation system will use three rougher and scavenger systems with separate, three-stage silver cleaning and lead cleaning systems. Once the mineralized material has been ground by the ball mill, it then proceeds through the three rougher-scavenger flotation systems in series. All tailings then depart from the third-stage scavenger and report to the tailings, thickening, filtration, and disposal systems.

The silver-copper concentrate will initially be processed at a new antimony plant to remove the antimony as a metal and antimonate, and to facilitate downstream processing of the silver and copper. The silver-copper residue will then be processed at an existing refinery, which will produce copper cathode and silver doré. Lead concentrate will be refined by an offsite smelter.

1.13 Infrastructure

Located approximately 3.5 km from I-90, the Sunshine Mine and surface facilities (including a tailings storage facility (TSF) and waste rock storage facility (WRSF)) are situated within a narrow valley adjacent to Big Creek. Because of the age of the current infrastructure, demolition and replacement of certain facilities is planned to allow for the construction of, among other facilities, a new process plant while improving use of available area.

The TSF, which is a random fill, flow through structure, will be expanded using conventional upstream construction and rotational tailings distribution through stages five, six, and seven after which conceptual plans, subject to any additional permit approvals, are for the TSF to be converted to a dry stack facility. Remaining storage capacity for conventional tailings distribution is approximately 861,826 tonnes. The dry stack portion of the TSF could add an additional 3.6 million tonnes (3.5 million tonnes actually required) of storage capacity as currently envisaged.

Approximately half or 544 tonnes per day (tpd) of the production will be directed to the TSF for deposition and storage. The remaining tailings will be processed and used as paste backfill in the mine.

Process/industrial water for the mine is available via four water rights including three directly from Big Creek. Potable water is provided by the Central Shoshone Water District. Power is supplied from a dedicated power line and is maintained by the local utility company, Avista. Back-up power will be provided by a diesel generator planned for installation. Surface water run-on and septic effluent are effectively and properly managed reducing the need for further treatment. Onsite fire protection is provided from water drawn directly from Big Creek. Supplemental fire protection is provided by the local fire district (Kellogg Fire Department).

1.14 Environmental

With the proximity to several watersheds (including Big Creek and the South Fork of the Coeur d'Alene River (South Fork)), areas of population 7.25 km miles from Kellogg, Idaho), other mining operations, and the Bunker Hill Mining and Metallurgical Complex Superfund Site, maintaining protection of the environment and regulatory compliance is critical. For the purposes of this TR and to gain a better understanding of Sunshine Mine's environmental component, historical compliance and permitting data were reviewed and studies were conducted including:

- Historical and current monitoring and compliance reporting
- Historical studies by prior operators
- Surface and groundwater analyses from sources within and adjacent to the operation
- Waste rock and mine tailings analyses from sources associated with the Sunshine and ConSil Mines
- Current permitting requirements

The results of these efforts confirmed there are no environmental issues existing or anticipated that could materially impact the ability to reopen the Sunshine Mine. As the operation progresses, SSMRC will be required to maintain or renew existing or acquire new approvals and permits. However, at the time of writing this report, all environmental permits, agreements and approvals necessary to commence surface and subsurface operations are in place.

According to Mr. Tyson Clyne, Environmental Health and Safety Superintendent of SSMRC, changes and updates to the permits at the Sunshine Mine from 2014 to current are the following:

- **National Pollutant Discharge Elimination System (NPDES) Permits**. No change to permits ID0000060 (discharge from Sunshine TSF) or ID0000159 (Polaris Mill/ConSil). Permit Discharge Monitoring Reports (DMRs) are submitted each month and sampling is conducted and reported according to permit requirements.
- **Tailing Storage Facility (TSF)**. No changes.
- **Idaho DEQ Air Permit to Construct (PTC)**. Idaho DEQ conducted an air quality compliance inspection in 2015 and found no violations, and
- **Shoshone County demolition and building permits**. Sunshine staff has met with Shoshone County Planning and Zoning many times to discuss future activities at the mine. County officials are supportive of our plans for the mine site.

More details are presented in Section 20 of this TR.

1.15 Project Economics

1.15.1 Capital Costs

Capital costs were estimated for the proposed mining and processing operations of the Sunshine Mine Project. The total estimated initial cost to design, procure, construct, and commission the facilities described in this Technical Report is $253.7 million (USD). A contingency of $33.1 million has been included in the capital cost. This contingency is based on the level of definition that was used to prepare the estimate.

The total life of mine (LOM) sustaining capital costs are estimated to be approximately $162.1 million. Sustaining capital costs mainly relate to equipment replacement at end of useful life, additional equipment required to meet production levels, and phased expansion of facilities, such as the TSF. Sustaining capital costs are detailed in **Table 22-7**.

The capital cost estimate has been developed to a level sufficient to assess/evaluate the project concept, various development options, and the potential overall project viability. After inclusion of the recommended contingency, the capital cost estimate is considered to have a level of accuracy in the range of plus/minus 35 percent.

Table 1-3 summarizes the capital costs by major area. Capital costs are discussed in more detail in Section 21.0.

Table 1-3: Summary of Initial Capital Costs

Description	Cost *USD*	Total *USD*
Mine	46,506,175	
Crushing / Mineralized Material Handling	5,699,876	
Concentrator	13,235,393	
Silver and Copper Refinery Refurbishment	6,000,000	
Antimony Plant	23,841,698	

Description	Cost *USD*	Total *USD*
Tailings	2,502,527	
Tailings Paste Backfill (Surface Facility)	2,488,283	
Reagents	488,656	
Utilities	7,592,505	
General & Infrastructure	6,289,818	
Total Contracted Directs		114,644,931
Process Facilities Contractor Indirects	418,757	
Construction Equipment	684,150	
Freight and Duties	801,256	
EPCM - Process Facilities	5,206,648	
Commissioning Support and Vendor Representatives	608,382	
Third Party Testing Services	240,000	
Spare Parts and Initial Fills	1,204,071	
Total Contracted Indirects		9,163,264
Mining and Ancillary Equipment	8,090,000	
Preproduction Mine Development	47,216,046	
Mobile Equipment & Light Vehicles	770,000	
Other (Equipment, Furniture, Software, etc.)	265,440	
Temporary Facilities	200,000	
Medical, Security, and Safety	100,000	
Total Owner Direct Cost		56,641,486
Client Management	2,377,733	
Preproduction Employment & Training	25,511,873	
Utilities/Site Overhead Expenses	3,129,028	
Insurance	2,025,740	
Outside Services (Legal & Accounting)	400,000	
Corporate Overhead (Travel and Expenses)	2,400,000	
Legal, Permits, and Fees	1,352,000	
Preproduction Mineralized Material Definition Drilling	3,000,000	
Total Owner Indirect Cost		40,196,374
Subtotal Project Cost		220,646,055
Contingency	33,096,908	
Total Initial Capital Costs		$253,742,963

1.15.2 Operating Costs

In connection with this TR, operating costs have been estimated for the following areas of the Sunshine Mine Project: Resource classification drilling, mining, processing, antimony plant, refining, tailings storage, general and administrative (G&A), and mine reclamation and closure.

Operating costs are estimated to average approximately $75 million per year over the estimated life of mine, or 27.85 years. With an estimated LOM throughput of 10.1 million tonnes of mineralized feed to the process plant, the average operating cost per tonne of mineralized material is estimated to be $214.58 per tonne. A 20% contingency allowance, or approximately $198 million, has been included in operating costs for mining as shown in **Table 1-4**.

Table 1-4: LOM Operating Cost Summary

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Resource Classification Drilling	27,000,000	[1]	2.68
Mining (with paste backfill +20% contingency)	1,225,068,144	43,752,434	121.60
Processing	270,138,432	9,647,801	26.81
Antimony Plant	153,402,965	5,478,677	15.23
Refining	235,933,189	8,426,185	23.42
Tailings Storage	10,515,115	[2]	1.04 4
General & Administration	219,758,113	7,848,504	21.81
Mine Reclamation & Closure Cost	20,000,000	[3]	1.99
Total Operating Cost	$2,161,815,958	$75,153,602	$214.58

27.85-year LOM   LOM Tonnes of Mineralized Material: 10,074,594

[1] No Average Annual Cost indicated as cost is considered incurred in Years 1 to 9.
[2] No Average Annual Cost indicated as cost is considered incurred in Years 6 to 28.
[3] No Average Annual Cost indicated as cost is considered incurred after LOM in Year 28 and after.
[4] This is a LOM average unit cost for all mineralized material processed. It does not represent an average cost for tonnes of tailings stored, as it has not considered the 50% of tailings reporting to the paste backfill plant and the 862,000 tonnes in the remaining capacity of the current permitted TSF. An approximate cost per tonne mineralized material for the new dry stack storage is $2.54.

1.15.3 Mine Development Costs

Mine development during preproduction will be performed by a contractor, as will construction of a bypass drift on the 3100 Level and all vertical development during production years. All other development during production will be performed by SSMRC employees. LOM mine development is detailed in **Table 16-7**.

Estimated preproduction mine development costs ($47.2 million) are included within initial capital costs detailed in **Table 21-1** and depreciated accordingly. In addition, a 15% contingency allowance (approximately $7.1 million) has been included in the overall contingency for initial capital costs. Estimated production mine development costs totaling $451.3 million for production years 1-21 only are expensed in the year in which the related mineralized material is mined at an average rate of approximately $21.5 million per year. A 10% contingency allowance, or $40.1 million, has been included in estimated production mine development costs.

1.15.4 Economic Evaluation

Metals prices with LOM weighted averages of $20.16/oz, $3.25/lb, and $0.92/lb were applied to payable silver, copper, and lead quantities, respectively, and are shown in **Table 1-5** below.

The results of this TR estimate an internal rate of return (IRR) of 15.5% for the Sunshine Mine Project. Assuming a discount rate of five percent over an estimated mine life of 27.85 years, the after-tax net present value (NPV) is estimated to be approximately $560.0 million. The NPV using the same discount rate of five percent is expected to turn negative if silver prices fall below $14.65/oz. Based on the results of this TR, payback is estimated to occur early in the seventh year of mine life, approximately 6 years after the start of production.

This TR is preliminary in nature and includes Inferred Mineral Resources which are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the results described herein will be realized. Mineral Resources that are not Mineral Reserves have no demonstrated viability. For the economic analysis, 75% of the Resources considered are Inferred, and 25% are Measured and Indicated. **It should be noted, the removal of Inferred Resources results in a project that does not meet economic viability, and therefore is not included in this report.**

Table 1-5: Economic Model Inputs

Description	Values		
Construction Period	24 months		
Preproduction Period	2.0 years		
Mine Life (after Preproduction)	27.85 years		
LOM Mineralized Material (tonnes)	10,074,594		
LOM Silver Concentrate (tonnes)	138,022		
LOM Lead Concentrate (tonnes)	217,611		
LOM Grade	*Toz Ag*	*Cu %*	*Pb %*
Per Tonne of Mineralized Material	*827*	*0.19*	*0.37*
Per Tonne of Silver Concentrate	*49,808*	*11.69*	*3.24*
Per Tonne of Lead Concentrate	*4,888*	*0.79*	*10.79*
Avg. Annual Process Production Silver (troy ozs)	9,115,155		
Avg. Annual Process Production Copper (lbs)	1,405,608		
Avg. Annual Process Production Lead (lbs)	2,200,566		
Market Price *(USD)*	*/Toz Ag*	*/lb Cu*	*/lb Pb*
Average LOM price	*20.16*	*3.25*	*0.92*
Cost and Tax Criteria			
Inflation/Currency Fluctuation	None		
Leverage	100% Equity		
Tax - Federal Income 21%, Idaho Income 7.6%, Severance 1%	29.6%		
Depreciation	Straight Line		

Description	Values	
Royalties		
Coeur d'Alene Tribe and EPA	7.0%	
Chester Mining Co*	4.0%	
Hecla Mining Co*	4.0%	
Metropolitan Mines Corp*	4.0%	
**on select revenue*		
Transportation - Road Freight Charges *(USD)*		
Silver Con from Mill to Refinery ($/wT)	6.61	
Copper Cathode to Midwestern U.S. ($/lb)	0.14	
Antimony ($/lb)	0.14	
Lead Con to Trail, British Columbia ($/wT)	59.19	
Payment Terms	*Metals*	*Lead Con*
Provisional upon Bill of Lading	95%	90%
Settlement of Balance after Bill of Lading	1 week	1 month

A more detailed discussion of project economic performance is presented in Section 22.0.

1.16 Conclusions and Recommendations

1.16.1 Conclusions

The Qualified Persons for this Technical Report have made the following conclusions:

- Overall, the results of the TR indicate that the Sunshine Mine Project is a robust silver project at this stage of development and warrants further work toward the next stage of development. The exploration program continues to demonstrate the potential for future growth of the Resource. Risks, as well as significant opportunities (identified in Section 25.2), can be evaluated in a Pre-Feasibility Study (PFS) or Feasibility Study (FS) stage of the project.
- All sources of historic data are internally consistent, have supported several decades of mining, and are suitable for use in Resource estimation.
- The Sunshine Mine is complying with International Standards best practice requirements for sample handling Quality Assurance/Quality Control (QA/QC).
- The sample preparation, security, and procedures followed by SSMRC are adequate to support a Mineral Resource estimate.
- Assay data provided by SSMRC was represented accurately and is suitable for use in Resource estimation.
- Based on over 100 years of production history, there are no known factors, which should have a negative economic effect on metallurgical performance.
- As the operation progresses and reclamation or environmental legislation/regulation requirements evolve, SSMRC will be required to maintain, renew existing, or possibly acquire new approvals and permits. However, at the time of writing this report, all environmental

permits, agreements, and approvals necessary to commence surface and subsurface operations are in place.

- There are no existing or anticipated environmental issues that could materially impact the ability to reopen the Sunshine Mine.
- There are no known factors related to metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues, which could materially affect the Mineral Resource estimate.
- The existing TSF and WRSF are expandable design configurations to handle additional tailings and waste rock. The TSF can be expanded beyond its permitted configuration by converting the facility to a dry stack deposition to safely add an estimated 3.6 million tonnes of tailings storage capacity. This expansion can be accomplished without changing the ultimate footprint of the permitted TSF.
- This TR is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that these Inferred Resources will ever be upgraded or that the TR results described herein will be realized. Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.

1.16.2 Recommendations

Based on results of this TR, the authors recommend that SSMRC complete a PFS or FS to further define the Sunshine Mine Project in order to: more accurately assess its economic viability; support permitting activities; and, ultimately, support project financing should the PFS or FS results be positive.

A detailed breakdown of recommendations and estimated costs can be found in **Section 26.0**.

1.17 Units of Measurement

Reported tonnages, grades, and distances are reported in metric, in this report due to the SSMRC's company-wide use of metric. With the exception of location coordinates and level naming schemes, as well as metal prices per weight unit. All dollar amounts are in USD.

Easting and northing location coordinates are described in feet using a local mine grid; elevation coordinates are described in feet relative to sea level. The Jewell Shaft is located at approximately 74,527 East, -79,158 North and 829.67 m above sea level. In discussion of location only, it is common for elevations to be referenced to the nearest level offset (in feet) from a relative zero elevation.

2 INTRODUCTION

The Sunshine Mine Project is a silver project located within the well-known Coeur d'Alene Mining District in northern Idaho and is owned by SSMRC, based in Denver, Colorado. This Technical Report has been prepared for SSMRC by, or under the supervision of, Qualified Persons in support of SSMRC's disclosure of scientific and technical information for the Sunshine Mine Project.

The below-listed Qualified Persons are responsible for the information provided in the indicated items.

1) Guillermo Dante Ramírez-Rodríguez, PhD, MMSAQP, inspected the site September 10th, 2019.

2) Leonel López, CPG, SME-RM visited the site, inspected the site September 10th, 2019.

3) Kenneth Smith, SME QP visited the site January 8-9, 2014.

4) Kira Johnson, MMSAQP visited the site, inspected the site September 10th, 2019.

The purpose of this report is to provide an estimation of the Mineral Resources at the property and to provide and develop information to a level sufficient to assess/evaluate the project concept, various development options, and the potential overall project viability.

All data used in this Mineral Resource estimate was provided by SSMRC technical staff. Assay data provided was derived from three sources: drill holes, level drift channel samples, and stope channel samples. Drill hole assays were provided by SSMRC from a collated drill hole database, encompassing historic and modern drilling. Level drift channel sampling was digitized from historic level plan maps. Stope channel samples were digitized from historic stope production sheets. In addition to assay data sources, level plan vein sketches, development triangulations, and vein map longitudinal sections were essential for Resource estimation.

3 RELIANCE ON OTHER EXPERTS

Information relied upon in producing this Technical Report was, in part, provided by the following SSMRC staff:

- Chief Geologist – Mr. Greg Nickel
- Environmental Superintendent – Mr. Tyson Clyne
- Chief Financial Officer – Mr. Roger Johnson
- Vice President of Exploration – Mr. Phil Pyle
- Chief Administrative Officer – Mr. Adam Dubas

It is important to note that the status of the owned and leased patented and unpatented claims that constitute the Sunshine Mine property, as described in this report, has had some uncertainty in the past due to the bankruptcy of Sterling. SSMRC believes all issues have been adequately resolved. Tt has relied on Stoel Rives LLP for issues relating to the ownership and standing of the patented and unpatented mining claims. Stoel and Rives provided a letter statement verifying the standing of the claims. The authors are not qualified to express any legal opinion with respect to the property titles and current ownership and possible encumbrances, and therefore, disclaim direct responsibility for such titles and property status representations.

It is also important to note that federal, state, and local taxes were calculated by SSMRC using depletion allowances under current U.S. federal tax law to produce estimated income taxes payable for each year in the Economic Analysis. The estimated income taxes payable reportedly considered revenue, cost, and drawdown of Resources throughout mine life and net operating loss carry forwards prior to the beginning of project construction. The authors for **Section 22.0**, Economic Analysis, have relied on SSMRC's representation of the estimated income taxes payable for use in the financial model. Tetra Tech is not qualified to express any accounting and tax opinion with respect to the accuracy of the estimated income taxes payable provided and disclaims any responsibility or liability in connection with such information or data.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Ownership and Agreements

In May 2010, SOP acquired from Sterling, through Sterling's bankruptcy proceedings, most of the operating facilities and equipment at the Sunshine Mine. Also included in this purchase, was Sterling's lease from SPMI on the mine and a purchase option in the lease for title to the Sunshine Mine, which had been exercised by Sterling prior to the sale to SOP. SOP closed on the exercise of the purchase option of the lease from SPMI in July 2010 to obtain title to the mine and the facilities. SOP is owned by SSMRC.

The Sunshine Mine is located within the Coeur d'Alene Mining District. The district has produced world-class grade and tonnage of silver, lead, copper, and zinc over the past century. The Sunshine Mine property is comprised of patented and unpatented mining claims, which are both owned and leased from third parties, for a total project area of 9,391 ha. Some of the properties are subject to royalties with the royalty terms varying for each property. Most of the Sunshine Mine property is subject to an NSR royalty under a settlement with the U.S. government and the Coeur d'Alene Indian Tribe for remediation, restoration, and other actions to address early historical environmental damages to the Coeur d'Alene River and other natural resources in the Silver Valley.

SSMRC conducted an extensive review and re-staking of BLM unpatented claims in late 2018. Significant historical claim fractions, duplications and overlaps were identified and re-staked to generate a clean land position and reduce total claim requirements. The work afforded an opportunity to update claim monument locations and related claim corners, as required per Idaho law.

The Sunshine Mine property also includes the Metropolitan, Chester, Bismark, and Mineral Mountain properties that are leased by SSMRC. **Table 4-1** sets out the various mineral rights that comprise the Sunshine Mine property. **Figure 4-1** shows SSMRC mineral tenure.

Table 4-1: Property Mineral Rights and Claims Summary

Silver Opportunity Partners (SOP) Sunshine Mine				
Location	Owner	Patented Claims	Unpatented Claims *	Hectares
Core	Mine Holdings	165	140	2,207
Core	Metropolitan Lease	2	67	413
Core	Sun South		158	1,259
Core	Silver Hill	13[1]	28	234
Core Total		**180**	**393**	**4,113**
Exploration	Pine Creek		148	1,235
Exploration	Snow Storm		24	201
Exploration	Rock Creek Lease	1	113	1,058
Exploration	East Silver Belt		155	1,234
Exploration	Central Silver Belt		80	798
Exploration	Falls Creek	39[2]	90	752
Exploration Total		**40**	**610**	**5,278**
Total Hectares				**9,391**

** Maintenance Fee for each mining claim listed in lieu of assessment work, to hold these claims for the assessment year ending September 1st, 2020. For Shoshone and Bonner Counties, Idaho paid on August 8, 2019.*
1 Chester, Bismark, Mineral Mountain
2 Coeur d-Alene Mine

A full list of claims is detailed in **Appendix A**.

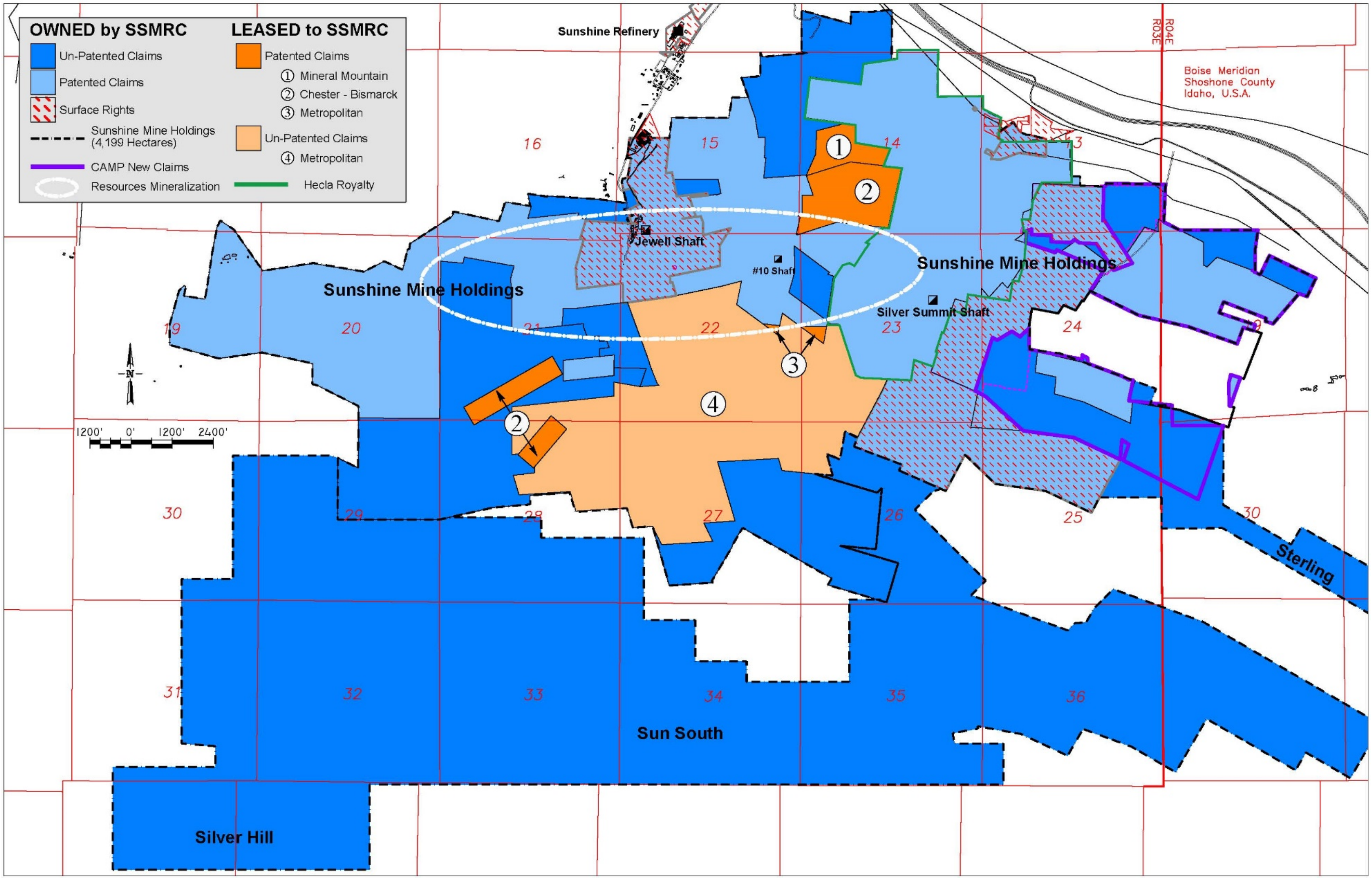

Figure 4-1: Property Mineral Rights and Claims Map

4.1.1 Sunshine Project and Exploration Properties

SSMRC owns 180 patented and 393 unpatented mining claims covering 4,113 ha at the Sunshine Mine core property. The property includes in the acquisition of the CAMP agreement properties. In 2013, SSMRC completed the purchase of all outstanding Coeur and Coeur d'Alene Mines claims from U.S. Silver and Gold, Inc., which gives SSMRC full title to all historic CAMP agreement properties. This current property comprises the Sunshine Mine and mill, the Jewell Shaft, surface facilities, a TSF, and extensive underground workings, including shafts, levels, raises, and ramp systems extending to a depth of over 1,829 m below the surface. The property also includes the Silver Summit/ConSil Mine and mill, the Silver Summit Shaft, adjacent Coeur D' Alene Mine, and related buildings and equipment.

Additionally, SSMRC owns 40 patented and 610 unpatented mining claims covering 5,278 ha within the Coeur D'Alene mining district encompassing six distinct exploration properties peripheral to the Sunshine Mine core asset.

4.1.2 Metropolitan

The Metropolitan property consists of two patented and 67 unpatented mining claims covering 413 ha. These claims lay immediately south of the primary workings of the Sunshine Mine and west of the Silver Summit/ConSil Mine. At depth, the claims intersect select veins that were historically mined from the Sunshine Mine.

4.2 Royalties

Many parts of the Sunshine Mine property are subject to royalties payable to parties from whom mineral rights are acquired or to others who have a right to royalties on certain areas of the property. Several of these agreements have royalty payments, detailed below, that are triggered when SSMRC begins producing and selling metal-bearing concentrate. These royalties are based upon proceeds paid by smelters less certain costs, including costs incurred to transport the concentrates to the smelters, or NSR, for mineralized material produced in the property area subject to the royalties.

The royalties calculated are the aggregate of all potential royalties to all third parties and represent a conservatively high estimate of the actual royalties that may be paid from production. A proportionate share of yearly production was assumed in calculating royalties on an annual basis.

4.2.1 Sunshine Mine

SSMRC is required to pay between a 0% (at a silver price below $6.00/oz) and 7% (at a silver price of $10.00/oz or higher) NSR royalty under a Consent Decree entered by SPMI with the U.S. government and the Coeur d'Alene Indian Tribe in 2001. All funds from the royalty must be used to pay for the remediation, restoration, and other actions to address certain environmental damage to the Coeur d'Alene River and other natural resources located in the Silver Valley of Idaho. The area subject to the royalty covers all the Sunshine Mine property, owned or leased by SSMRC, and purports to extend outward within a 1.61 km boundary of the property as set forth in the 2001 settlement agreement.

4.2.2 Metropolitan Mines Corporation Mining Claims

SSMRC's lease with Metropolitan Mines Corporation (Metropolitan) requires the Company to pay advanced royalties of $12,000 annually until such time as mineralized material is produced from the Metropolitan property. Upon production, Metropolitan is to be paid either 16% or 50% of the net proceeds from the sale of materials produced from the mineralized material processed from these claims, depending upon the location of production.

4.2.3 Chester Mining Company Mining Claims

SSMRC's lease with Chester Mining Company, or Chester, requires the Company to pay an advance royalty of $7,200 annually until such time as an NSR royalty of 4% or royalty of 20% of net profits on mineralized material processed is payable. The net profit royalty is in lieu of and not in addition to the advance royalty and the NSR royalty. The lease also provides Chester with the option to acquire a 20% working interest in all mineralized material, concentrates, metals, or other mineral substances produced from the property. Chester may exercise this option by releasing the Company from its obligation to pay the 20% net profits royalty and by tendering an amount of cash equivalent to 20% of the then-current working capital fund. The initial lease term ends in 2029 and is renewable for an additional 25 years.

4.2.4 Mineral Mountain Mining Claims

SSMRC's lease with Mineral Mountain Mining and Milling Company or Mineral Mountain, requires the Company to pay a royalty of $3,600 annually or a royalty of 3% net profits, if net profits from the mineralized material processed from these claims exceeds such amount. The lease also provides Mineral Mountain with the option to acquire a 3% working interest in all mineralized material, concentrates, metals, or other mineral substances produced from the property. Mineral Mountain may exercise this option by releasing the Company from its obligation to pay the 3% net profits royalty and by tendering an amount of cash equal to 3% of the then-current working capital fund. The initial lease term ends in 2029 and is renewable for an additional 25 years.

4.2.5 Silver Summit/ConSil Mine

SSMRC is required to pay between a 2% (at a silver price below $5.00/oz) and 4% (at a silver price of $7.00/oz or higher) NSR royalty to Hecla Mining Company. The area subject to the royalty surrounds the Silver Summit/ConSil Mine.

4.3 Environmental Liabilities and Permitting

In the ordinary course of operations, SSMRC is required to obtain, maintain, and occasionally renew approvals and permits, such as National Pollutant Discharge Elimination System (NPDES) discharge permits, Storm Water Pollution Prevention Plan (SWPPP), TSF reclamation plan and bond, from environmental regulatory bodies. Evolving reclamation or environmental legislation/regulation/ requirements may result in future liabilities currently not identified but may require new permits and/or approvals.

Potential environmental liabilities for current and future operations would most likely be associated with the surface facilities (shops, storage yards, mill, etc.), the WRSF, and TSF. All waste water, mine water, process waste water, non-contact cooling water and storm water is captured on the mine property and treated at the TSF, which has an NPDES permitted discharge. Waste rock from mining activities is stored at the WRSF located approximately 0.4 km of the mine. Operational access to the WRSF is via a haul road located on Sunshine Mine property. Petroleum products, cleaners, lubricants, fuels, etc. are stored at the mine within structures, on secondary containment, under cover, and/or in double-walled containers. Based on these activities, the potential environmental liabilities at the Sunshine Mine have been identified and minimized.

At the time of writing this report, the Sunshine Mine has all environmental permits, agreements, and approvals necessary to commence surface and subsurface operations. As certain activities commence, the required permits and licenses will be obtained in a timely manner.

4.4 Other Significant Factors and Risks Affecting Access or Title

The authors of this Technical Report are unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Location and Access

The Sunshine Mine is located within the well-known Coeur d'Alene Mining District in northern Idaho and is approximately 60 km east of Coeur d'Alene, Idaho along I-90. From I-90, the property is accessed at the Big Creek exit south approximately 3.5 km via a paved county road, which parallels Big Creek. The property is located about 7.25 km southeast of the town of Kellogg, Idaho, which hosts a full complement of services. The closest major airport and metropolitan center are located in Spokane, Washington, approximately 110 km of Kellogg.

The geographic coordinates of the Sunshine Mine Project are latitude 47°30'6" north and longitude 116°4'10" west.

5.2 Physiography

The Sunshine Mine is located in the Big Creek Valley at an approximate elevation of 792.5 masl with peaks around 1,463 masl. The topography is typical of northern Idaho's countryside, hilly to mountainous and forested. Forests primarily contain scrub/shrubs and tree species of Douglas fir, lodgepole pine, western larch, western white pine, grand fir, and western red cedar. Wildlife inhabiting the area are typical for the Rocky Mountain region including fish, bird, and mammal species.

Sunshine's main production shaft, the Jewell Shaft, and the mill are located above the base of a steep mountain, while the hoist room and other infrastructure facilities are located on a relatively level piece of property at the base of the mountain.

5.3 Climate

Climate in the area is considered to be typical of the northern-U.S. with snow, rain, and fog in the winter. Snowfall in the winter and the changing topography can restrict access to some surface facilities at higher elevations. Average rainfall in the area is approximately 83.8 cm annually.

5.4 Local Resources

The two closest towns to the mine are Kellogg and Wallace with 2017 populations of approximately 2,081 and 761, respectively. Other surrounding communities include Osburn, Silverton, and Pinehurst. The mining history of the Idaho Silver Belt ensures a ready source of skilled and unskilled labor. Efforts are made to stimulate the local economies as much as possible, with the local area having numerous vendors that supply services to the mining industry such as welding, steel supply, transportation, and project consumables. Many industry supplies and services are obtained in Spokane, Washington, which is the largest metropolitan city in the area and has an international airport.

5.5 Infrastructure

Electrical power is supplied by Avista, a large northwest U.S. power supplier with long historical ties to the mining industry in the Coeur d'Alene district. The district is tied to the main northwest power grid, and outages are rare. Power supply is ample for the life of the Sunshine Mine with potential local substation, and possibly transmission line upgrades, currently being evaluated by Avista. The main power source for the mine is a power line that parallels Big Creek Road and terminates at the Avista substation on the Sunshine Mine property. From the substation, power is distributed to numerous smaller substations throughout the property. A generator will provide backup power for the hoist.

Water is abundant from Big Creek, which flows immediately through the mine yard. Big Creek flows into the South Fork, then into Coeur d'Alene Lake, and out of the lake via the Spokane River to the Columbia River. Sunshine Mine has water rights to Big Creek and it is the principal fresh water source for the mine and mill. Potable water is supplied to the mine by the Central Shoshone Water District.

The Sunshine Mine is well served by regional infrastructure with I-90 approximately 3.5 km from the mine, and Spokane, Washington approximately 110 km west of Kellogg. Ready access to I-90 allows for easy transport of mining equipment, supplies, and consumables to and from the mine.

SSMRC has a permitted WRSF and TSF, both located north of the mine along Big Creek Road. The historic Sunshine mill is located at the mine site and the existing refinery is located approximately one mile north of the mine.

6 HISTORY

6.1 History of the Sunshine Mine

Historic Resource/Reserve estimates, production figures, and costs contained in this section have not been verified by the author and are not considered current.

The Sunshine Mine property had its beginning in 1884, when the Blake brothers, Dennis and True Blake, arrived from Maine and staked the Yankee Load (sic) mining claim on the east slope of Big Creek. In 1909, the Blake brothers were granted patent on four mining claims and one mill-site claim based upon work including ten tunnels, numerous open cuts, and a shaft for a total valuation of $18,140 exclusive of raises and stopes. Beginning in 1914 the mine was operated by a series of leasers until 1919.

The Sunshine Mining Company then came into control of the property, consisting of 15 patented mining claims and one unpatented mining claim. Construction of a 23 tpd mill and concentrator began in 1921, with modest expansions increasing the capacity to 454 tpd. Development financed by corporate bonds continued, and their efforts were rewarded on the 200 Level with a high-grade discovery. The stopes above the 500 Level, known as "Chinatown", allowed $145,000 of debt to be retired several months ahead of schedule and enabled a dividend to be paid for the first time in 1927.

Encouraged by the success of the Chinatown stopes, downward development of the vein continued. An inclined shaft was sunk from the 500 Level to follow the dip of the vein, while at the same time mining was conducted upward to connect to the Sunshine Tunnel level. Stations were cut at 61 m intervals until the shaft reached the 1300 Level. Silver prices had continued to drop, so with funds running low the 1500 Level was bypassed in favor of advancing to the 1700 Level. Soon after cutting the 1700 station in 1931, drift crews driving on the path of the vein discovered a bonanza of the first order – vein widths of 6 to 7.6 m showing a solid face of high grade silver mineralized material. What had previously been known as the Yankee Boy Vein was re-named the Sunshine Vein on the 1700 Level, and the Sunshine Mine became the largest silver mine in Idaho in 1931 and the second largest in the U.S. By 1935 the Sunshine Mine would become the richest and most profitable silver mine in the world.

The year 1935 also saw significant infrastructure and facility improvements. The concentrator was upgraded with modern ball mill grinding units and flotation cells, which increased capacity to 907 tpd while attaining an excellent silver recovery of 98%. A new four compartment vertical shaft, named the Jewell Shaft, was sunk from surface, and deepened 633.9 m during the year. The 2300 Level was reached in 1936, making it possible to begin hoisting mineralized material. Numerous other concrete and steel buildings were erected to support the rapidly growing operation, including a modern 480-man dry, machine shop, compressor house, warehouse, and hoist house for the new Jewell double-drum hoist.

By the end of the 1930's Sunshine metallurgists began to experiment with a unique method of extracting antimony from concentrate. In 1942, a plant to extract antimony from the Sunshine Mine's argentiferous tetrahedrite concentrate went on stream using a new, Sunshine-patented process of caustic leach and electrolytic deposition. The production of antimony, as well as lead, allowed the Sunshine Mine to remain open throughout World War II.

In 1943, with the high-grade sections of the Sunshine Vein playing out, management began an aggressive exploration program. That effort paid off when a drift crew, drifting east on 2700 Level following the

Syndicate Fault, broke into a very high-grade vein of mineralization splitting the fault in an east-northeast direction. This was the discovery of the famous Chester Vein.

Four main vein systems were being developed by the early 1950's; the Syndicate Vein, the Chester Vein, the Sunshine Vein, and the Yankee Girl Vein.

The most significant of the internal shafts is the No. 10 Shaft. Crews began work on the No. 10 Shaft on the 4000 Level in 1959. The shaft heading was raised to 3100 Level and eventually sunk to an elevation equivalent to the 6000 Level.

In 1960 sandfilling operations were introduced underground. The mill tailings were classified so that the coarser material, approximately 45% of the total mill feed, could be sent back underground to be used for backfill in the stopes. This sand material was hydraulically placed at about 65% solids into the voids created by the stoping operations. The sandfill provided much better support than the old gob (waste rock and rubbish) fill method and greatly reduced dilution from caving stope walls.

Operations at the Sunshine Mine moved steadily deeper during the 1960's. The increasing complexity of mining mineralized material at the Sunshine Mine was summed up in a comment by Mine Manager John Brandon: "The bulk of the mining activity is now 6,000 ft (approximately 1,830 m) from the Jewell Shaft. It is like working a mine through another mine." An exception to discoveries remote to the Jewell Shaft came when exploration during the late 1960's revealed good prospects at depth near the Jewell Shaft. Plans were made and implemented to sink a new winze called the No. 12 Shaft from the 3700 Level to 4800 Level, but only the pilot borehole was completed prior to the tragic fire of May 2, 1972 resulting in the deaths of 91 men.

The Sunshine Mine was slow to recover from the fire. Labor relations worsened, coming to a climax in a bitter year-long strike that began in March of 1976. Then in 1980, with silver prices skyrocketing, the mine again went on strike in March and operations were down until November when an agreement was finally reached. These events led to a series of high-cost labor agreements.

By early 1986 silver prices had dropped to below $5.50 per ounce, making it impossible for the mine to remain profitable. Management and labor failed to come to an agreement that would lower operating costs and allow continued production, and the mine was shut down and the property put on care and maintenance until May 1988 when a new labor contract was signed.

Full production was reached by the end of 1988. Production was primarily from mining the Chester Vein systems serviced by the No. 10 Shaft and the remnants of the Sunshine and Rambo vein stopes referred to as the Footwall Area on 3700 and 3400 Levels. The 4000 and 4200 Level Copper Vein was under development from the No. 12 Shaft. There were small amounts of mineralized material coming from this development activity.

In 1989, the mine produced 4.8 million ounces of silver, the first full year of production since the shutdown in 1986. The production from the high-grade Copper Vein stopes began to impact the silver production volumes. During 1990 the mine produced 5.4 million ounces of silver, the highest since 1971. By now the high-grade Copper Vein stopes on 4200 Level were becoming substantial producers, while production from the No. 10 Shaft stopes was dropping off. However, the silver price had dropped to $4.06 per ounce by year's end.

The silver price continued to slip in 1991 and the operation was losing money. A mine plan was designed to reduce losses substantially while waiting for prices to improve. This plan was referred to as the "small mine plan" and was implemented in June 1991. Operations underground were centralized by eliminating the outlying and more costly production and development headings and limiting operation to day shift only. Mining was consolidated in the area of the Copper Vein and the most productive headings in the Footwall Area. The mine below 5000 Level was salvaged and allowed to flood with water. Production was cut in half while the work force was reduced by 65%. However, funds were made available to proceed with a limited, but focused exploration program.

In 1992 the West Chance Vein was discovered by drifting on 4200 Level. Additional diamond drilling coupled with detailed geological analysis of the vein-to-host-rock relationship indicated the vein would enter more favorable horizons up-dip. Drift crews delineated the West Chance on the 2700, 3100, and 3700 Levels in 1994 and 1995. By 1996 it was clear the mineralized material was of sufficient size and value to support the mine's return to full production, but only if done via trackless ramp and lateral development methods using Load Haul Dump (LHD) diesel equipment. By July 1997 the mine workings below the 4000 Level were salvaged of all usable equipment and materials.

Peak production occurred in 1998 when 5.9 million ounces were produced, supplemented by mineralized material mined via trackless methods in the Sunshine Vein below the 3100 Level.

Sunshine Mining Company filed bankruptcy in late 2000, and the mine ceased production in the first quarter of 2001 as a result of several factors, including the low price of silver and the lack of concentrate sales due to the abrupt closure of ASARCO's East Helena smelter in Montana. New development and exploration were halted in 1999 as management shifted cash flow from the mine to sustain corporate expenses, debt, and other projects.

The mine remained closed until 2006, when Sterling began development of the Sterling Tunnel after acquiring a lease in 2003. Sterling resumed production in late 2007, but operations terminated in late 2008. In May 2010 SSMRC acquired from Sterling, through Sterling's bankruptcy proceedings, the majority of the operating facilities and equipment at the Sunshine Mine, including a lease on the Sunshine Mine that included a purchase option for title to the mine. In July 2010 SOP closed the purchase option in the lease to obtain title to the Sunshine Mine and acquired the remaining operating facilities and equipment. In October 2013 SOP closed on the purchase of the Sunshine Refinery as part of its purchase of Formation Metals US.

6.2 Historic Exploration and Resource/Reserve Calculations

From 1884 to 2001 the Sunshine Mining Company carried only one Reserve estimate classification for the Sunshine Mine: Proven and Probable. Until recently the terms Proven Reserves and Probable Mineral Reserves were not used, as they were classified simply as "Reserves." However, the method used to historically estimate and calculate the Reserves fully corresponds to the standard practice of estimating vein type Reserves traditionally used in the Coeur d'Alene Mining District for this deposit type.

No proven Reserves were estimated solely by drill hole data. Proven requires at least one lineal dimension of mineralized vein had to be exposed by mine workings and adequately sampled. The long mining history at Sunshine has shown both the main mineralized shoots and subsidiary mineralized shoots typically have vertical dimensions at least two to three times longer than the horizontal dimensions. The Reserve estimation technique, in the absence of limited diamond drill hole information, was to project a block of mineralized material above and below the developed level for a distance equal to one-half the horizontal dimension. The average weighted grade from chip samples regularly spaced at 1.83 m or at 2.13 m of the development length (depending on which mining method was being utilized) was assigned to the block. This method is typical of that used in the Coeur d'Alene Mining District and originated when virtually all underground mineral exploration was conducted by drifting on the vein. Sunshine referred to this as the "McKinstry" method, as it is adapted from the classic Reserve estimation technique taught by McKinstry early in the last century when vein mining was the norm, not the exception.

With exploration and development of the West Chance Vein in the mid- and late-1990's, the traditional McKinstry method was modified to incorporate increased drilling results and decreased vein drift development to determine the Resource of the newly discovered mineralized material. Therefore, in the West Chance where diamond drill hole data was abundant and where actual mined grade data were being generated, a polygonal estimation approach, rather than the McKinstry method, was used. After development of the sill level of the vein, chip samples of the vein were taken at 1.83 m intervals, and an assay "string" for a given strike length along the vein was created. The composite grade was diluted to 2.13 m if the vein was less than 2.13 m wide. Diamond drill hole assays around this development were given a weight equal to one point in the assay string, and the area of influence of the drill hole was calculated by the polygonal technique, diluting to correspond to the mining method width common in the West Chance stopes. The resulting block was then given the average grade of the string plus the one drill hole data point.

Once the Reserve block was in production, the grade of the mineralized Reserve block was estimated from the actual grade of the last two stope cuts. The grade of the remaining block was modified by the diamond drill hole assays. Again, each drill hole assay point in the block was given a weight equal to one point in the production assay string and the proper polygonal size of the block was calculated. In this manner, the actual data from the mining were given a greater weight than the single drill hole intercept assay point.

A density factor of 3.2 g/cm^3 was used for both mineralized material and waste in Reserve calculations prior to 1998. Measurements of representative mineralized material and waste samples from the mine show tonnage factors of 3.9 and 2.8, respectively. Beyond 1998 calculations used a mineralized material tonnage factor of 3.4 and a waste tonnage factor of 2.8.

Throughout its 128-year history, the Sunshine Mine was able to remain in production by continually advancing new Resources. Between 1934 and 2007, published Reserves have remained between 20 and 50 million contained ounces. A total of 365 million ounces have been produced.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The district is hosted by the rocks of the Precambrian Belt Supergroup. These Middle Proterozoic age sedimentary rocks were deposited approximately 1.47 to 1.6 billion years ago. At various times these rocks were faulted, leached, altered, and re-mineralized. The Belt Supergroup has been divided into the Pre-Ravalli, Ravalli, Piegan, and Missoula groups. Within the Coeur d'Alene Mining District, rocks of the Pre-Ravalli, Ravalli, and Piegan groups can be found. The formations comprising the Ravalli group are the preferred host rocks for silver mineralization in the district. Formations within the Ravalli group from oldest to youngest are the Burke Formation, Revett Formation, and St. Regis Formation.

Mineralized material in the Coeur d'Alene Mining District occurs in veins hosted in weakly metamorphosed sedimentary rocks of the Belt Supergroup. Most of the production is from the Revett and St. Regis Formations of the Ravalli group. This thick sequence, up to 20 km of middle Proterozoic-age strata covers a large area of northern Idaho, western Montana, and southeastern British Columbia. The sedimentary rocks are predominately fine-grained siliciclastic with subordinate carbonate-bearing units. The Cretaceous Gem and Dago Peak stocks and a few mafic dikes (Precambrian) are the only known intrusive rocks in the district.

A major tectonic lineament—the Lewis and Clark Line—defined by strike-slip, normal, and reverse faults, transects the district in a west-northwest direction, with folds north of the fault striking north-south. Early workers suggested that transcurrent movement along the Lewis and Clark Line resulted in this change of orientation. Recent interpretations support the hypothesis that there were two folding episodes and that earlier workers did not recognize the north-south folds, south of the line.

Rapid facies changes and variations in thickness suggest that faulting was active during deposition of the Belt sediments. The Osburn Fault is the local expression of the Lewis and Clark Line. The fault has been interpreted to have 24 km of post-mineralization-right-lateral strike-slip displacement, periodically active through geologic time.

The district has a history of intense faulting and folding of the rock formations. Two major east-west fault zones—the Osburn Fault and Placer Creek Fault—cut through the district. Although mineralization does not necessarily occur along these fault zones, the district's mineralized material is intimately associated with these and other related faulting. The unique geology of the district may display little or no indication of mineralization on the surface. Many of the successful silver mines in the district did not realize their full potential and best grade of mineralized material until after a depth of at least 518 m was reached during downward development and exploration. Thus, mining claims in the district, in particular if located near major mines and of similar geological setting, often require deep drilling from the surface or underground drilling to determine whether commercial grade mineralized material is present In the Coeur d'Alene Mining District deep extensions of primarily silver mineralization are fault hosted, which has proved to support favorable host rocks and related silver mineralization to deep depths.

Contradictory age dates and lack of conclusive field evidence resulted in differing hypotheses as to the origin and timing of the mineralized deposits. One study suggests that zinc and lead-rich veins formed from stratiform Proterozoic deposits (1,500-900 ma) and that silver-rich veins were formed by a late Cretaceous hydrothermal event (Bennett,1984). Field relationships and laboratory age dating continue to underscore the complex nature of the mineralized bodies; however, most researchers favor the theory that the combination of faults, folds, fractures, and favorable host rocks created suitable conditions for all mineral deposition by a late Cretaceous hydrothermal origin that was possibly related to the formation of the Idaho Batholith.

For mining and exploration purposes mineralized material genesis can be considered academic, and although it may affect regional exploration strategy, it does not change individual mine development and property-wide exploration strategy.

Structural studies augmented by geophysics and geochemistry have led many geologists to theorize that there was a 24 km right-lateral, post-mineral displacement on the Osburn Fault. This is based upon fault displacement on the Gem and Dago Peak stocks, the postulated buried Atlas stock, fault displaced geochemical alteration haloes around the stocks, offset of structural blocks and stratigraphy, and location of the major mines.

Most of the district production has come from within a 24 km long area from the Bunker Hill Mine to the Galena Mine. The Sunshine Mine is approximately in the center of this Bunker Hill-Galena Mine belt. **Figure 7-1** shows the mineral belts within the Coeur d'Alene Mining District. The district is approximately 35 km long in a west-northwest direction from the Page Mine on the west to the Carbonate Hill Mine on the east. However, reconstructing the geology to a pre-right-lateral faulting position (pre-post mineral faulting) allows the Star-Morning, Gold Hunter, and Lucky Friday Mines to be originally very close to the Bunker Hill Mine, putting nearly all the district production within this 24 km long band.

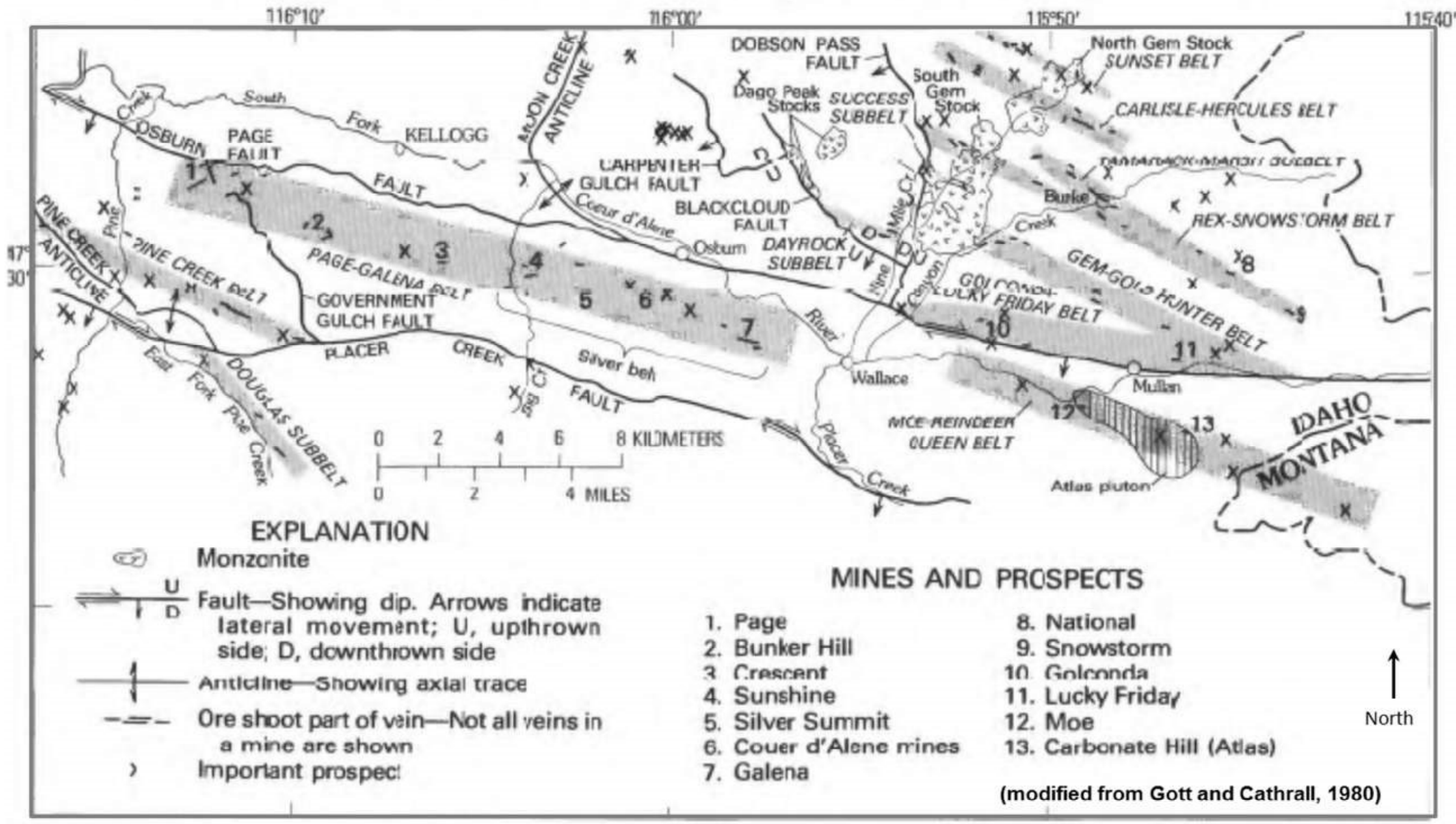

Figure 7-1: Mineral Belts of the Coeur d'Alene District, Idaho

7.2 Local and Property Geology

The Sunshine Mine is one of the most productive mines in the more than 35 km long Coeur d'Alene Mining District. Mineralized deposits are localized in the 183 m thick St. Regis Formation and the underlying upper members of the 914 m thick Revett Formation. The contact between the formations is indistinct and locally picked as the bottom of the lower-most distinct purple-colored interval in the St. Regis. Rock types include argillite, siltite, sericitic quartzite, and vitreous quartzite. Siltite and argillite dominate in the St. Regis Formation; while in the Revett, lithologies are gray to pale greenish-gray siltite and quartzite. Changes in lithologies are noted on the scale from a few centimeters to a few meters. Detailed stratigraphy of the mine is poorly understood; geologic mapping by early workers focused on veins and alteration, facies changes, and subtleties between lithologies that complicate correlation and identification of rock units. The stratigraphic column in the mine is continually re-interpreted, and two apparent marker beds have been identified in the West Chance area. One of these argillaceous beds is thought to be a bentonite (ash tuff) unit and may assist in correlations throughout the mine.

7.2.1 Faults

Four major west-northwest trending faults cut the mine area, and some have been mapped for several miles. The faults dip steeply to the south. The spatial relationship to the Osburn Fault suggests strike-slip movement, but studies of kinematics and rock fabrics in the mine show that most movement is dip-slip. The Polaris Fault has normal movement, but the Silver Syndicate, Chance, C, Chester, and Alhambra Faults have reverse movement. Offset is thought to be from 168 to 457 m in the vertical direction.

7.2.2 Folding

The principal fold in the Silver Belt is the Big Creek Anticline. Major mineralized deposits are localized on the north limb of the anticline, locally south of the Osburn Fault. Beds on the north limb are generally steeply dipping to overturned in the mine. Smaller sympathetic folds are notably present. On the hanging wall side of the West Chance Vein, for instance, two folds with amplitudes of about 30.5 m are noted. Bedding attitudes in some places suggest the major folds plunge to the west.

7.2.3 Sunshine Mine Veins

The main productive vein systems in the Sunshine Mine include the Sunshine, Chester, Polaris, Copper, Yankee Girl, and West Chance. Mineralized silver veins are present within a zone approximately 3,810 m long by 1,524 m wide and extending a vertical distance of approximately 1,890 m between 1,036 m above sea level to 853 m below sea level. The mineralization is open at depth below the 5600 Level.

Major veins strike east-west and typically dip 60° to 70° to the south. Vein strike lengths are up to 610 m, with the down-dip length two to three times the strike length and average between 0.3 and 1.5 m thick. Mineralized material occurs principally as tetrahedrite and galena with siderite and quartz as the main gangue minerals.

7.3 Mineralization

Over 40 veins have been named and mined at the Sunshine Mine. The Sunshine and Chester Veins have each produced over 90 million ounces of silver. The majority of veins strike east-west and dip about 65° to the south. Locally, dips range from 45° to 90°. Strike lengths locally exceed 610 m and dip lengths are two to three times greater than the strike length. Major veins are located between the faults at an angle of 25° to the bounding faults. Veins vary in width from a few inches to over 9 m but are typically between 0.3 and 1.5 m thick. Mineralized material includes tetrahedrite and galena with siderite and quartz as the principal gangue minerals. Accessory minerals include bournonite, pyrargyrite and magnetite.

The silver content of the tetrahedrite varies and the silver-to-copper ratio in the mineralized material ranges from 40:1 (ounce per ton silver:percent copper) up to 100:1. Tetrahedrite occurs as blebs, fracture fillings or in veinlets. Grades on the veins vary from low-grade material to well over 34,286 gpt of silver before mining dilution. Samples of over 68,571 gpt of silver have been collected in the mine. **Figure 7-2** presents a longitudinal -section view looking north, showing the related mined portions of major veins of the Sunshine Mine. Veins containing higher-grade material typically, but are not limited to, favorable stratigraphic host rocks of the Ravalli group. Overall, the host rock assemblage is complexly folded and faulted. Lithology color and bed thicknesses are some of the key principal features used in stratigraphic interpretation. Alteration leaching haloes around the veins change the pro-lithology color, complicating the task of stratigraphic correlation. The relatively recent district knowledge of stratigraphic control assisted Sunshine Mine geologists in the discovery of the West Chance Vein. This method has continued to produce targets for future Resource development programs.

7.4 Vein Mineralogy

Mineralogy is quite simple in the mineralized materials of the district and at the Sunshine Mine. Typically, the Sunshine Mine mineralized material consists principally of tetrahedrite, the high silver-content copper antimony sulfide ($3Cu_2S \bullet Sb_2S_3$). The silver content of the tetrahedrite varies considerably, and the silver-to-copper ratio in the mineralized material ranges from 40:1 (ounce silver per ton:percent copper) to over 100:1. Tetrahedrite occurs as very fine grains in fracture fillings, veinlets, or discontinuous blebs in the vein-filled faults. This silver-bearing tetrahedrite is more properly called freibergite. Freibergite contains 3% to 30% silver substituting for the copper in the crystal structure. Gangue minerals are predominantly siderite ($FeCO_3$) with lesser amounts of quartz (SiO_2). Other sulfide minerals, principally galena (PbS) and minor associated sphalerite (ZnS), are present in the mine and district veins. Four veins at the Sunshine Mine contain notable galena content including the West Chance, Silver Syndicate, Chester Hook, and the recently discovered 10 Vein. Other metallic minerals observed in the local vein assemblage gangue include pyrite (FeS_2), arsenopyrite ($FeAsS$), boulangerite ($5PbS \bullet 2Sb_2S_3$), bournonite ($2PbS \bullet Cu_2S \bullet Sb_2S_3$), pyrargyrite ($3Ag_2S \bullet Sb_2S_3$), and magnetite ($Fe_3O_4$).

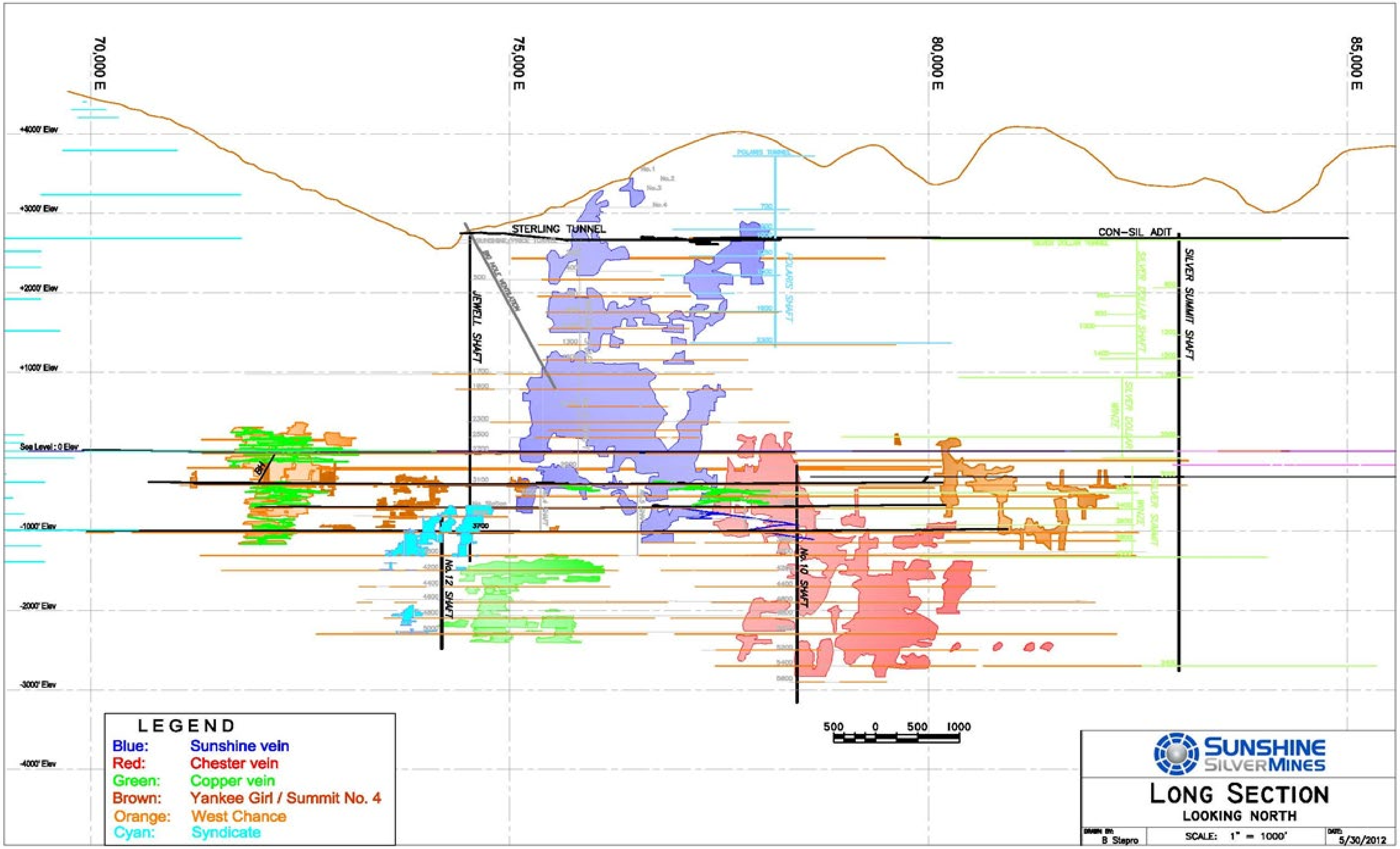

Figure 7-2: Longitudinal section Primary Project Veins

8 DEPOSIT TYPES

The objectives of the current exploration program at the Sunshine Mine are to discover new high-grade veins and mineralized shoots in historical areas that have nearby development, explore for new large veins in unexplored or under-explored areas, and to systematically replace Reserves as they are mined.

Prior exploration work carried out at the Sunshine Mine created historic resources. It is necessary to describe historic exploration work, as it includes the methods utilized by prior owners/operators Sunshine Mining Company, Sterling, and the current owner, SOP. Exploration work consists of the same methods as practiced by Sunshine Mining Company through 2001, except that defined Resource and Reserve categories will now be classified in accordance with the CIM Definition Standards. Mine staff completed surveys and exploration work in the past and this practice continues incorporating new advancements in practice, method and technology. A significant example of this, the Sterling Tunnel was driven to join the Sunshine and ConSil Tunnels and has allowed underground diamond drilling exploration to be resumed in the Upper Country mine area in conjunction with ramp and drift development.

Normally, underground chip samples are collected for daily grade control and for Resource estimation. Daily samples are collected underground from drift faces, stope faces, drift backs, drift ribs, and raise ribs. Samples are taken by collecting chips in a horizontal channel, left to right, across the mining face. Sampling protocol for channel samples is to collect separate samples of exposed wall rock on both sides of the apparent mineralized vein, and across the mineralized structure or vein samples are collected perpendicular to the mineralized structure. Multiple samples are taken across a face based upon changes in mineralization intensity or composition. Samples are a maximum of five feet in length, and typically broken into 0.6 m or less intervals depending on the mineralization present. Each sample face has a referenced control distance to an established survey point. Stopes on the veins are generally sampled at 1.2 to 1.8 m strike intervals. Both raises and stopes are sampled at regular intervals that typically vary based on advance cycles.

8.1 Prior Exploration

Beginning in August 2003 Sterling undertook a surface exploration program, which included induced polarization (IP), resistivity, and chargeability geophysics and geochemical sampling that yielded near surface zones of interest. The work was followed by a three-hole drilling program totaling 753.77 m that was completed in 2004. While the first two holes increased stratigraphic information, the third hole drilled toward the Yankee Girl structure intercepted multiple veins in the Sunshine shear zone and the footwall of the Yankee Girl Vein. This information was a key driver in pursuing the Sterling Tunnel Project.

The Sterling Tunnel underground contract drilling began in September 2006 and explored distant targets, such as the Silver Syndicate, Copper-Link, Hook, and Chester Veins, and the Polaris Fault to the north of the Sterling Tunnel, as well as the Yankee Girl Vein to the south. The drill results yielded information essential to determining the nature of Upper Country structure and stratigraphy, providing a guide for additional drilling and exploration activities. From 2004 through 2008 exploration diamond drilling totaled 14,194.5 m.

8.2 Recent SSMRC Exploration Plans

SSMRC has completed a multi-year underground exploration program. Large areas of the Sunshine Mine complex are largely unexplored and have received minor drilling over the past two decades. Important and prospective targets have been identified on the Sunshine levels 2700, 3100, 3700, 3000, ConSil, and the Sterling Tunnel level. Multiple areas of exploration will be tested within all accessible underground levels. After minor needed repair work, these targets offer both rubber tire and track-level access.

Although the proposed multi-year program will explore eight primary areas of interest—including the Yankee Girl/Summit #4 Vein, Western Sunshine Vein, Metropolitan Vein, 101 Vein, up-dip extension of the West Chance Vein, Upper Sunshine/Polaris Veins, and the Silver Syndicate/Polaris Fault/Vein zones—the ongoing program is limited in scope due to current access restraints, and will expand as access is regained to prime exploration locations.

Since initiating drilling in April 2011, to date SSMRC has completed 84 drill holes totaling 18,289.5 m. The primary focus of the drilling accessed from the Sterling Tunnel has been to follow up on open ground within the Sunshine Vein system, while also exploring the Yankee Girl Vein. During the process, three new vein structures have been identified. The first new vein is located west of the Sunshine Vein system and is referred to as the West Chance Link Vein. The West Chance Link Vein is a linking structure between the Sunshine Vein and West Chance Vein. The Sterling Tunnel intercepts correlate with two recent deep surface intercepts, including a historical Resource along the same dip and strike indicating that the mineral pay streak is continuous from the Sterling Tunnel elevation to the 1700 Level. The lateral extents of the new structure are not defined as drilling is ongoing to continue delineation. Additionally, in-fill drilling open ground above the Sterling Tunnel elevation, about the Sunshine Vein has also identified a second new silver-copper vein structure approximately 61 m in the Sunshine Vein hanging wall, referred to as the South Yankee Boy Split. Unstable ground conditions made diamond drill hole advance difficult. SSMRC completed driving an exploration incline drift to the drill vein intercepts. Approximately 64 m of intermediate drifting was completed along vein strike. Select vein muck pile samples were collected in support of a bulk metallurgy sample to aid new mill process design criteria. A 7,200 kg (16,000 lb) sample was sent to G&T Metallurgical Services (G&T), a division of ALS Canada Ltd, in Kamloops, British Columbia. A third vein structure, 61 m in the Sunshine Vein footwall, has also been identified and is referred to as the “10 Vein”. The lead-silver vein has been defined with 12 drill holes to date and is open to the east and down dip, southeast, showing improved grades and widths in both directions.

Historic exploration was primarily constrained by legal property boundaries. Potential targets were also never explored due to limited availability of drills, lack of supporting infrastructure, lack of physical access to provide suitably located drill stations, and prohibitive depths from the surface. With the consolidation of the land position, previously unexplored target areas can now be explored.

9 EXPLORATION

9.1 Historical Drilling

The current drill database contains approximately 3,498 underground drill holes. Additional drill holes are being identified and added to the master database. The longest underground hole is 914.4 m. It is not uncommon for holes to be 457 to 914 m long. Long underground exploration holes are required to locate structures and veins because the majority of historical development, except in the West Chance, has been on the vein structures themselves; thus, drilling platforms for shorter holes at appropriate angles to the targets have not been available.

Drilling was completed by the prior companies with company-owned equipment and mainly by their corporate employees. All the previous drilling was core and drilling was done using the following equipment:

- Pneumatic percussion drills (CP 65s), 152.4 m capability, typically obtained AQ core in the target zone.
- Hagby drills for underground long hole exploration, typically obtained BQ or NQ core in target zones.
- Longyear 38 for long range hole exploration to obtain NQ core in target zones.

Historic core logs with appropriate descriptions exist with the exception of a single surface hole log book, which has been identified as “misplaced” during a past change of property ownership. The historical drill operators were competent, and core recovery in the mineralized zone was generally 90% or higher. Given the fracturing and broken ground in the mineralized zones, core losses in some holes were significant. Sunshine began down-hole surveying of its holes when Tropari mechanical survey tools became available circa late 1960. Historical records on file show the instruments were regularly serviced and calibrated. The majority of drill holes have been down-hole surveyed. Shorter historical holes—typically less than 61 m —are only denoted with a collar azimuth and dip. Historical core was not photographed. Historically, mineralized core for assay analyses was split in half with hydraulic splitters. One-half was replaced in the core box and stored onsite with skeleton core samples from select drill holes. The other half was utilized for assay analysis.

The historical purpose of drilling to identify potential mineralized structure has resulted in limited use of drill hole assay data incorporated in the historical Sunshine mineral Resource and Reserve estimates.

9.2 Recent Drilling

The recent (2011 to present) drilling for exploration, delineation, and development conducted at SSMRC has been performed with diamond core drills. Work was completed by local contract core drilling company Dynamic Drilling, Inc. from Osburn, Idaho. They operated one to three Hagby Onram-1000 diamond drills underground in the Sterling Tunnel. Down-hole surveys were attempted on all diamond drill holes. The primary survey tool was a Reflex EZ-AQ multi-shot down-hole survey camera. Core diameters ranged from 2.7 to 4.76 cm. Core recovery was generally very good, exceeding 90%. Core recovery can be difficult in certain faulted or sheared areas. The diamond drillers would change from wireline tools to conventional tools before encountering proven areas of loss, which significantly improved recovery. Recovery issues do not materially impact the reliability of the results. Drill core was logged in detail and digitally photographed.

All drill hole and sample information are stored in an Access® database for reporting purposes. When drill hole samples are used for polygonal or accumulation methods of Resource modeling, they are corrected back to true horizontal thickness. Diamond drill holes are typically designed to intersect mineralization as close to perpendicular as possible. Drill hole assaying is typically conducted to break out distinct mineralogies within single vein intercepts; however, to be compatible with level and stope channel sampling, assay data was composited across single vein intercepts.

To date, three new vein structures have been defined with drilling from the Sterling Tunnel elevation. Two new silver-copper veins have been defined in the immediate hanging wall of the historic Sunshine Vein and are named the West Chance Link Vein and the South Yankee Boy Split Vein (SYBS). A total of 16 holes have been drilled by SSMRC targeting the West Chance Link Vein and all have encountered silver mineralization. Additionally, a new lead-silver vein, named the “10 Vein” has been recently discovered 61 m within the footwall of the Sunshine Vein. To date, 12 drill holes have crosscut the new vein. All veins carry economic silver-copper or lead-silver values. Drilling will continue to define the vertical and lateral limits of the new vein structures.

Table 9-1 details drill intercepts completed in 2012 and 2013 that have been included in this mineral Resource estimate. New drill results verify the upward vertical extension of the historical Sunshine Vein system. Drill results from the most recent campaign have also defined the new 10 Vein, located in the Sunshine Vein footwall. All 10 Vein results to date are open to the immediate east and deeper southeast and demonstrate improved widths and grades towards the open limits. The most recent drilling also defined the new SYBS Vein situated in the immediate Sunshine Vein hanging wall. The SYBS was ramped up to and developed from the Sterling Tunnel in 2012. The vein stope developed an economic paystreak of 50.9 m averaging 607 gpt of silver, diluted. The vein structure is still open to the east and west for continued development exploration. Future drilling will continue to define the available resources around the Sunshine Vein, while also exploring and expanding both new vein discoveries for incorporation in future Resource estimates.

Table 9-1: Drill Results 2012 and 2013 Drill Programs

Drill Hole ID	Drill Station	Azimuth	Dip	From (m)	To (m)	Downhole Length (m)	Angle to Core Axis	Ag gpt	Cu %	Pb %	Sb %	Zn %	Vein
ST-2624	C	0.5	-29.8	200.2	200.3	0.06	NA	114	0.07	0.05	0.04	0.01	SYankeeBoy
ST-2624	C	0.5	-29.8	202.5	202.6	0.09	NA	82	0.01	0.67	0.01	0.01	NYankeeBoySunshine
ST-2624	C	0.5	-29.8	262.7	262.8	0.09	60	1118	1.47	0.6	0.51	0.06	10Vein
ST-2624	C	0.5	-29.8	262.8	263.1	0.30	NA	20	0.04	0.05	0.01	0.01	
ST-2625	C	357.7	-45.6	208.2	209.4	1.16	80	1246	0.41	0.13	0.34	0.04	SYankeeBoy
ST-2625	C	357.7	-45.6	210.7	210.9	0.12	80	353	0.23	2.53	0.15	0.02	NYankeeBoySunshine
ST-2625	C	357.7	-45.6	272.1	272.3	0.21	60	1375	0.11	61.9	0.18	0.01	10Vein
ST-2625	C	357.7	-45.6	273.6	273.7	0.06	80	1718	0.63	59.8	0.55	0.04	10FWVein
ST-2627	C	356.9	-54.9	226.2	226.6	0.43	55	98	0.05	0.05	0.03	0.01	SYankeeBoy
ST-2627	C	356.9	-54.9	227.1	227.6	0.52	60	520	0.24	0.05	0.18	0.02	NYankeeBoySunshine
ST-2627	C	356.9	-54.9	291.5	292.1	0.61	60	86	0.02	3.86	0.02	0.01	10Vein
ST-2627	C	356.9	-54.9	293.7	294.3	0.61	65	804	1.03	0.84	0.49	0.05	10FWVein
ST-2628	C	355.7	-64.5	46.5	46.6	0.09	NA	12	0.01	0.44	0.01	0.01	CFault
ST-2628	C	355.7	-64.5	258.7	258.9	0.18	40	819	0.33	0.05	0.25	0.03	SYankeeBoy
ST-2628	C	355.7	-64.5	262.1	262.6	0.55	55	2142	1.54	0.05	1.17	0.13	NYankeeBoySunshine
ST-2628	C	355.7	-64.5	332.9	334.2	1.30	55	1063	0.47	12.8	0.35	0.04	10Vein
ST-2628	C	355.7	-64.5	334.2	334.8	0.59	NA	14	0.02	0.13	0.02	0.01	
ST-2629	C	357	-35.4	206.9	207.7	0.79	60	5799	1.83	0.07	1.5	0.16	SYankeeBoy
ST-2629	C	357	-35.4	208.7	209.1	0.43	60	2086	0.6	0.1	0.53	0.05	NYankeeBoySunshine
ST-2629	C	357	-35.4	265.7	265.9	0.15	65	1344	0.48	2.82	0.34	0.04	10Vein
ST-2629	C	357	-35.4	265.9	266.3	0.40	NA	2	0.01	0.05	0.01	0.01	
ST-2630	C	355.6	-45.2	41.9	42.0	0.09	40	1550	0.16	5.71	0.01	0.01	CFault
ST-2630	C	355.6	-45.2	216.1	216.5	0.43	50	868	0.29	0.06	0.23	0.03	SYankeeBoy
ST-2630	C	355.6	-45.2	217.6	217.7	0.09	50	3703	1.81	0.05	1.4	0.15	NYankeeBoySunshine

Drill Hole ID	Drill Station	Azimuth	Dip	From (m)	To (m)	Downhole Length (m)	Angle to Core Axis	Ag gpt	Cu %	Pb %	Sb %	Zn %	Vein
ST-2630	C	355.6	-45.2	278.3	278.6	0.30	50	257	0.03	8.07	0.03	0.01	10Vein
ST-2630	C	355.6	-45.2	280.2	280.4	0.12	60	129	0.05	1.71	0.04	0.01	10FWVein
ST-2631	C	0.7	-54.4	228.9	229.0	0.15	60	2191	1	0.16	0.87	0.09	SYankeeBoy
ST-2631	C	0.7	-54.4	231.9	232.6	0.61	60	25	0.03	0.05	0.02	0.01	NYankeeBoySunshine
ST-2631	C	0.7	-54.4	294.6	295.8	1.13	45	1234	0.1	55.87	0.2	0.01	10Vein
ST-2631	C	0.7	-54.4	296.9	297.0	0.15	50	286	0.62	0.62	0.31	0.05	10FWVein
ST-2632	C	3	-64.6	46.0	46.1	0.12	55	149	0.1	1.57	0.07	0.01	CFault
ST-2632	C	3	-64.6	241.7	242.3	0.64	50	415	0.15	0.05	0.12	0.02	SYankeeBoy
ST-2632	C	3	-64.6	243.1	243.1	0.06	45	323	0.14	0.05	0.11	0.01	NYankeeBoySunshine
ST-2632	C	3	-64.6	309.8	311.4	1.55	50	1824	0.71	15.89	0.59	0.07	10Vein
ST-2632	C	3	-64.6	312.5	313.1	0.61	50	262	0.58	0.05	0.26	0.03	10FWVein
ST-2633	C	340	-35	48.3	48.6	0.30	NA	85	0.09	0.47	0.05	0.01	CFault
ST-2634	C	343.9	-45.5	220.6	221.5	0.91	65	0					SYankeeBoy
ST-2635	C	343.3	-54.4	54.6	54.6	0.06	55	1279	0.6	4.14	0.5	0.08	CFault
ST-2635	C	343.3	-54.4	225.6	225.8	0.21	60	737	0.2	0	0.17	0.02	SYankeeBoy
ST-2635	C	343.3	-54.4	285.4	285.9	0.46	50	473	0.07	14.2	0.07	0.01	10Vein
ST-2635	C	343.3	-54.4	287.6	287.8	0.24	50	477	0.13	13.6	0.12	0.01	10FWVein
ST-2636	C	345.3	-25.1	50.5	51.2	0.73	NA	16	0.01	0.45	0.01	0.01	CFault
ST-2636	C	0	0	213.0	213.4	0.40	NA	321	0.06	3.34	0.05	0.01	SYankeeBoy
ST-2636	C	345.3	-25.1	218.5	218.6	0.06	70	15	0.01	0.12	0.01	0.01	NYankeeBoySunshine
ST-2637	C	344.7	-63.8	52.6	52.7	0.06	55	309	0.14	5.13	0.1	0.02	CFault
ST-2637	C	344.7	-63.8	245.9	247.4	1.43	50	432	0.23	0.06	0.17	0.03	SYankeeBoy
ST-2637	C	344.7	-63.8	250.0	250.6	0.61	50	2126	1.49	0.12	1.09	0.12	NYankeeBoySunshine
ST-2637	C	344.7	-63.8	312.5	313.7	1.22	45	143	0.02	4.71	0.03	0.01	10Vein
ST-2637	C	344.7	-63.8	315.0	315.1	0.18	45	245	0.08	6.85	0.07	0.01	10FWVein

Drill Hole ID	Drill Station	Azimuth	Dip	From (m)	To (m)	Downhole Length (m)	Angle to Core Axis	Ag gpt	Cu %	Pb %	Sb %	Zn %	Vein
ST-2638	C	337.5	-64.5	264.6	264.7	0.15	55	1114	0.63	0.05	0.51	0.06	SYankeeBoy
ST-2638	C	337.5	-64.5	265.7	265.8	0.18	60	878	0.46	0.05	0.34	0.04	NYankeeBoySunshine
ST-2638	C	337.5	-64.5	334.2	334.8	0.67	45	336	0.09	9.9	0.06	0.01	10Vein
ST-2638	C	337.5	-64.5	336.8	336.8	0.06	55	106	0.63	0.15	0.12	0.01	10FWVein
ST-2639	C	331	-55	58.5	58.6	0.12	40	201	0.03	1.94	0.05	0.01	CFault
ST-2640	C	331	-45	53.0	53.1	0.12	40	603	0.17	1.47	0.23	0.03	CFault
ST-2640	C	331	-45	55.3	55.6	0.27	25	337	0.1	28.2	0.12	0.01	CFault
ST-2640	C	331	-45	233.6	233.8	0.18	70	1025	0.33	0	0.28	0.04	SYankeeBoy
ST-2641	C	337.3	-35.7	55.6	57.0	1.37	40	17	0.01	0.47	0.01	0.01	CFault
ST-2641	C	337.3	-35.7	224.9	226.3	1.43	55	3615	0.82	0.05	0.73	0.08	SYankeeBoy
ST-2641	C	337.3	-35.7	228.7	228.7	0.03		2	0.01	0.05	0.01	0.04	NYankeeBoySunshine
ST-2642	C	338.1	-24.9	56.7	57.1	0.43	45	170	0.06	3.97	0.05	0.01	CFault
ST-2642	C	338.1	-24.9	220.4	220.5	0.12	65	792	0.29	0.73	0.25	0.03	SYankeeBoy
ST-2642	C	338.1	-24.9	222.9	223.0	0.06	60	34	0.02	0.05	0.02	0.01	NYankeeBoySunshine
ST-2643	C	338.1	-49.9	236.7	237.0	0.30	60	696	0.24	0.05	0.2	0.03	SYankeeBoy
ST-2643	C	338.1	-49.9	239.5	239.8	0.30	60	2	0.01	0.05	0.01	0.01	NYankeeBoySunshine
ST-2644	C	338.3	-59.6	259.2	259.6	0.43	70	483	0.37	0.11	0.25	0.03	SYankeeBoy
ST-2644	C	338.3	-59.6	260.2	260.6	0.37	70	1087	0.51	0.05	0.42	0.04	NYankeeBoySunshine
ST-2644	C	338.3	-59.6	314.4	314.8	0.37	60	483	0.08	20.27	0.08	0.01	10Vein
ST-2644	C	338.3	-59.6	314.8	315.1	0.30	NA	2	0.01	0.15	0.01	0.01	
ST-2645	D	337	-45	173.1	173.6	0.46	60	765	0.36	0.05	0.25	0.04	SYankeeBoy
ST-2646	D	343.2	-35.1	167.9	168.1	0.18	70	672	0.25	0	0.2	0.04	SYankeeBoy
ST-2646	D	343.2	-35.1	168.5	168.8	0.30	65	328	0.12	0	0.07	0.02	NYankeeBoySunshine
ST-2647	D	341.8	-24.8	86.6	86.9	0.24	50	242	0.38	0.05	0.13	0.03	CFault
ST-2648	D	343	-15.4	90.2	90.3	0.12	55	7279	4.28	15.1	2.29	0.47	CFault

Drill Hole ID	Drill Station	Azimuth	Dip	From (m)	To (m)	Downhole Length (m)	Angle to Core Axis	Ag gpt	Cu %	Pb %	Sb %	Zn %	Vein
ST-2648	D	343	-15.4	168.9	170.1	1.22	NA	480	0.15	0.16	0.09	0.02	SYankeeBoy
ST-2648	D	343	-15.4	171.4	172.2	0.76		2	0.01	0.14	0.01	0.01	NYankeeBoySunshine
ST-2649	D	342.4	-5.4	92.2	92.3	0.12	60	37	0.03	0.18	0.01	0.01	CFault
ST-2649	D	342.4	-5.4	172.7	175.7	3.05	60	0					SYankeeBoy
ST-2650	D	340.7	4.8	99.5	99.6	0.12	30	4	0.01	0.05	0.01	0.01	CFault
ST-2650	D	340.7	4.8	183.0	183.9	0.91	NA	23	0.02	0.1	0.01	0.01	SYankeeBoy
ST-2650	D	340.7	4.8	184.5	184.7	0.15	80	600	0.27	1.36	0.22	0.03	NYankeeBoySunshine
ST-2651	D	337.6	15.6	122.6	122.7	0.09	40	555	0.24	0.05	0.18	0.02	CFault
ST-2653	D	356.5	-52.7	70.7	71.4	0.67	65	1234	0.98	0.2	0.55	0.09	CFault
ST-2653	D	356.5	-52.7	168.8	169.4	0.61	60	161	0.09	0.05	0.05	0.01	SYankeeBoy
ST-2653	D	356.5	-52.7	172.2	172.5	0.27	50	624	0.44	0.05	0.27	0.04	NYankeeBoySunshine
ST-2654	D	356	-45.2	69.2	70.1	0.91	60	312	1.02	0.4	0.16	0.04	CFault
ST-2654	D	356	-45.2	163.9	164.4	0.49	60	946	0.28	0.05	0.25	0.04	SYankeeBoy
ST-2655	D	356.8	-35	69.6	70.3	0.73	60	562	2.2	0.05	0.34	0.07	CFault
ST-2655	D	356.8	-35	158.7	159.2	0.52	70	435	0.13	0	0.1	0.03	SYankeeBoy
ST-2656	D	356.2	-25.3	156.2	156.3	0.09	70	1797	0.69	0	0.47	0.07	SYankeeBoy
ST-2657	D	357.7	-15.5	71.8	73.4	1.58	50	309	0.72	0.61	0.14	0.03	CFault
ST-2657	D	357.7	-15.5	152.7	155.1	2.44	55	0					SYankeeBoy
ST-2658	D	357.6	-5.9	74.1	75.3	1.22	50	709	0.78	0.41	0.26	0.03	CFault
ST-2658	D	357.6	-5.9	160.7	161.6	0.85	55	829	0.21	0.08	0.18	0.02	SYankeeBoy
ST-2659	D	356.8	5	78.2	78.8	0.58	60	708	0.4	0.05	0.24	0.02	CFault
ST-2659	D	356.8	5	169.7	170.6	0.88	50	3044	0.7	0.09	0.68	0.06	SYankeeBoy
ST-2659	D	356.8	5	171.4	172.1	0.61	50	55	0.02	0.05	0.01	0.01	NYankeeBoySunshine
ST-2660	D	356.2	14.9	85.6	85.9	0.30	50	224	0.62	0.13	0.06	0.02	CFault
ST-2660	D	356.2	14.9	88.5	88.7	0.15	50	166	0.08	0.4	0.05	0.01	CFault

Drill Hole ID	Drill Station	Azimuth	Dip	From (m)	To (m)	Downhole Length (m)	Angle to Core Axis	Ag gpt	Cu %	Pb %	Sb %	Zn %	Vein
ST-2661	D	12.5	-49.8	66.3	66.5	0.21	70	112	0.5	0.15	0.04	0.01	CFault
ST-2661	D	12.5	-49.8	67.7	67.8	0.18	60	175	0.1	0.4	0.06	0.03	CFault
ST-2661	D	12.5	-49.8	169.0	169.4	0.37	50	477	0.16	0.17	0.07	0.03	SYankeeBoy
ST-2661	D	12.5	-49.8	171.5	171.5	0.06	50	8	0.01	0.2	0.01	0.01	NYankeeBoySunshine
ST-2662	D	12.3	-40.6	64.5	65.1	0.67	45	1575	1.02	0.9	0.83	0.2	CFault
ST-2662	D	12.3	-40.6	159.6	159.9	0.30	70	291	0.51	0.05	0.28	0.02	SYankeeBoy
ST-2662	D	12.3	-40.6	162.4	162.8	0.40	65	2901	1.11	0.2	1.09	0.11	NYankeeBoySunshine
ST-2663	D	12.3	-30	63.6	64.3	0.70	NA	48	0.14	0.38	0.04	0.01	CFault
ST-2663	D	12.3	-30	157.1	157.5	0.43	NA	442	0.2	0.05	0.15	0.02	SYankeeBoy
ST-2664	D	13.8	-20.8	63.2	63.5	0.37		2	0.01	0.05	0.01	0.01	CFault
ST-2664	D	13.8	-20.8	154.4	154.9	0.46	70	511	0.21	0.05	0.13	0.02	SYankeeBoy
ST-2664	D	13.8	-20.8	155.3	156.1	0.85	75	53	0.03	0.05	0.02	0.01	NYankeeBoySunshine
ST-2665	D	13.8	-10.9	64.9	65.9	0.94	60	155	0.57	0.18	0.06	0.01	CFault
ST-2665	D	13.8	-10.9	154.2	155.3	1.10	65	634	0.24	0.05	0.2	0.02	SYankeeBoy
ST-2665	D	13.8	-10.9	157.6	158.2	0.52	65	247	0.18	0.05	0.17	0.02	NYankeeBoySunshine

10 DRILLING

The author finds the sample preparation, analyses and security to be adequate, and believes SSMRC procedures are in line with common best practices. Both diamond drill samples and underground channel samples are used in Resource estimation.

10.1 Channel Samples

Underground chip samples are collected for daily grade control and for Resource estimation. Daily samples are collected underground from drift faces, stope faces, drift backs, drift ribs, and raise ribs. Samples are taken by collecting chips in a horizontal channel, left to right, across the mining face. Sampling protocol for channel samples was to collect separate samples of exposed wall rock on both sides of the apparent mineralized vein, and across the mineralized structure or vein samples are collected perpendicular to the mineralized structure. Multiple samples are taken across a face based upon changes in mineralization intensity or composition. Samples are a maximum of 1.5 m in length. Each sample face has a referenced control distance to an established survey point. After samples are collected, the geologists carry them to the surface where they are secured and inventoried for transportation to the assay lab. On the sample ticket, the location is recorded, the sample is described, and a sketch of the vein and face is completed. A tear-off tag on the main sample ticket is placed in each sample bag.

The analyses from the face samples taken during development and from samples taken as production mining proceeded are the primary sources of data that Sunshine used to estimate its Reserves. Those analyses are the basis for the estimate of Resources in this Technical Report.

Drifts on the veins are generally sampled at 1.22 to 1.83 m. Both raises and stopes were sampled at regular intervals, which vary based on advance cycles. The historical assay plan and longitudinal section paper data have been digitized and entered into an electronic database. Locations and analyses from the underground face samples, beginning in 1995, have been entered into the electronic database. Data from the face samples prior to 1995 have been digitized and entered into the database. The initial database system was TechBase®. Since 1996, Microsoft Access® and AutoCAD® were used, with all graphics in AutoCAD. Historic underground sampling assay results were plotted on paper and canvassed-back paper maps. A relatively complete set of historic sampling maps have been stored in the Sunshine Mine archives and vaults. The maps are quite detailed and document the results of extensive drift and stope sampling. SSMRC recently completed a thorough digitized scanning of these maps.

10.2 Diamond Drill Samples

Drilling at the Sunshine Mine for Resource estimation was done with diamond core drills. The core diameter is typically BQ (3.64 cm in diameter) or NQ2 (5.05 cm in diameter). Since 2000, the core has been logged in detail and photographed in a dedicated surface facility. Core samples are collected through the vein or mineralized structure. Additional core on both sides of the mineralized zone are sampled to characterize waste dilution. No samples taken for assay are greater than 1.5 m; large zones are broken into increments of 1.5 m or less. When core is lost through a mineralized zone, the total drill thickness of the zone is used for volume estimation. The portion of a diamond drill hole used to calculate the Reserve for a given vein must be corrected to account for the true thickness of the vein at that point. The down-hole length of the intercept is multiplied by the sine of the vein angle to the core axis. This is standard procedure prior to Resource calculation.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The Sunshine Mine mineral deposits are narrow high-grade mesothermal strata bound vein deposits. Contradictory age dates and lack of conclusive field evidence resulted in differing hypotheses as to the origin and timing of the mineralized deposits. One study suggests that zinc and lead-rich veins formed from stratiform Proterozoic deposits (1,500-900 ma) and silver-rich veins were formed by a late Cretaceous hydrothermal event (Bennett,1984). Field relationships and laboratory age dating continue to underscore the complex nature of the mineralized bodies; however, most researchers favor the theory that the combination of faults, folds, fractures, and favorable host rocks created suitable conditions for all mineral deposition by a late Cretaceous hydrothermal origin that was possibly related to the formation of the Idaho Batholith.

For mining and exploration purposes, mineralized material genesis can be considered academic, and although it may affect regional exploration strategy, it does not change individual mine development and property-wide exploration strategy.

Veins characteristically strike east-west and dip steeply (average 65°) to the south. The combination of faults, folds, fractures and favorable host rocks created suitable conditions for mineral emplacement by silver-rich and silver-base metal veins. **Figure 11-1** shows the generalized relationship between the principal productive veins and the four major faults. Drilling from the surface has been generally non-productive. Typically, underground drilling and drifting are historically the most productive exploration tools.

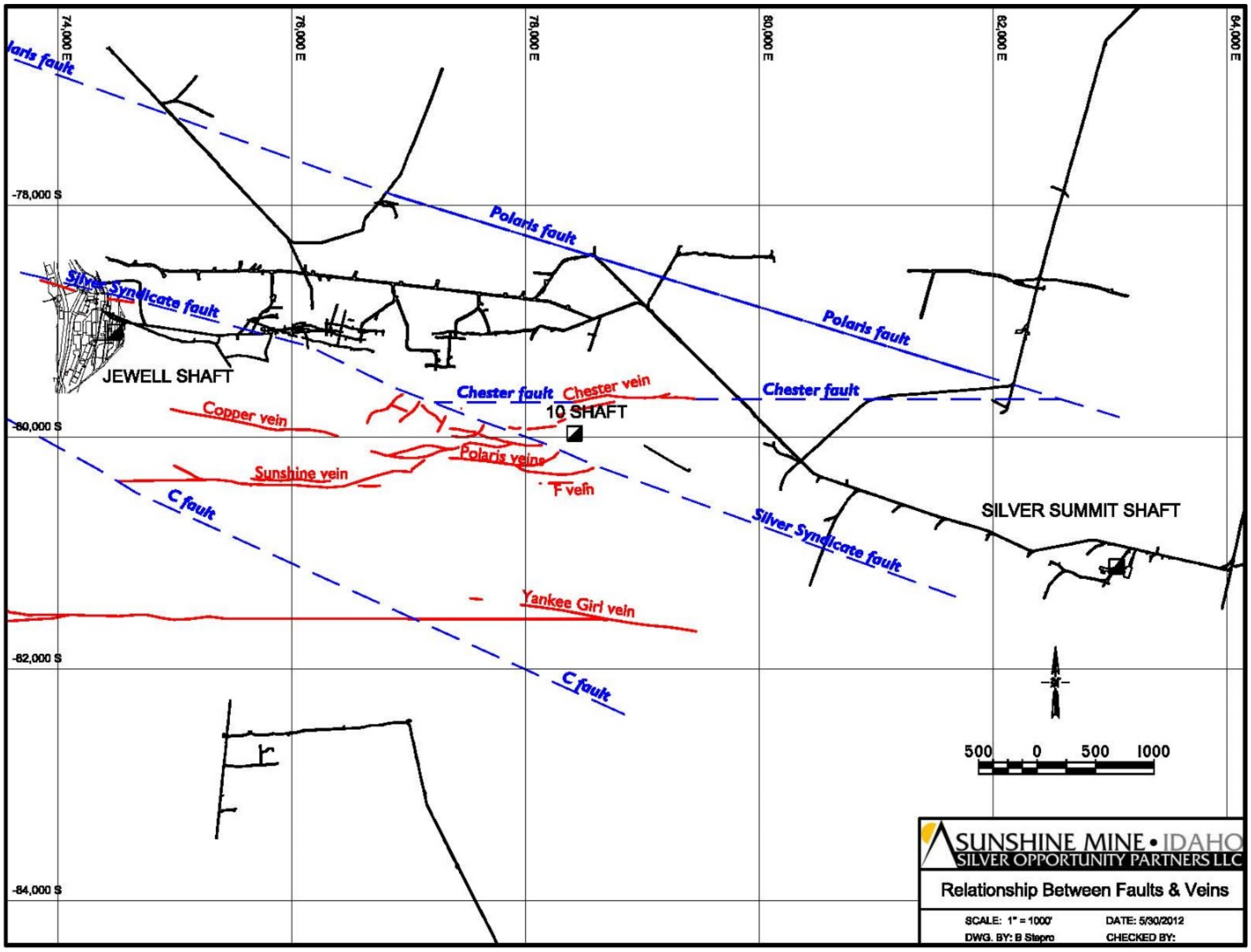

Figure 11-1: Relationship between Faults and Veins

11.1 Density Determinations

To date, the Resource and Reserve estimates for the Sunshine Mine were carried out utilizing historical bulk-density (specific gravity) and tonnage factor values that had been used for over 100 years. Surviving documentation exists to verify the methodology. The Sunshine Mine has recently initiated a procedure to capture and document specific gravity for each vein type, waste rock type, and unique mineralized structure type, as applicable to deriving updated tonnage factors for use in future Resource calculations. The density of each sample is determined by weighing air-dried pieces of rock specimen or core with a high-precision calibrated digital scale, via hanging rod, by submerging each specimen in water and comparing the submerged wet weight.

11.2 Analytical Facilities

Presently there is no sample preparation or laboratory facility at the Sunshine Mine except core splitting. Most Sunshine Mine samples are sent to American Analytical Services (AAS) of Osburn, Idaho (AAS; www.americananalytical.net). AAS conducts assaying on a contract basis for SSMRC and other clients, including mining and exploration companies, and owns the laboratory building and the assay equipment. AAS is a business independent of SSMRC.

The AAS laboratory is an ISO-17025 accredited laboratory (similar to ISO-9000, but with an added level of quality management). AAS is also accredited by the State of Washington Department of Ecology, with registry number WA09-0799, for analytical capabilities in non-potable water, not in analysis of solids. Standard written procedures are used by AAS and commercially prepared standard pulps are used.

No officer, director, or employee of SSMRC is involved in AAS operations, sample preparation, or assaying after the samples arrive at the assay laboratory.

The laboratory was visited, and staff interviewed. Both the instruments and analytical procedures were reviewed and found to be competent and appropriate for the metals analysis.

11.3 Sample Preparation

11.3.1 Historical

Previous authors have written several published reports and unpublished in-house reports on the Sunshine Mine. The authors were not able to see the sample preparation and analytical procedures during site visits for these prior reports because the equipment had been largely dismantled and scrapped or the facilities were not in operation. The sample preparation and analytical procedures were described by Sterling in 2009 and confirmed by SSMRC during Behre Dolbears' most recent site visit (Behre Dolbear, 2011) and are described below. SSMRC's procedures manual for sample preparation, analyses, security, core logging, and QA/QC has been reviewed by the author.

Core and underground samples were delivered to the onsite sample preparation facility by the geologist who logged the core or took the sample. The samples were crushed, ground, and delivered to the laboratory for analyses. SSMRC employees conducted all the sample preparation, analyses, and posting of results onsite. Sample preparation included discussion with supervisors about the interval, splitting of core, sampling, and delivery to the laboratory. This chain of custody maintained sample integrity.

The exact crushing and grinding steps are specified and the protocol meets accepted industry standards. AAS has been contracted for drill hole and other assay services.

11.3.2 2012—Present Program

The core samples, rock chip, channel, and select samples are placed in bags with identification tags and are tied closed at the sampling site. The bags are marked externally with the same sample identification as the sample tag. The samples are placed in a designated location within the core logging facility until they are transported to the assay lab. The samples and a submittal sheet chain of custody are either transported to the lab by an SSMRC employee or are picked up by an AAS representative. The sample tags in the bags and the submittal sheet indicate a unique number for each sample and the chemical elements that are to be analyzed.

Upon arrival at the lab, samples are compared to the submittal sheet and placed in drying ovens to dry overnight at a temperature of approximately 65°C. Samples are emptied from the sample bags into the jaw crusher, then run through a second time resulting in a sample size of approximately 3 cm. The sample is then run through a cone crusher reducing the size to about 50% passing a 10-mesh screen. The sample is then split using a Jones riffle splitter until a sample of approximately 200 grams is obtained. The rejected portion of the sample is returned to the original sample bag. The 200-gram sample is ring pulverized with a 20 cm bowl for 45 seconds, resulting in a 140-mesh passing pulp at approximately 90%. Approximately 125 grams of pulp is placed in a sample envelop and sent to the fire assay room. The ring pulverizer is cleaned between each sample with silica sand to prevent contamination. Barren rock is run through the crushers once a day and this sample is assayed as a sample blank. A split is made on one sample for every 20 that are prepared, and this sample is assayed as a pulp duplicate.

11.4 Assaying

11.4.1 Historical

Historical assaying was undertaken at the mine site laboratory. Assaying of silver is currently conducted by fire assay with an atomic absorption (AA) finish by AAS.

The current and previous authors have not seen details of the historic analytical protocol, nor are they aware of any specific QA/QC procedures used by the laboratories. Such procedures are now standard practice but have only been practiced in most labs in the last 20 to 25 years. There is no QA/QC data from the Sunshine laboratory to verify the precision and accuracy of the results, and the quality of the results may have varied over time. The authors, however, do not regard the lack of such data as a significant reason to question the analytical results for the following reasons.

- The authors do not know of anything in the history of the mine to cause them to question the analytical results.
- The large number of analyses, over more than 50 years, makes any errors over a short period of time or on relatively few samples insignificant in regard to the whole database.
- As reported by Sterling and SOP, the lack of questions by the smelter and refinery of the analyses of Sunshine's concentrates indicate that the Sunshine laboratory produced quality analyses.

Based on information gleaned from past Behre Dolbear site visits to the Sunshine Mine and the analytical data produced, the authors conclude that the historic Sunshine sample preparation and analytical facilities produced acceptable analytical results. The authors accept those results as valid for use in estimating the Sunshine Mine historic Reserves and the current estimation of Resources.

11.4.2 2000 to Present

AAS samples are analyzed by AA and induced coupled plasma (ICP) techniques to determine silver, copper, lead, zinc, and antimony content. Atomic absorption silver values assaying over 1,371 gpt are also fire assayed for silver. All diamond core is fire assayed for silver content. The fire assay results are preferentially utilized in all calculations.

Fire assay at AAS involves one-half assay tonne equivalent of drill core or channel sample, which is weighed into a 30-gram crucible with approximately 100 grams of standard flux mixture and a litharge cover. Twenty samples are fired at a time including a pulp duplicate and a control sample. Lead buttons are cupelled in either composite or bone ash cupels. Doré beads are weighed and then parted with (1 to 3) nitric acid, followed by decanting, washing with a weak ammonia solution, annealed, and then weighed. Subsequent to assaying, all pulps are boxed with proper identification and stored at the laboratory until they are released via chain of custody back to SSMRC. The pulps and coarse rejects are routinely collected by SSMRC personnel and stored at a secure dry location at the mine site in support of generating future standards.

11.5 Security

Historically, the employees of the previous owner did all sample preparation, analyses, and posting of results onsite. This chain of custody maintained the sample integrity.

Currently, the coarse rejects and sample pulps are stored in a secure location in the core storage building for future use. All samples that remain onsite, prior to delivery to the laboratory (onsite or offsite) are kept in a secure location not accessible by anyone except approved personnel.

11.6 Quality Assurance/Quality Control

As stated previously, the current and prior authors have little information on historical QA/QC data. No historically significant negative issues have been identified. For future exploration, SSMRC recognizes that CIM Definition Standards best practices require mining companies to exercise due care with their exploration drilling, sampling, and assay procedures. The Sunshine Mine is complying with the CIM Definition Standards best practice requirements. The following QA/QC procedures have been established as the official SSMRC protocol.

11.6.1 Core Logging Procedures

All core is digitally photographed with a standard fixed mount camera base, having all core run intervals clearly marked on each box. A standardized paper logging form incorporating standardized rock, mineral, and alteration color and codes are utilized during core logging procedures. The core is logged in detail, including lithology, structure, alteration, mineralization, and bedding forms. Core recovery and rock quality data (RQD) are included in the log. All structures are measured in relation to the core axis. Additional core samples are recovered and isolated during logging in support of third-party laboratory testing for uniaxial and triaxial rock strength parameters. All data is transferred to a master electronic assay and geological model database.

11.6.2 Sample Preparation and Analyses

Sunshine Mine exploration samples are submitted to AAS. AAS performs internal laboratory checks that include duplicate assays for fire and AA assays and additional duplicate assay checks for additional base metals. Third party duplicate check assays are performed by Inspectorate America Corporation (Inspectorate). Every 30th sample pulp is re-analyzed by a certified outside laboratory. A discrepancy in the secondary pulp analysis by an outside certified laboratory with more than two standard deviations of the original assay, will result in a re-run of the coarse reject sample interval.

11.6.3 Certified Standards and Blanks

SSMRC has purchased multiple silver, gold, and base metal standards from Shea Clark Smith (SCS). The five standards in use consist of two low-grade standards, relative to average mine grade, two average-grade standards, and one high-grade standard. There is a silver-gold-copper-lead-zinc standard at each grade level and a silver-copper-lead-zinc standard at low and average grades.

These standards are inserted into the sample stream. SSMRC inserts a blind standard assay sample with each regular 30 samples.

Table 11-1 presents data regarding three SCS standards. The acceptable range is the certified mean plus or minus two standard deviations. AG-1 is a low-grade silver standard of 248 gpt Ag, AG-2 is regarded as an average-grade standard of 299 gpt Ag, and the third standard, AG-3, is a high-grade value of 2,653 gpt Ag.

Table 11-1: Silver-Gold-Copper-Lead-Zinc Standards

STANDARD	Ag gpt	Cu %	Pb %	Zn %	Au gpt
MEG-AG-1: Low grade Ag					
Certified Value	248	0.24	6.26	10.46	1.1
95% Confidence	6.92-7.56	0.220-.26	5.82-6.70	10.02-10.90	0.03-0.036
SCS AVG	248	0.24	6.26	10.46	1.1
MEG-AG-2: Average grade Ag					
Certified Value	299	0.25	6.5	11.24	1.0
95% Confidence	7.35-9.72	0.23-0.27	6.06-6.94	10.66-11.82	0.028-0.033
SCS AVG	298	0.25	6.5	11.24	1.0
MEG-AG-3: High grade Ag					
Certified Value	2,653	0.23	6.23	10.4	1.6
95% Confidence	68.48-88.08	0.21-0.25	5.81-6.65	9.84-10.96	0.040-0.052
SCS AVG	2,683	0.23	6.23	10.4	1.6

Figure 11-2 through **Figure 11-4** are control charts of October 2011 – March 2013 assay results from standards submitted to AAS. Standards are submitted as pulps along with physical core or chip samples. The purple lines represent the acceptable range of values for that standard, two standard deviations from the mean.

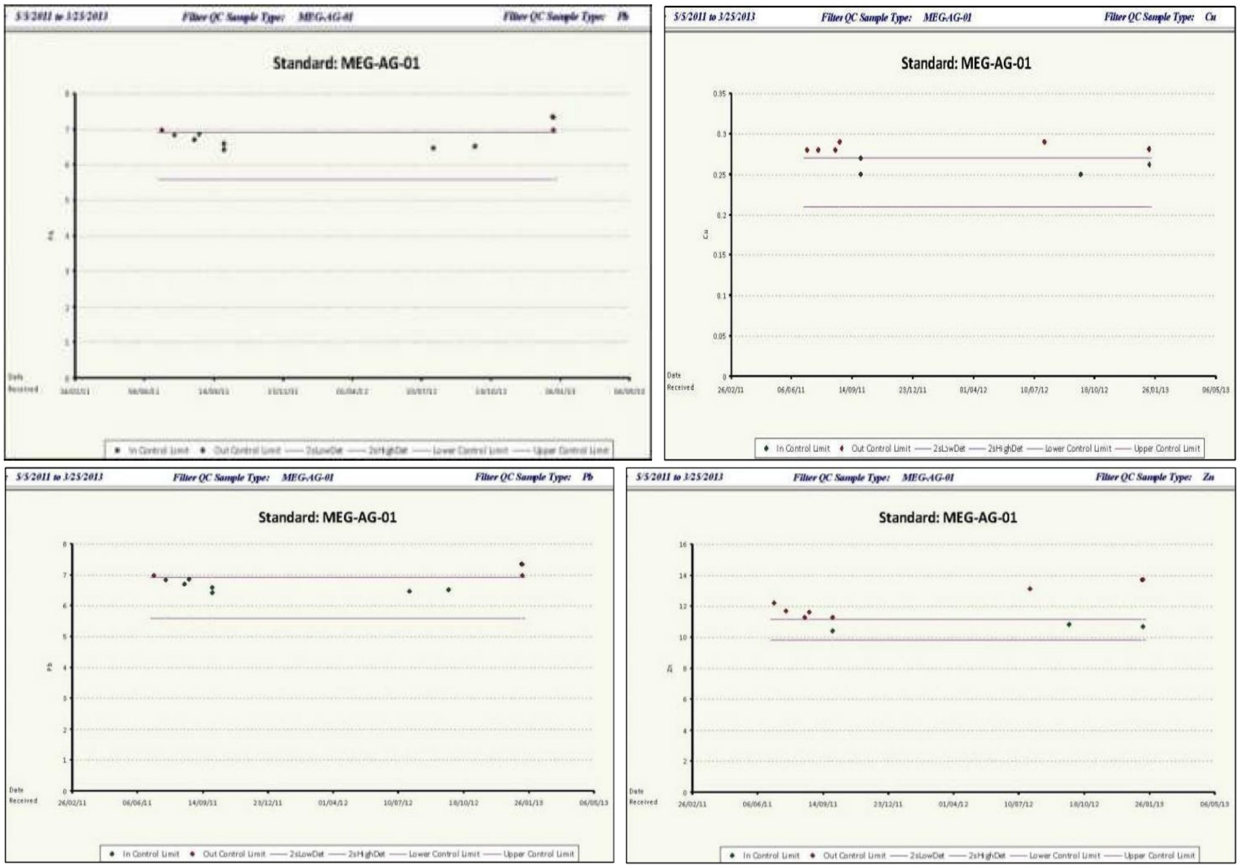

Figure 11-2: Control Charts Showing Results from Low Grade Silver Standard AG-1

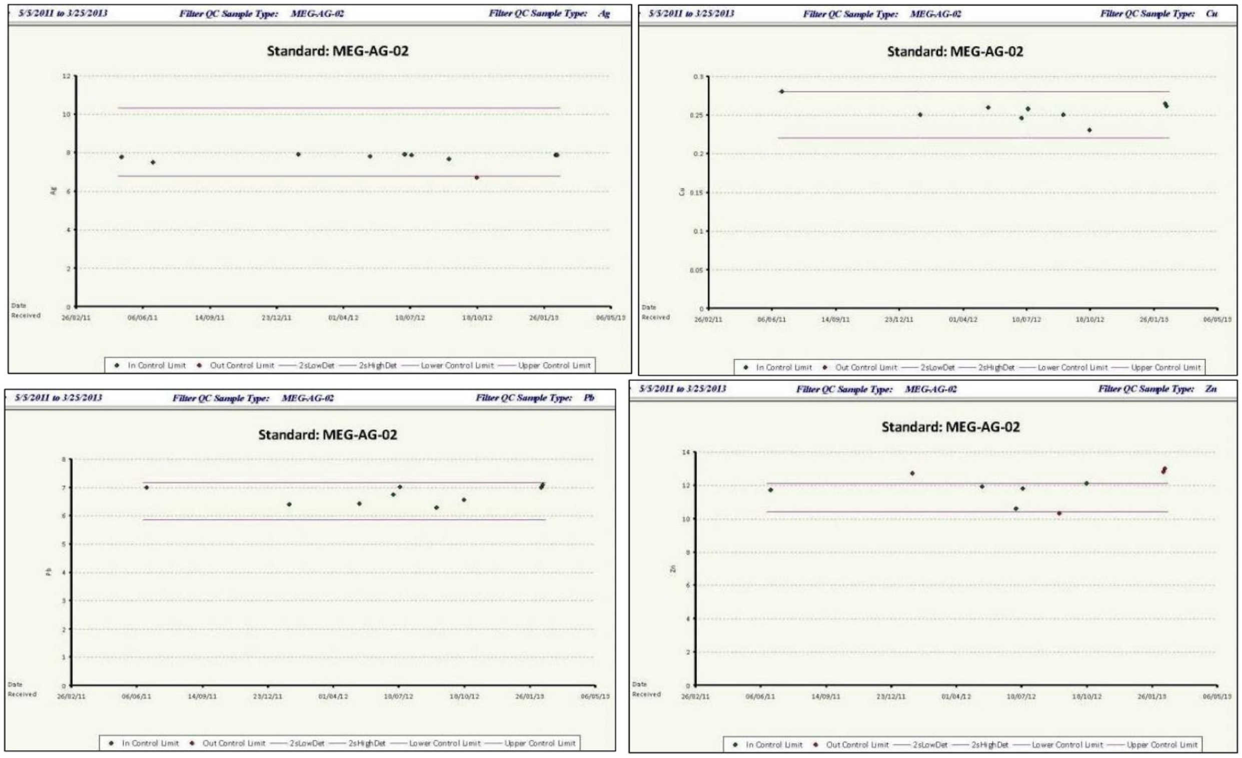

Figure 11-3: Control Charts Showing Results from Average Grade Silver Standard AG-2

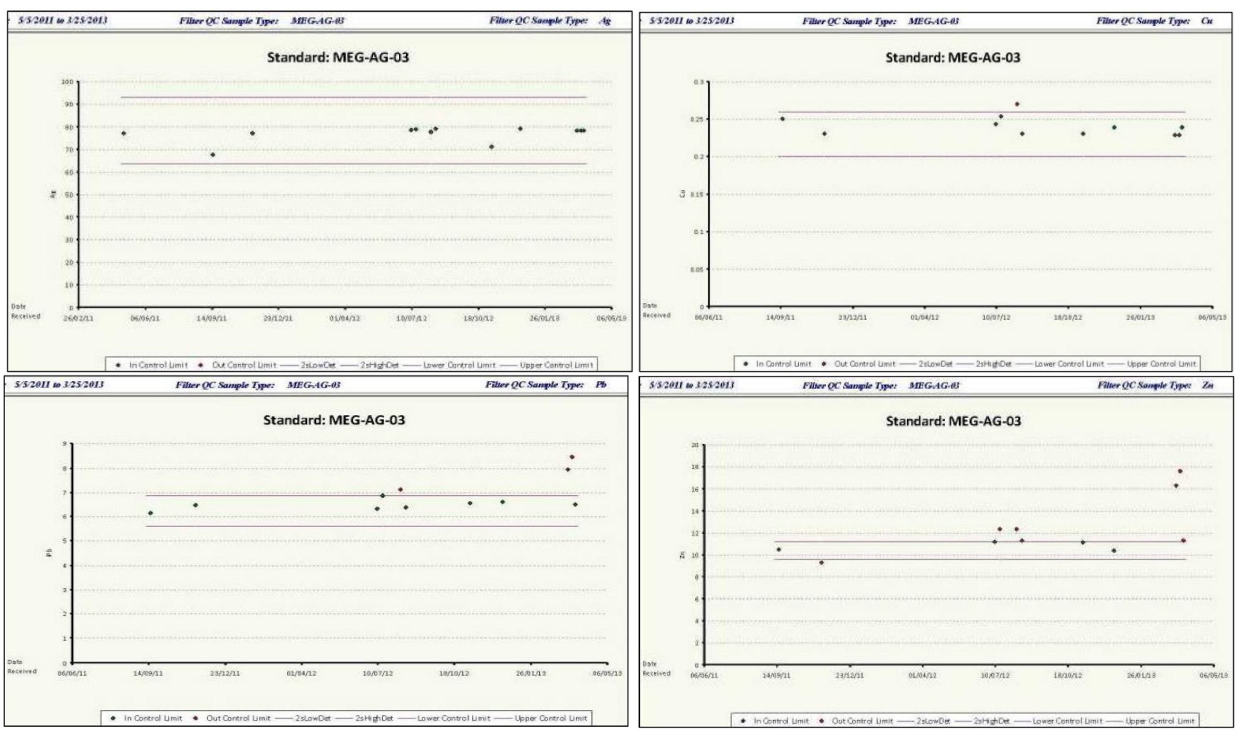

Figure 11-4: Control Charts Showing Results from High Grade Silver Standard AG-3

The correlation of the AAS mean results with the certified silver-gold-copper-lead-zinc standards is acceptable. Laboratory results average slightly higher for both the low grade and high-grade samples. The lab strives to focus primary instrument calibration along the average grade sample horizon. Laboratory zinc results tend to drift slightly. The remaining results are within acceptable practice.

Table 11-2 presents baseline data for two SCS copper lab standards, CU-1 and CU-2. CU-2 standards have not been used at this time and are not shown in **Figure 11-5**. The acceptable range is the certified mean plus or minus two standard deviations. Plots for the silver-copper-lead-zinc standards are presented in **Figure 11-5** and **Figure 11-6**.

Table 11-2: Silver-Copper-Lead-Zinc Standards

STANDARD	Ag gpt	Cu%	Pb%	Zn%
MEG-CU-1: Average copper				
Certified Value	27.4	0.48	0.1	2.53
95% Confidence	0.71-0.95	0.44-0.52	0.092-0.11	2.30-2.76
SCS AVG	27.4	0.48	0.1	2.53
MEG-CU-2: Low copper				
Certified Value	8.6	0.19	0.027	1.15
95% Confidence	0.22-0.27	0.17-0.21	0.024-0.030	1.03-1.27
SCS AVG	7.9	0.19	0.027	1.15

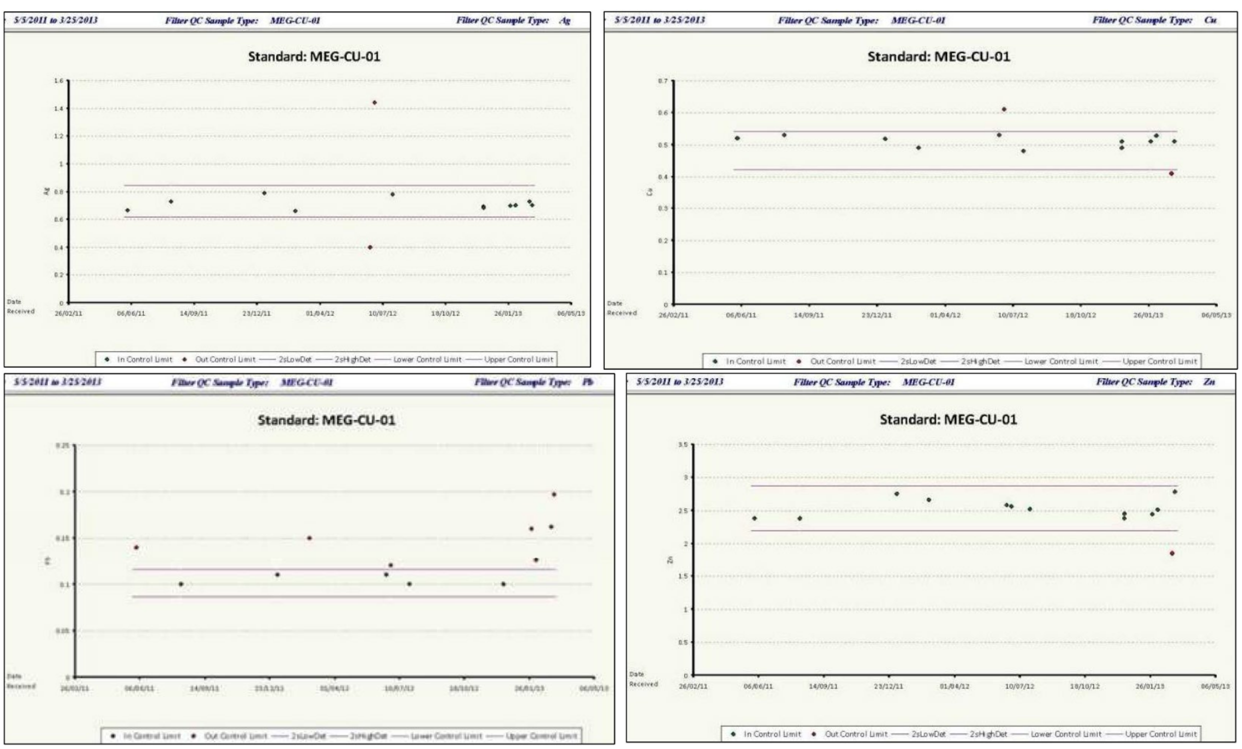

Figure 11-5: Plots Showing the Average Grade Silver-Copper Standard Cu-1

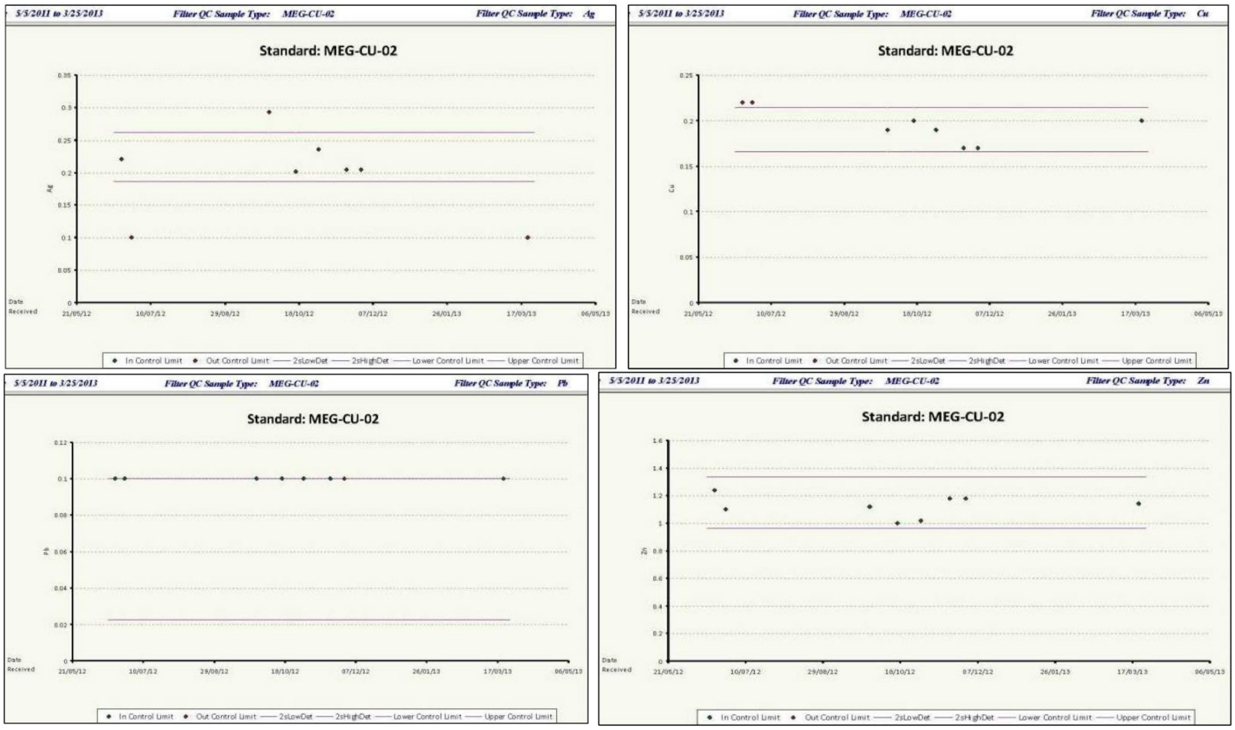

Figure 11-6: Plots Showing the Average Grade Silver-Copper Standard Cu-2

The correlation of the AAS mean results with the certified high-grade silver-copper standards is acceptable, with laboratory results averaging between two standard deviations, and present good results for low silver content detection. Laboratory Cu-1 lead values tend to drift slightly above average and Cu-2 are flat-lined due to below assay lab detection limits. Copper and zinc values are slightly above the mean average and within acceptable practice.

11.6.4 Blank Samples

A blank sample, containing no detectable silver, gold, and base metal mineralization, is inserted at the rate of one blank for every 30 samples. Certified blank samples have been sourced from a third-party supplier. The laboratory results are monitored by a designated person from the Sunshine Mine geology department. To date, a small baseline data of blank samples has been collected to present an evaluation of the laboratory. **Figure 11-7** shows the results for 2012-2013 consisting of 84 blank samples. Thirteen of the blank samples returned slightly elevated detection for either silver, copper, lead, and zinc. The lead and zinc detections were below 0.2 into sub .01 levels, respectively. Additionally, a few of the detections were the same samples. A silver or copper detection initiated a re-assay of all samples within the submittal group. AAS's reported limit of analytical detection fare as follows: Ag 03.43 gpt Ag, fire, Cu (0.01% Cu), Pb (0.1% Pb), and Zn (0.01% Zn). The lab was put on notice regarding the blank sample concerns, and reported improved results in the second half, except for very low Zn detections.

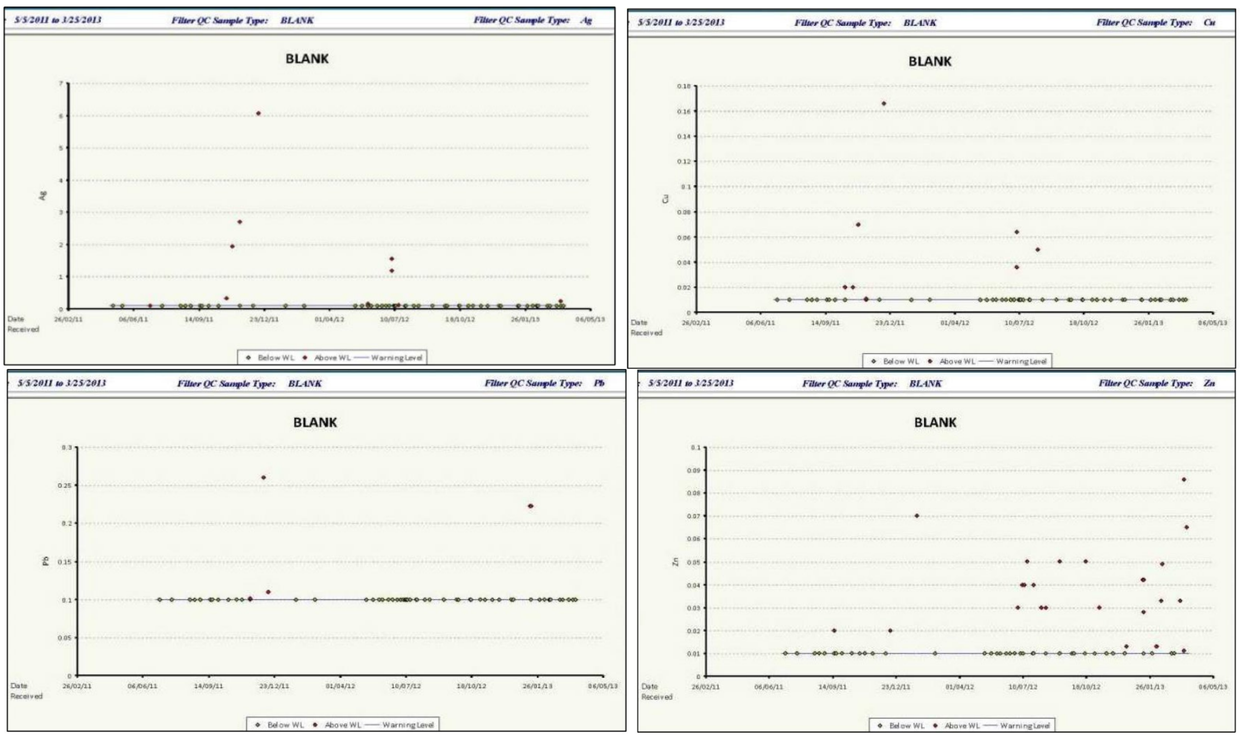

Figure 11-7: Plots Showing the Laboratory Blank Assay Sample Results

SSMRC's geological staff are continuously monitoring all ongoing blank samples.

Shown below in **Figure 11-8** is a scatterplot of the 2012 and 2013 check assays. The 33 duplicates are rerun assays from AAS. A third-party lab, Inspectorate of Sparks, Nevada, conducted the presented set of duplicate assays.

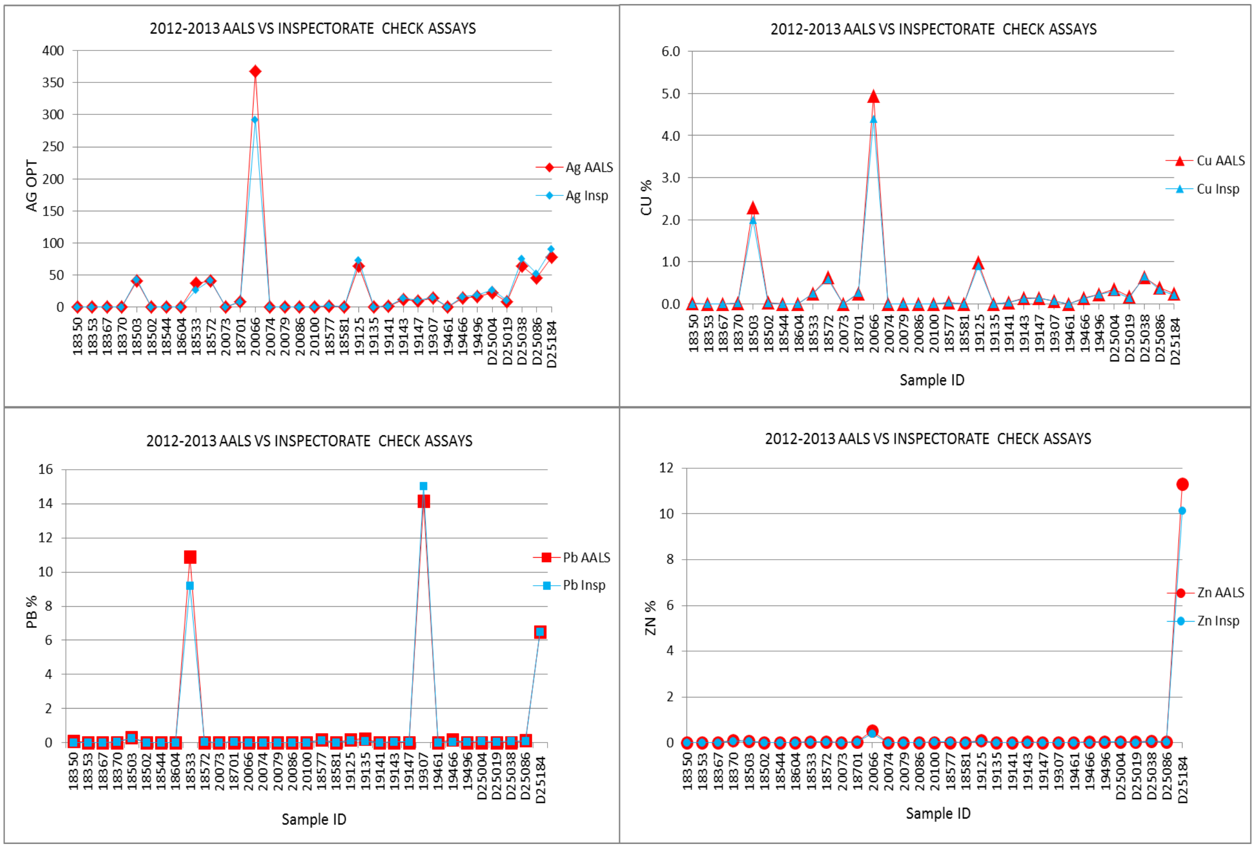

Figure 11-8: Duplicate Sample Results +/-10% Confidence Intervals

Very little discrepancy was noted. Significantly elevated elemental grades resulted in noted variability. The lab is consistent within 10% of their duplicate samples.

11.6.5 Database

SSMRC maintains a secure central database containing all drill hole data. The database can only be accessed by approved personnel. A designated QA/QC person from the Sunshine Mine geology department validates all assays prior to merging into the electronic database. Assays are only accepted if established quality control parameters are met.

11.6.6 Conclusions

In the author's opinion the sample preparation, security, and analytical procedures followed by SSMRC are adequate to support a mineral Resource estimate for the purpose of this TR.

12 DATA VERIFICATION

12.1 Historic Data Verification

The author has not been able to physically verify level channel assay samples, stope channel assay samples, or historic mine workings. Drilling and drifting conducted by SSMRC in 2011 and 2012 in the Upper Country areas show similar thin and high-grade silver mineralization as historically collected data. Tetra Tech has reviewed level sampling maps, stope sampling maps, and mine working longitudinal section maps. Data used to develop stopes and data collected while developing stopes has been considered verified.

In the process of Resource estimation, historic data sources have been checked against each other and show good correlation and reliability. For instance, level plan assays and stope assays show a good correlation when viewed simultaneously. Level plan triangulations show evidence of raises where longitudinal section mine working maps show raise locations. Mined out areas consistently correlate with the block model as areas of highest grade x thickness. Following the completion of Resource estimation, a mined out reconciliation versus historic production was completed. The results show areas flagged in Tetra Tech’s block model, reasonably account for the total ounces historically mined.

It is the author’s opinion that all sources of data are internally consistent and have supported several decades of mining and are of reasonable adequacy, reliability and suitable for the purpose of this TR and for its use in Resource estimation.

12.2 Assay Data Verification

Tetra Tech was provided with PDF files directly from AAS containing 257 analyzed assay intervals. Of the 257 assay intervals received from the laboratory, 128 assay intervals were able to be compared to data provided to Tetra Tech by SSMRC. The 128 intervals reflect all the 6725 West and East Stope level drift assaying and a portion of the Upper Country underground and surface drilling. A comparison of the 128 intervals shows no major discrepancies. Minor issues with detection limits were observed. Assay results lower than detection limits were inserted into the SSMRC database as “0.0”. Tetra Tech would recommend detection limit assays be recorded as “<” and the numeric detection limit at the time of testing in the database. Tetra Tech reviewed several vein intersections in drill core during the site visit on September 10th, 2019. It is the author’s opinion that data provided by SSMRC was represented accurately and is suitable for use in Resource estimation.

12.3 Metallurgical and Process Verification

The Sunshine Mine has operated for many decades with progressive development of several underground high-grade veins containing silver, copper, lead, zinc, and iron sulfides. While complete records of the operation over those decades are not available, much of the historical data survives in the form of plant records, shift notes, concentrate shipments, umpire assay reports, plant analytical profiles, and some retained duplicate shipment samples. Analytical requirements, analytical capabilities, and environmental requirements have all changed over the intervening years.

SSMRC management intends to continue mining on vein structures that have historically provided feed to the Sunshine mill. Historically, a large volume of concentrates produced at the Sunshine mill have come from mineralized material mined from the Sunshine vein structures, which have extended to the historic depths of the then operating mine. Several other vein structures also exist both laterally and at depth in the mine and have been mined lying parallel to the Sunshine veins. The Sunshine vein systems contain high-grade silver mineralized material in the form of freibergite, one of the minerals in a series comprising tetrahedrite as an end member. Silver is also contained in galena and in lesser amounts of other minerals in some of the vein structures contained within the Sunshine Mine and in other mines in the Coeur d'Alene district.

While some attempts at changing the concentrates produced at the Sunshine Mine have occurred over the years, historically, Sunshine has produced a high-grade silver-copper concentrate and a lead concentrate containing lesser amounts of silver. Historically, the Sunshine Mine has sold its lead concentrate with contained silver to various lead smelters. It has at various times treated the concentrate to reduce the content of antimony to render it saleable or to reduce the antimony penalty prior to smelter sale or treated the whole concentrate to produce antimony and to recover the silver and copper as refined metals. Information concerning some of these products is available from the historical record although not in a continuous fashion.

Suitable metallurgical test samples from the available upper levels of the mine have been obtained to determine a metallurgical process, including the production of two flotation concentrates as have been historically produced. The samples collected were for confirming the flotation schemes and to determine information for the design of the mill, such as thickening and filtering of concentrates.

A preliminary mass balance for the process plant, including a water balance was prepared to project the mass flows for this TR. The values came from historical feed and concentrate data obtained from the Sunshine Mine. Additionally, numerous properly preserved and labeled sample pulps were recently assayed and were found to be consistent with the historical data. Preference in choosing data was given to years late in the 1990s as those years most closely reflect the most recent mill flowsheets and the mineralized material blends available for milling. The historical data is not sufficient to specifically correspond the mine depth, stope, or vein information to specific mill results. This was because the feed to the mill on any given day was a blend of many stopes and mine elevations with no specific record of origin, only grade.

It is the author's opinion that the extensive historical assay data, production records, and assayed pulps are reasonably reliable as a design basis and appropriate for predicting probable process performance as a basis for this TR.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Mineral Processing

The Sunshine Mine will produce two flotation concentrates; one rich in silver and copper, the other in lead. These will be produced from the crushing, grinding, and flotation of freibergite-rich mineralized material typical of the Coeur d'Alene Mining District in northwestern Idaho. The economically important sulfide minerals in the mineralized material are tetrahedrite (freibergite is a silver-rich member of the tetrahedrite series of minerals) and galena with associated argentite, a silver mineral.

The anticipated flotation system will use a rougher and scavenger system with separate three-stage silver cleaning to produce a silver-copper concentrate and a lead concentrate. **Figure 13-1** depicts the historical flowsheet for the Sunshine Mill.

The historic mill flowsheet has been included in this report to provide a visual understanding of the flow of minerals in the process. Historically, the Sunshine Mine processing plant employed a simple reagent system that included $ZnSO_4$ and Na_2SO_3 in the silver-copper flotation circuit as a lead mineral depressant and AeroFloat 242 as the primary silver/copper collector. AeroFloat 31 was used as the primary lead collector and AeroPromoter 3477 as the lead mineral scavenger collector. When required, pine oil or barrett oil was employed as a frother/froth modifier. Numerous historical documents have reported combined silver recoveries of the silver-copper and lead concentrates of 97% to 98% when using these reagent combinations.

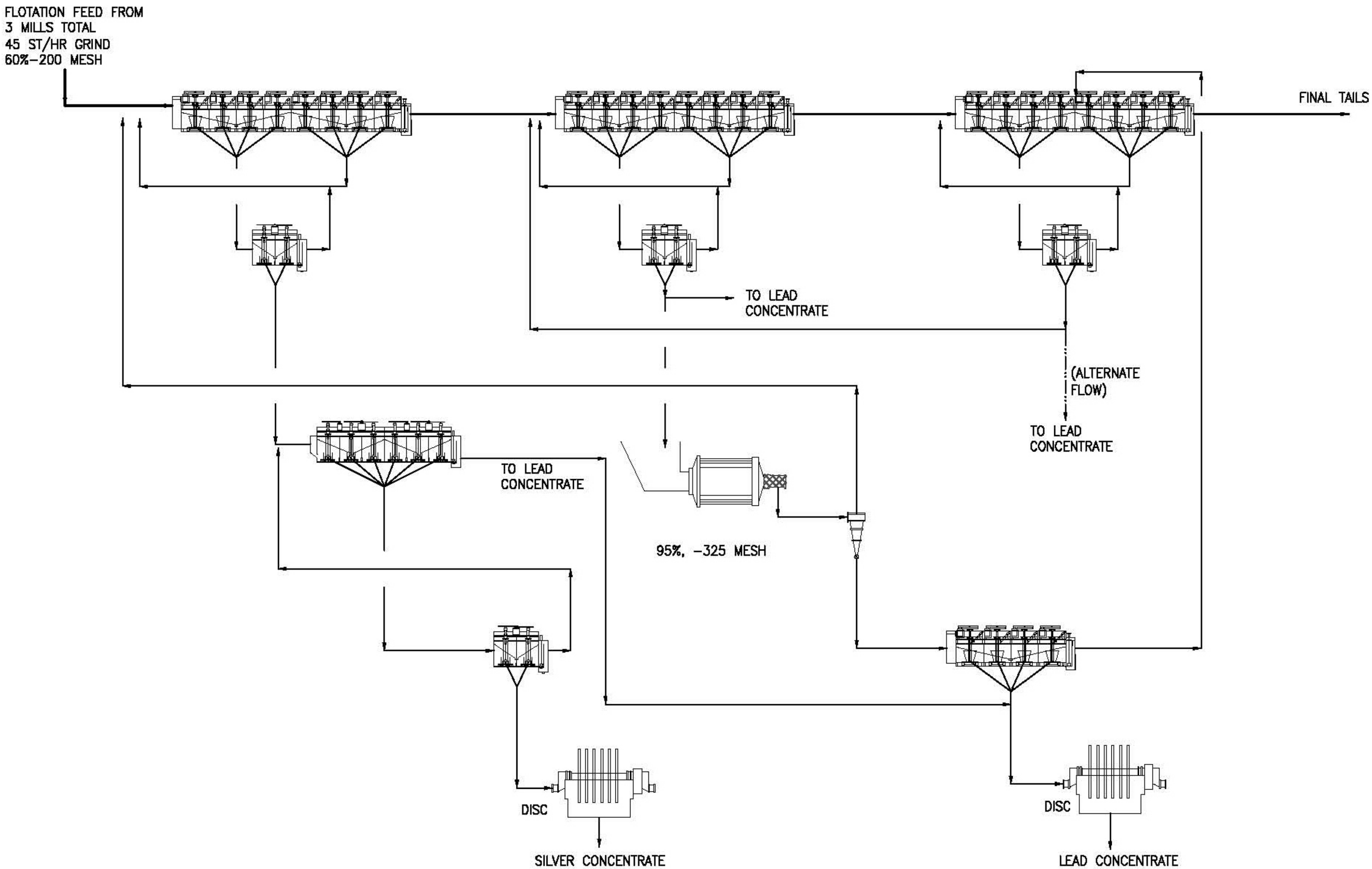

Figure 13-1: Historic Sunshine Mine Simplified Process Flowsheet

13.2 Metallurgical Testwork

A metallurgical test program was conducted as part of the current project to re-commission the Sunshine Mine and rebuild the concentrator and the silver refinery. This test program included bench scale open circuit flotation testing, bench scale locked-cycle flotation testing, and pilot plant flotation testing. The test program was conducted on samples from two locations, the East Stope and West Stope, in the Upper Country area of the Sunshine Mine. Historical records indicate that this area has had minimal exploitation. As a result, it is expected to be the easiest mineralized material to access when restarting operations.

The test program was intended to test the possibility of improving performance using newer reagents and flotation cell designs. However, overall recoveries of silver and copper in the metallurgical testing did not reach the same levels as reported in historical documents. The test program did demonstrate that the revised process can separate the silver-rich freibergite mineral from the lower silver grade galena/argentite mineral assemblage. **Figure 13-2** presents the generalized conceptual flowsheet developed from the pilot plant operations, during the recent metallurgical studies, which was employed for new flotation plant design and equipment selection. It is expected that with improvements in the new flotation plant operations, and through the use of on-line X-ray analyzers, the grades of the concentrates could be improved, and the overall silver recovery would increase.

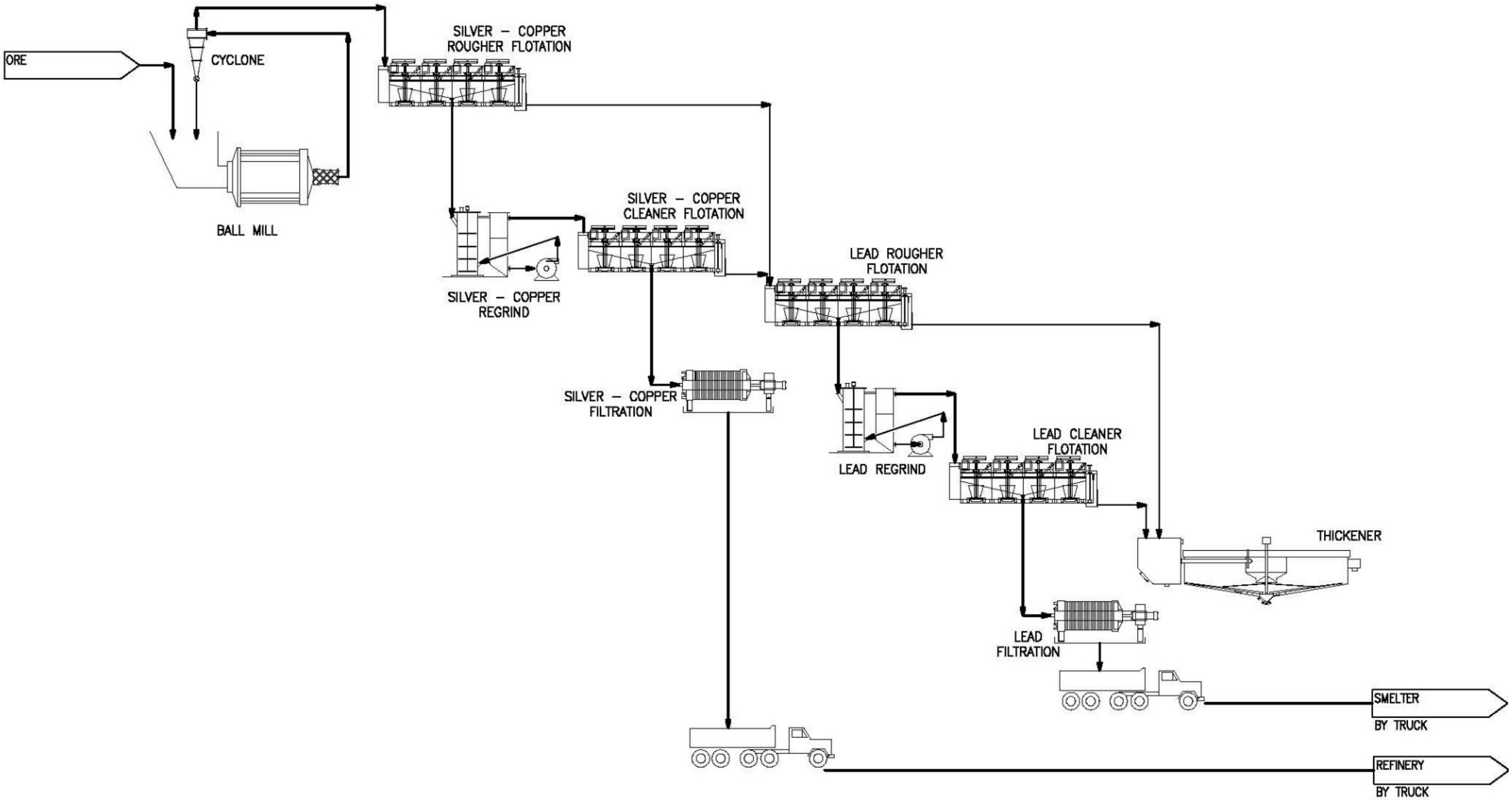

Figure 13-2: Proposed Sunshine Mine Process Flowsheet (Lyntek, 2014)

The pilot plant studies were conducted on the two bulk samples provided and included the recycle of final flotation tailings water in the pilot plant. G&T conducted the 10 day-only runs in the pilot plant sized for a feed rate of approximately 159 kg/hr. There were three days of operation on the East Stope sample and seven days of operation on the larger West Stope sample. The East Stope pilot plant operations did not include the lead mineral (galena) portion of the flowsheet due to the low amount of lead in the feed material. Each of the pilot plant runs was conducted on day shift only and not around the clock. The water collected during the dewatering of the final rougher flotation tailing was recycled to the operations. **Figure 13-2** represents the flowsheet of the process employed on the West Stope material. The East Stope material flowsheet was the same with the exception that there were no lead rougher or cleaner operations.

The average results of the pilot plant operations are summarized in **Table 13-1** below.

Table 13-1: Pilot Plant Results

Pilot Plant Results	Average of Days	Sample Sets	Concentrate	Weight %	Analyses			Distribution		
					% Cu	% Pb	gpt Ag	% Cu	% Pb	% Ag
East Stope	3	8	Ag/Cu	0.8	16.40	0.56	42,238	90	20	91
West Stope	7	15	Ag/Cu	0.8	22.30	5.90	55,300	82	10	80
			Pb	0.5	4.69	49.00	13,900	11	51	12

gpt = grams per metric tonne

The primary purpose of the pilot plant operation was to produce products for vendor testing, not to achieve optimum recovery. The overall recovery of silver from both the East Stope and the West Stope Upper Country samples was ±92%.

It is reasonable to assume that, based on over 100 years of production history, there are no known factors, which should have a negative economic effect on recoveries when treating historically similar materials. As the feed to the plant varies, primarily in terms of silver grades and copper and lead mineralogy, the overall expected recoveries will vary, but it is reasonable to expect similar overall recoveries.

13.3 Antimony Recovery

Historically, the mineralogy is quite simple in the mineralized materials of the district and at the Sunshine Mine. Typically, the Sunshine Mine mineralized material consists principally of tetrahedrite, the high silver-content copper antimony sulfide ($3Cu_2S \bullet Sb_2S_3$). The silver content of the tetrahedrite varies considerably, and the silver-to-copper ratio in the mineralized material ranges from 1250:1 (grams silver per tonne:percent copper) to over 3,125:1. Tetrahedrite occurs as very fine grains in fracture fillings, veinlets, or discontinuous blebs in the vein-filled faults. This silver-bearing tetrahedrite is more properly called freibergite. Freibergite contains 3% to 30% silver substituting for the copper in the crystal structure.

The high antimony content of the silver flotation concentrates required the previous operators of the mine to develop methods for first, lowering the antimony content and later, the recovery of the antimony for economic reasons. Sunshine Mining Company developed and then built an antimony recovery plant to treat their concentrates. This plant was later dismantled.

SSMRC intends to construct a new antimony recovery plant to recover the antimony from the silver-copper flotation concentrates generated in the new processing plant. The solid residue from the antimony leaching process will contain the silver and copper in a solid form, which will be treated in the existing refinery.

Leach liquid from the antimony digestion process will be treated in a three-stage system. This system will consist of removal of antimony as both antimony metal and sodium antimonate, precipitation of the arsenic as ferro-arsenate, and settling of the insoluble species from the flotation plant, which will be combined with the refinery waste stream and sent to the water treatment facility for processing.

The new antimony recovery plant is envisioned to be similar to the historic plant that was operated by Sunshine Mining Company. SSMRC purchased an existing refinery and plans to process the residue from the antimony plant to produce a silver-copper concentrate from the antimony-depleted residue.

Figure 13-3 presents a flowsheet for the historic antimony plant as described in the literature.

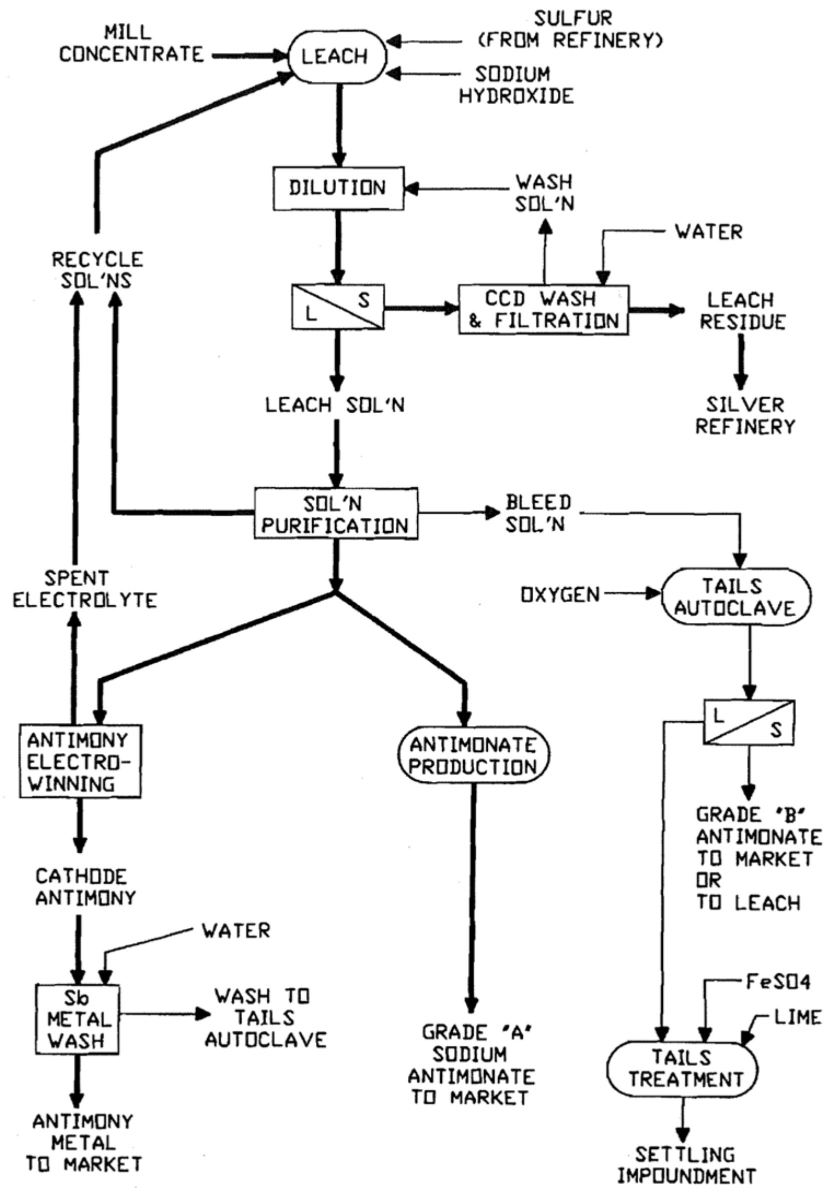

Figure 13-3: Historic Sunshine Mine Antimony Recovery Plant Flowsheet

13.4 Silver Refining

The preliminary processing assumptions are based on a flowsheet that assumes a grinding and flotation circuit, which will produce a high-grade silver-copper concentrate. While silver grade and mineralogical characteristics are fairly constant, there are areas of the mine where lead is more prevalent and the amount of lead feed to the concentrator can be expected to be variable over time. Lead has previously been floated in a separate concentrate containing relatively minor amounts of copper and variable amounts of silver and refined separately from the silver-copper concentrate. Initially the silver concentrate will be trucked to the antimony plant as de-watered filter press cakes.

The lead concentrate will be shipped offsite for processing at a commercial smelter.

During the latter part of historical production, the Sunshine Precious Metals Refinery leached the silver-copper rich freibergite mineralized material to remove the antimony that is part of the freibergite mineral. The antimony was treated to produce a commercial product in the later stages and was removed to reduce antimony penalties from the smelters. The residue from the antimony recovery was further processed in the Sunshine Refinery to produce a high-grade copper product and silver doré.

The current plan is to refurbish the existing refinery concurrent with construction of the new flotation process plant. The residue from the antimony recovery process, a silver-copper solid residue, will be treated at the refinery to dissolve the copper and silver into a pregnant solution, and reject the remainder of the solid impurities.

The silver-copper solution containing the silver and other lesser value elements will proceed to the silver recovery portion of the refinery where the silver will be precipitated from solution as a chloride. Following a liquid solid separation, the silver will then be re-solubilized in a more concentrated form in nitric acid. The silver would then be recovered by electrowinning from the silver-rich solution and ultimately cast into doré silver bars. Historically, the refinery has produced 99.995% silver under the Sunshine brand, acceptable as good delivery on COMEX. The silver depleted solutions would proceed to a copper solvent extraction circuit where the copper would be removed from the solution and processed into copper cathode by electrowinning. The copper cathode would be directly marketable.

Figure 13-4 presents the historic flowsheet for the Sunshine Refinery, as described in earlier publications.

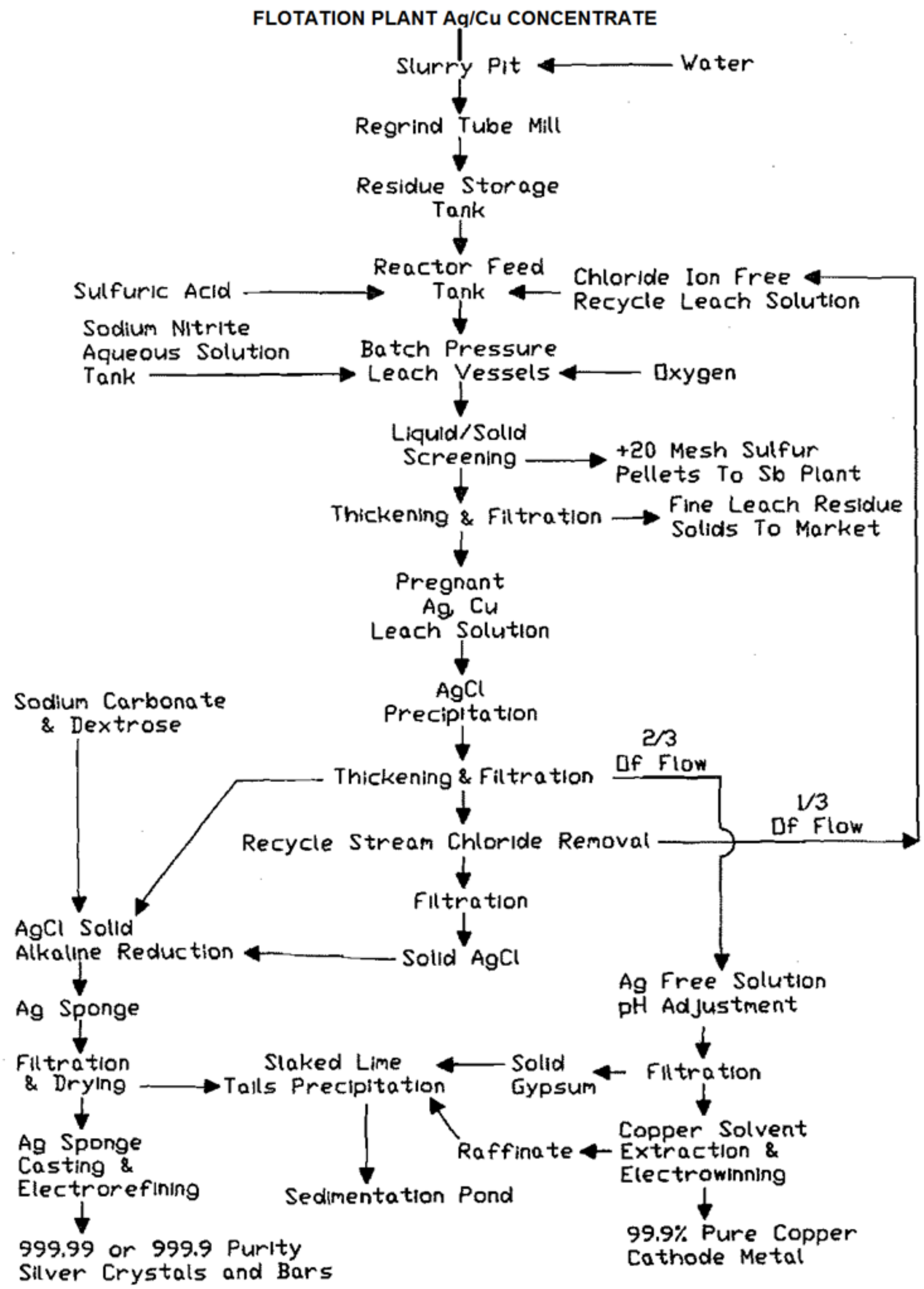

Figure 13-4: Historic Sunshine Refinery Flowsheet

14 MINERAL RESOURCE ESTIMATES

This section describes Resource estimation methods used for Resource estimates for the Sunshine Mine. Following the completion of the Resource estimate effective October 2012, SSMRC completed 41 drill holes and sourced additional historic data. Additional drilling and newly added historic data only affected the Resource estimates for the C-Fault, North Yankee Boy, South Yankee Boy veins, and the newly discovered 10 Vein. No additional drilling, exploration, or metallurgical data has been collected at site since the March 2014 estimate. However, additional analysis of input data and Resource estimations were considered in 2020, and the results are presented in this TR.

Resource estimation was completed by Tetra Tech in MicroMine® mining software utilizing data supplied by SSMRC. Tetra Tech was commissioned by SSMRC to develop a digital 3D estimation that includes all available information and can be evaluated at various cutoffs. Prices were evaluated as long-term prices at that time, and are still relevant, therefore, the same cutoff grade applies. The cutoff grade is supported by production data prior to the mine shutting down.

Utilizing drill hole and channel assays data, Tetra Tech created best fit vein surfaces and estimated Mineral Resources along those vein surfaces. Ordinary Kriging was used to estimate 3D points along a string type block model for 37 veins. The results of the Mineral Resource estimate, effective January 17, 2020, are tabulated in **Table 14-1.** This Mineral Resource has been diluted to a fixed mine width of 2 m and is an *in-situ* Resource estimate. A base-case cutoff of 343 gpt silver, which is detailed in Section 14.4 below, has been applied. Royalties do exist in certain areas of the mine and have not been considered for this Mineral Resource estimate.

Table 14-1: Mineral Resource Estimate Sunshine Mine

Resource Classification	Cutoff Ag g/t Diluted	Tonnes Diluted	Grade Ag g/t Diluted	Ag Contained Ounces	Cu %	Pb %	Zinc %
Measured	343	1,129,000	843	30,750,000	0.13	0.41	0.02
Indicated	343	1,890,000	742	45,557,000	0.10	0.37	0.02
Measured + Indicated	**343**	**3,019,000**	**780**	**76,307,000**	**0.11**	**0.39**	**0.02**
Inferred	343	8,221,000	835	222,618,000	0.22	0.36	0.02

NOTES:

1) *343 gpt Ag cutoff grade has been estimated for the project using a silver price of $20.16/troy ounce and an average metallurgical recovery of 97%.*
2) *Cutoff includes an operating cost of $214.58/tonne of processed mineralized material.*
3) *Columns may not total due to rounding.*
4) *Mineral Resources are stated as diluted.*
5) *One troy ounce is equal to 31.1034768 grams and one Tonne is equal to 2,204.62 lbs.*
6) *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

14.1 Sources of Data

Assay data necessary to facilitate this Resource estimate was derived from three sources: drill holes, level drift channel samples, and stope channel samples. Drill hole assays were provided by SSMRC from a collated drill hole database, encompassing historic and modern drilling. Level drift channel sampling was digitized from historic level plan maps. Stope channel samples were digitized from historic stope production sheets. Convention of channel sampling in the Coeur d'Alene Mining District and discussions can be determined. Because channel sampling was conducted across true thickness and drill holes were corrected for true thickness, all three data sources were able to be used simultaneously for Resource estimation.

In addition to assay data sources, level plan vein sketches, development wireframes, and vein map longitudinal sections were essential for Resource estimation.

14.1.1 Vein Sketches

To establish a digital representation of vein locations, SSMRC geologists traced all veins on a level by level basis from large scale level plan scans. The vein sketch was then digitized into AutoCAD and assigned true elevation based on level. The vein sketches were essential for this Resource estimate and provided a basis for spatial location of the veins and also a normalized nomenclature for veins throughout the project. **Figure 14-1** shows the vein sketch color coded by vein name; due to the quantity of veins, colors have been used more than once to represent different veins.

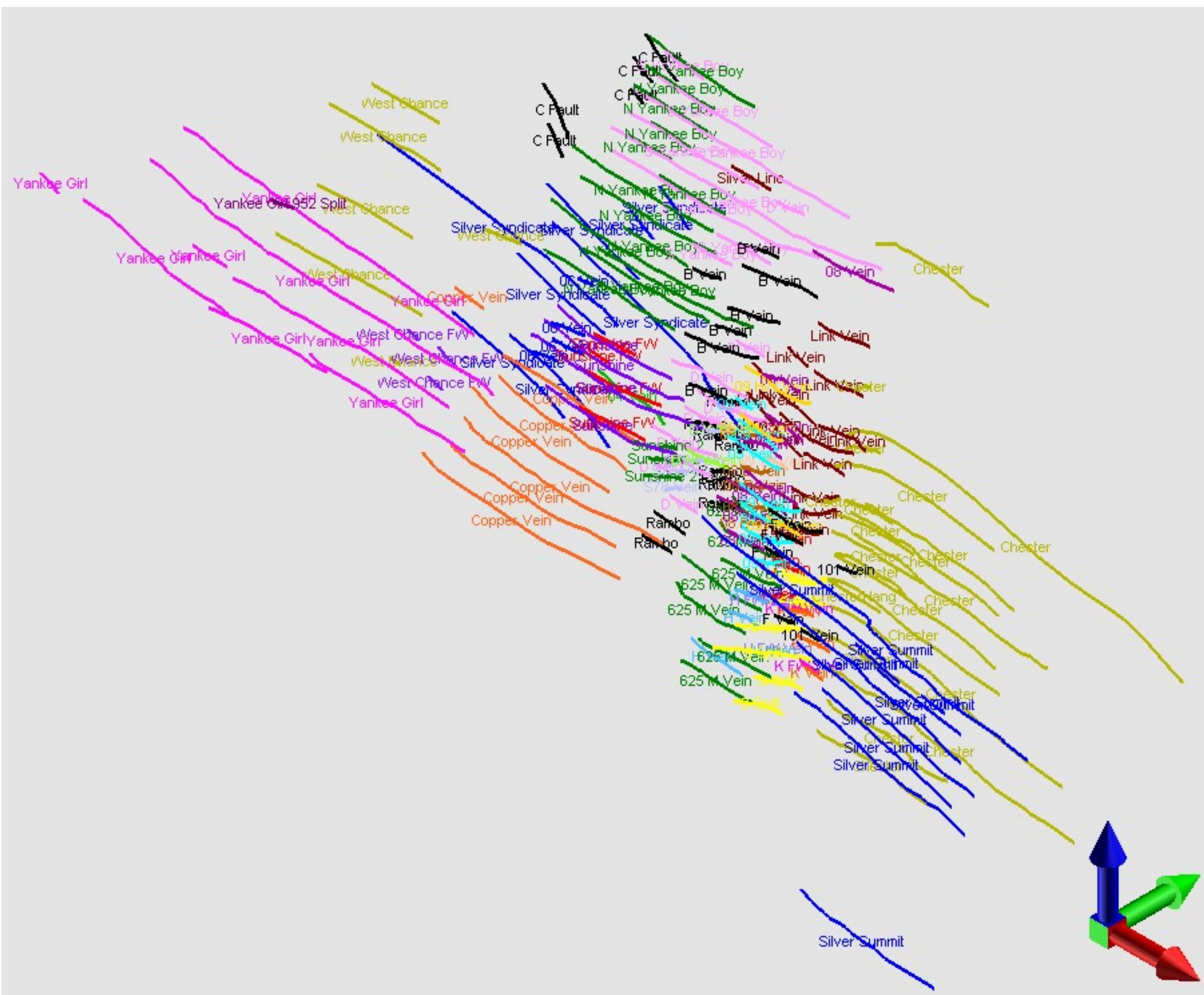

Figure 14-1: Vein Sketch – Looking NW from Above

14.1.2 Development Triangulations

Tetra Tech was also provided with levels, ramps, and shafts as 3D triangulations. Level triangulations were used by Tetra Tech to orient level samples in 3D space. **Figure 14-2** shows level, ramp, and shaft triangulations. Historically, levels were referenced to three different zero levels: Sunshine, Consolidated Silver, and Polaris. Sunshine is the most widely used reference throughout the mine.

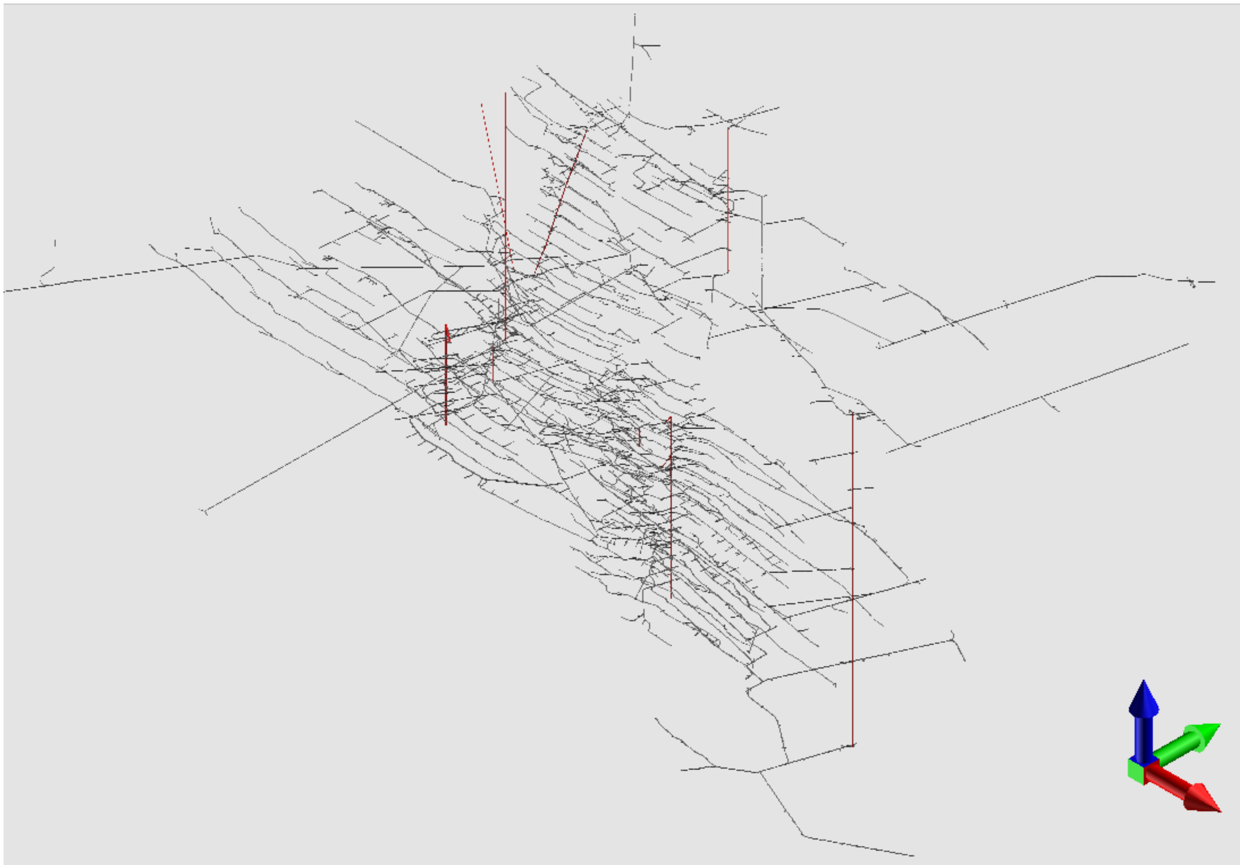

Figure 14-2: Development Triangulations – Looking NW from Above

14.1.3 Vein Map Longitudinal Sections

Tetra Tech received AutoCAD® files containing 2D vein map longitudinal sections. The longitudinal sections included location references, drill hole pierces, mined out outlines, raise locations, and areas of potential Resources identified prior to this Resource estimation. Historically, the longitudinal sections represent a graphical record keeping of all necessary information on a vein by vein basis. Boundaries representing mined out areas were constructed from smaller scale, more detailed stope production maps. Longitudinal section maps were the primary source of accounting for mined out areas. The longitudinal section maps were scaled and brought into the Resource estimation software MicroMine. The majority of the vein longitudinal section maps are oriented looking north, but many have slight bearings off of east-west. Veins oriented more than 10 degrees off of east-west are often represented in a best fit vein strike.

Figure 14-3 shows the West Chance Vein longitudinal section map. The green and black areas represent mined out areas. The red areas represent previously identified Resource locations. Level references and easting locations are also shown in **Figure 14-3**.

Tetra Tech has not physically confirmed the vein map longitudinal sections underground, but the weight of evidence indicates they are a reasonably reliable source for accounting for mined-out material.

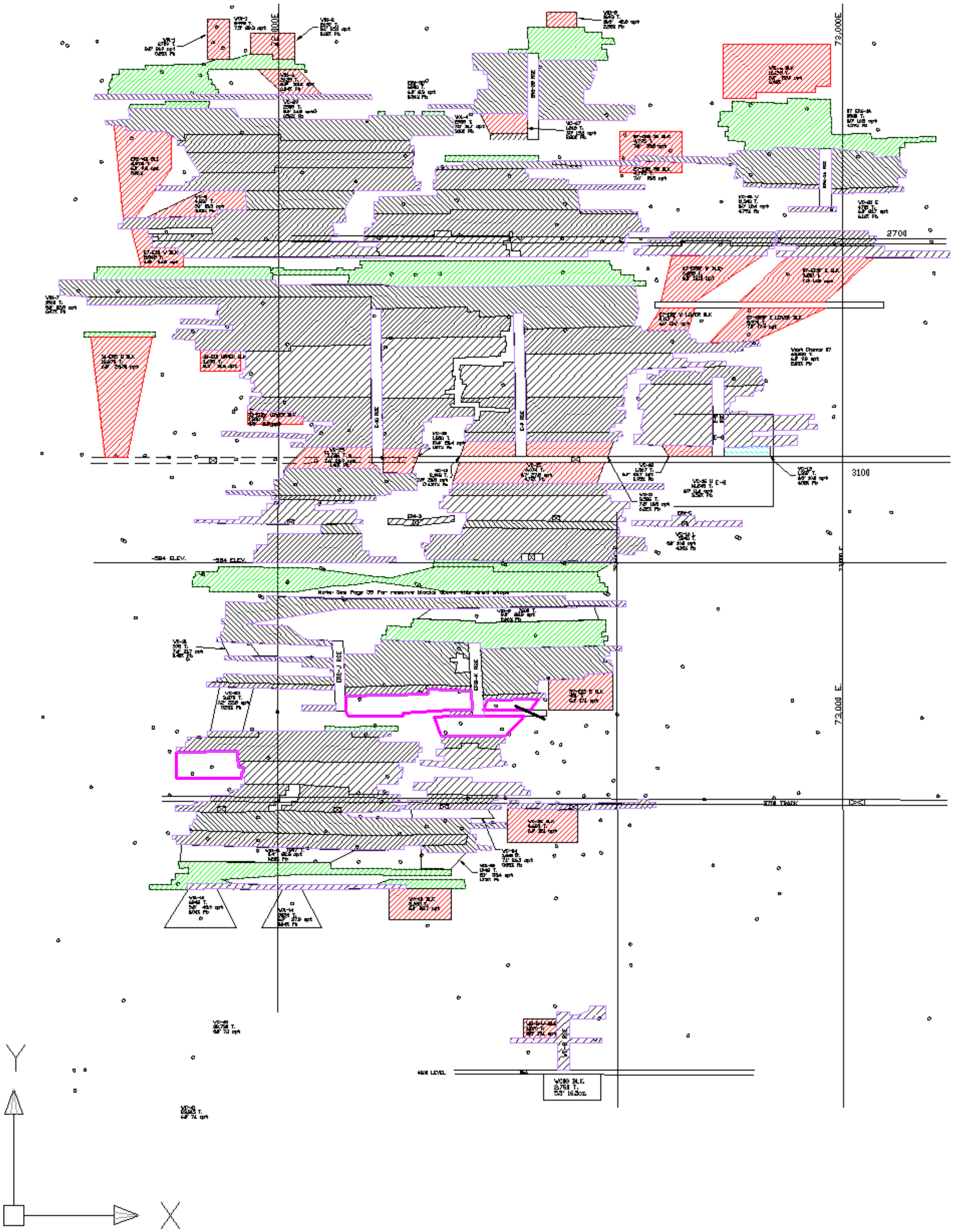

Figure 14-3: West Chance Longitudinal section AutoCAD® Map – Looking North

14.1.4 Drill Hole Database

A collated drill hole database, encompassing historic and modern drilling was provided by SSMRC. This database included all available drilling results. However, drill holes outside the project area or without accompanying survey data were not used in computing this Resource estimate, leaving usable data based on 2,441 drill holes. The drill holes used contained 9,855 assay samples for 5,016 m of sampling with an average sample length of 0.52 m. The assay file contains assays for Ag, Pb, Cu, As, Sb, Zn, and Fe, but primarily intervals were assayed for Ag and often Cu and Pb. Assays for As, Sb, Zn, and Fe are far less prevalent.

As received, assay intervals in the drill hole database were not composited across veins or flagged/associated with veins. Tetra Tech used the vein sketches to flag assay intervals with corresponding vein intersections. **Figure 14-4** shows the drill holes and assays looking west. **Figure 14-5** shows the drill holes from plan view.

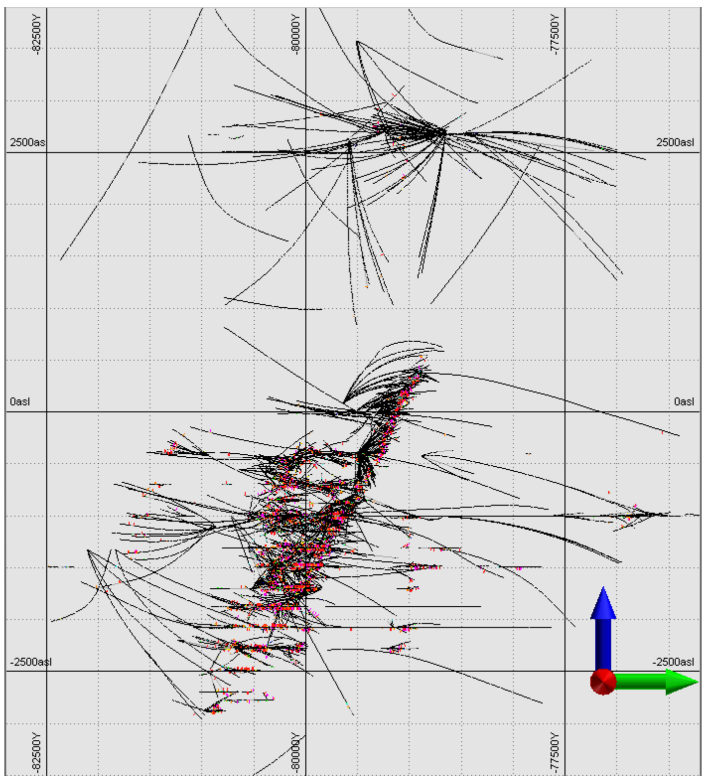

Figure 14-4: Drill Holes and Ag Assays – Looking West

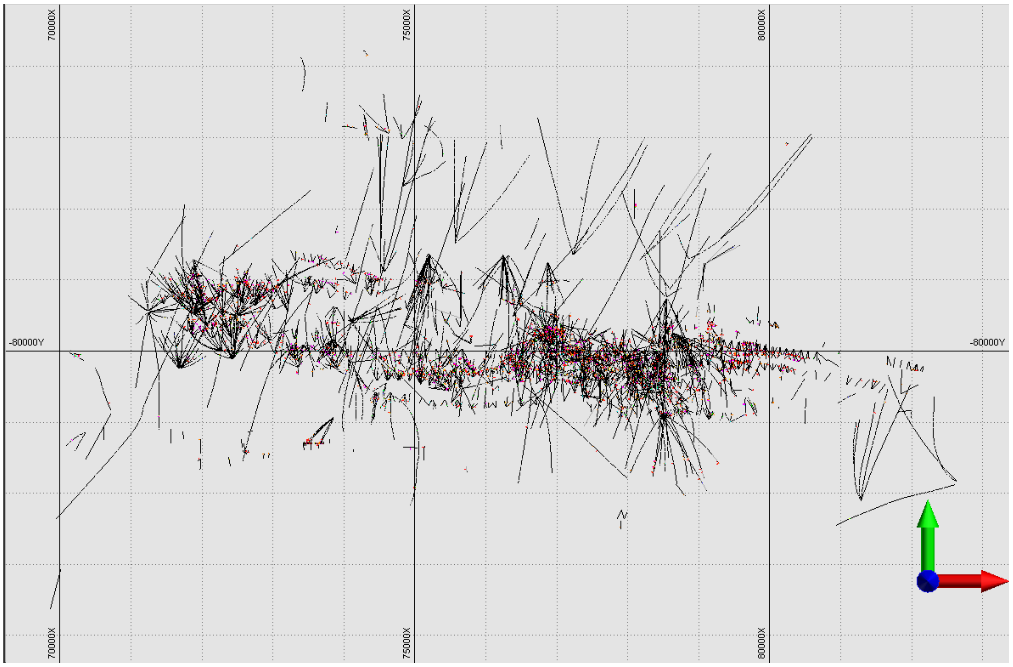

Figure 14-5: Drill Holes and Ag Assays – Plan View

14.1.5 Level Drift Channel Assay Samples

Level drift channel assay samples were digitized from historic large format level plan maps. Level plan maps contain illustrations of level drifting, grid markers, level labels, and sample locations. Sample locations were annotated with true thickness, Ag grade, and often original sample numbers and Cu% or Pb%. **Figure 14-6** shows a level plan map annotated with sampling information.

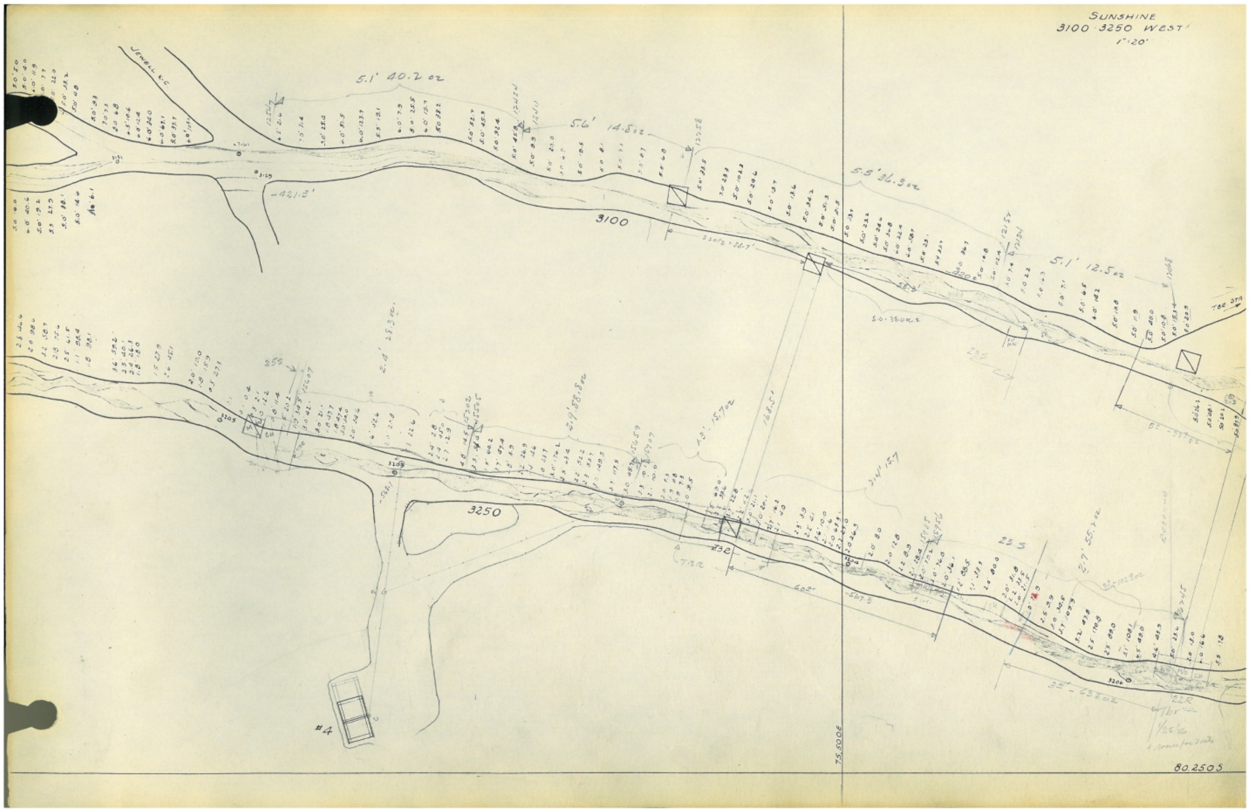

Figure 14-6: Sunshine Vein Level Plan Map – Levels 3100 and 3250

Digitized level samples by MDA and Tetra Tech were combined into a single database containing a digitized sample identification number, location (easting, northing, and elevation), level number, level reference, width, and Ag, Cu, Pb, and Zn content. Several historic level plans overlap each other, resulting in duplicated data entry. Tetra Tech has identified such instances by proximity search. These samples were labeled as duplicates and isolated from Resource estimation. The level sample database contains 26,804 records, 5,924 of which have been identified as duplications. **Figure 14-7** shows the level plan assay database in 3D.

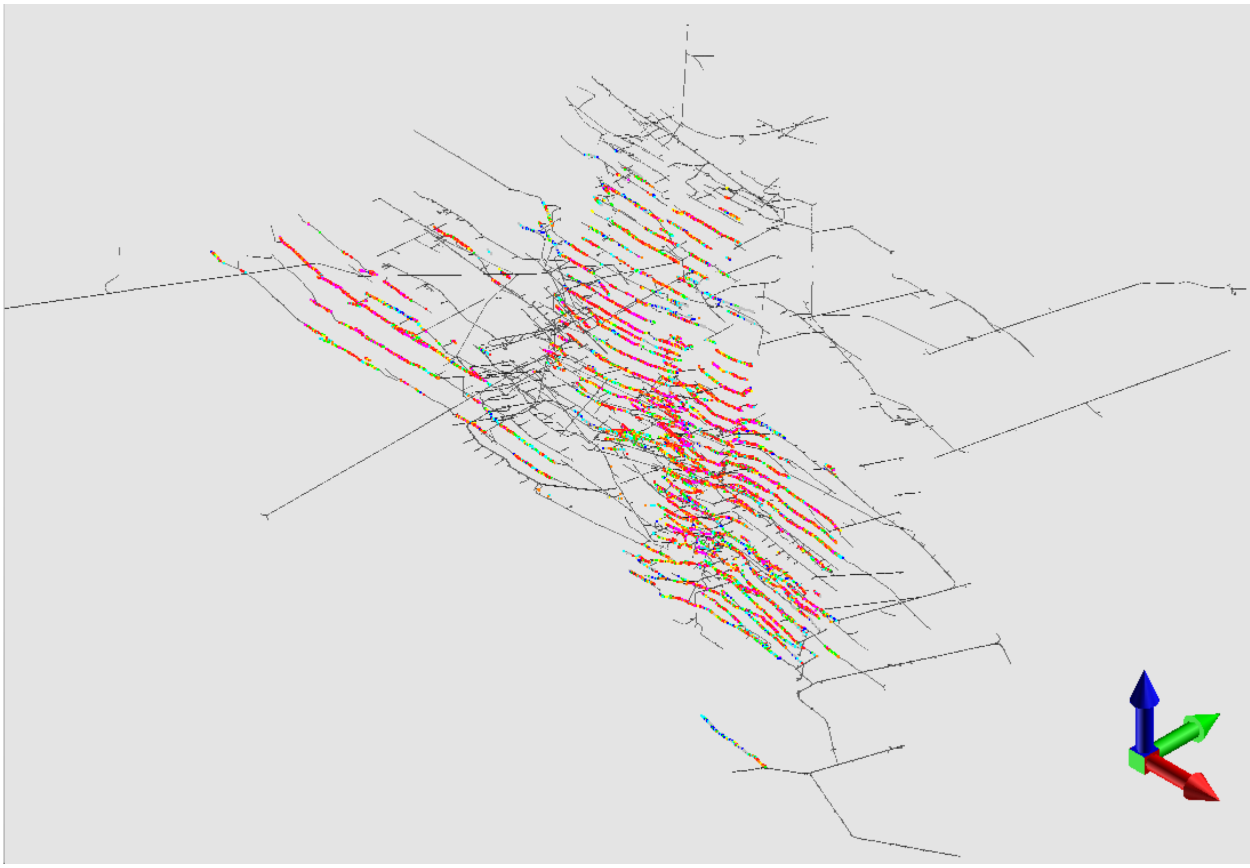

Figure 14-7: Level Drift Channel Ag Assay Samples and Level Triangulations – Looking NW from Above

14.1.6 Stope Channel Assay Samples

Stope channel assay samples were digitized from historic stope production books. The stope books were scanned and digitized page by page. It is important to note that not all stope books and sheets were located and digitized. **Figure 14-8** shows a stope sheet from the Chester Vein.

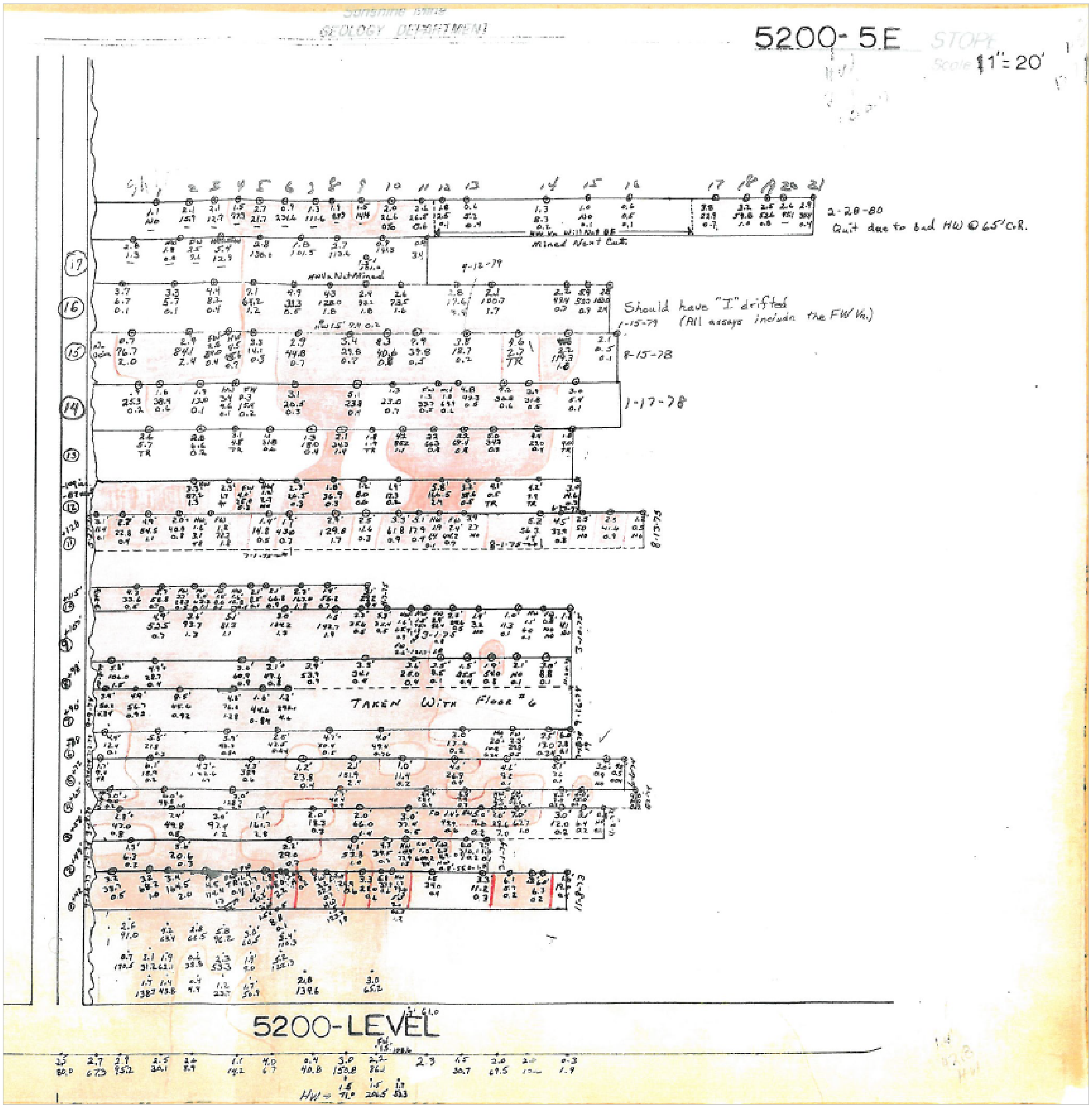

Figure 14-8: Chester Vein Stope Sheet – Level 5200

Stope sheets are annotated with true thickness, Ag grade, and often Cu% or Pb%. The stope channel assay sample database contains 92,287 records. In some instances, mining occurred locally in the hanging wall or footwall of a main vein stope following small split or splays veins. These samples are flagged by a hanging wall or footwall with a numeric offset and have not been considered while estimating the main veins. In a few instances, stope sheets overlap other stope sheets or have been entered twice. These samples have been flagged as duplicates; 2,863 samples have been so identified. Only a limited amount of stope sheets was located and digitized. An exact percentage of digitized stopes versus total stopes has not been calculated, but by visual inspection can be estimated at 30-50%. Various factors contribute to the availability of stope sheets, the biggest being time period of when the stope was mined. **Figure 14-9** shows the stope channel assay database in 3D. **Figure 14-9** shows data gaps in the nearer surface or Upper Country areas that were mined in the first half of the 20th century. Many stope channel assay sample data gaps are covered by level drift channel assay samples, as shown in the Upper Country in **Figure 14-7** above.

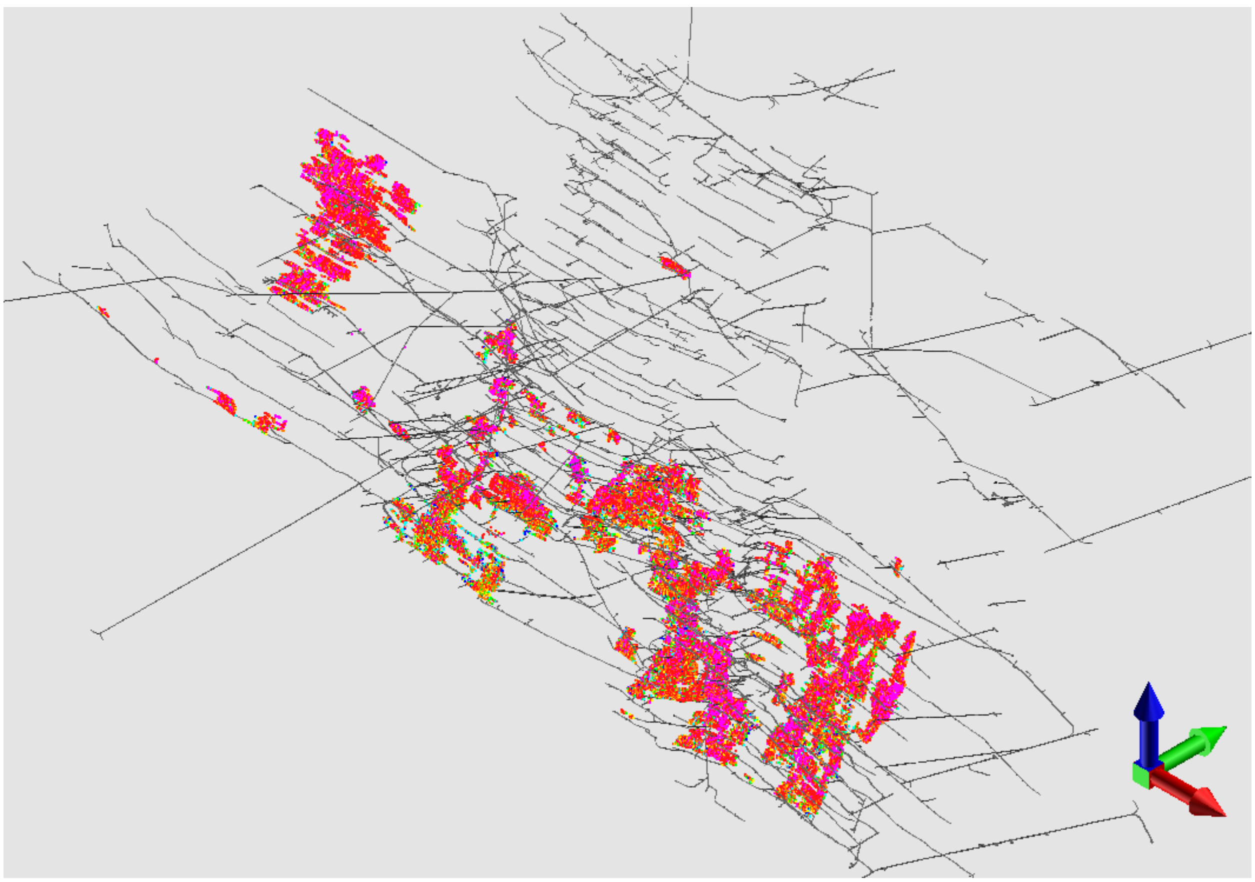

Figure 14-9: Stope Channel Ag Assay Samples and Level Triangulations – Looking NW from Above

14.2 Vein Modeling

This Mineral Resource estimation was conducted on a vein by vein basis. Vein assignments originated from the vein sketches. Using the vein sketches as a guide, Tetra Tech assigned drill hole assay intervals with vein names. Using the drill hole assays and drift triangulations that coincide with the vein sketches, points were placed on the hanging wall and footwall of the drill hole assay intervals and drift triangulations. The hanging wall and footwall points were brought into MapInfo® GIS software where approximate vein centerline surfaces were created using a minimum curvature gridding method. The centerline grids were then brought back into MicroMine, converted to triangulations, and verified with the vein sketches, drifts, and assay intervals. The vein centerline triangulations are an approximation of vein centerlines and were not "snapped" to the drilling, and, in effect, deviate from exact drift and drill hole intersections. Due to the large number of points it was not possible to force the surfaces to respect the points exactly. The vein centerline triangulations were then clipped by a 152.4 m, based on a convex hull created from the points used to create the surface. Following clipping by the buffer, all vein centerline triangulations were then compared to their neighboring vein centerline triangulations and clipped where overlaps were present. In a few instances where veins cross-cut each other, such instances where verified by SSMRC staff interpretations. **Figure 14-10** shows vein surface triangulations.

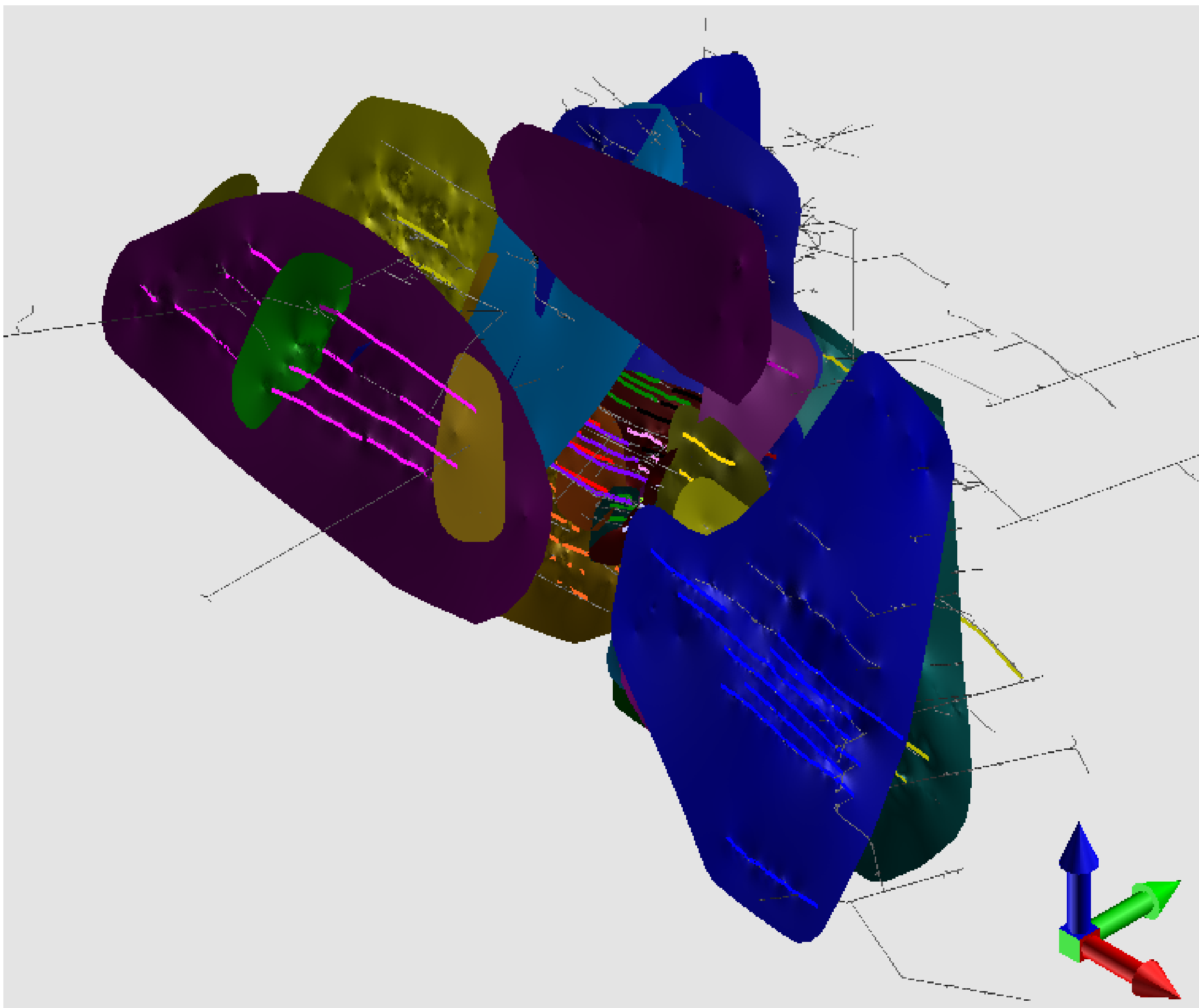

Figure 14-10: Vein Centerline Triangulations and Vein Sketches – Looking NW from Above

14.3 Block Model Structure and Preparation for Estimation

A single block model was established for each vein. Block size was determined by the best estimation of a single mining unit, being 3.05 m in the elevation dimension and 3.05 m in the east dimension. The thickness of each block was assigned a temporary value of 0.3 m, later to be assigned a variable thickness based on undiluted vein width during the Kriging process. Each block model has only one row in the northing direction. Block models were draped to their corresponding vein centerline surface in a northing orientation.

14.3.1 String Model Setup

Due to the dip and strike variability of the vein surfaces, an ideal block representation would conform to dip and strike locally with the vein surface. To achieve this, Tetra Tech used a string model. After draping, each block centroid was evaluated by its orientation to the next block centroid in the string along the string models columns and levels. If two consecutive centroids sharing the same easting are separated by a line with a dip other than 90 degrees, the centroids will be further apart than the minimum distance of 3.05 m. The adjusted separation distance was assigned as the new block length in the elevation direction. If two consecutive centroids sharing the same elevation are separated by a line with a strike other than 90 degrees, the centroids will be further apart than the minimum distance of 3.05 m. The adjusted separation distance was assigned as the new block length in the easting direction. Between 78,100 easting and 78,500 easting, many of the vein structures change strike from east-west to northeast. Due to this shift, block model string lengths in the east direction are much larger and therefore represent more volume than the majority of the blocks that have a near east-west strike and an average dip of 60 degrees. **Figure 14-11** is a plan view section at -312.4 m elevation showing the 09 Vein changing strike to the northeast at 78,100 easting. The vein sketch is shown in cyan. The vein centerline is shown in black and the block model centroids are shown as cyan dots along the vein centerline.

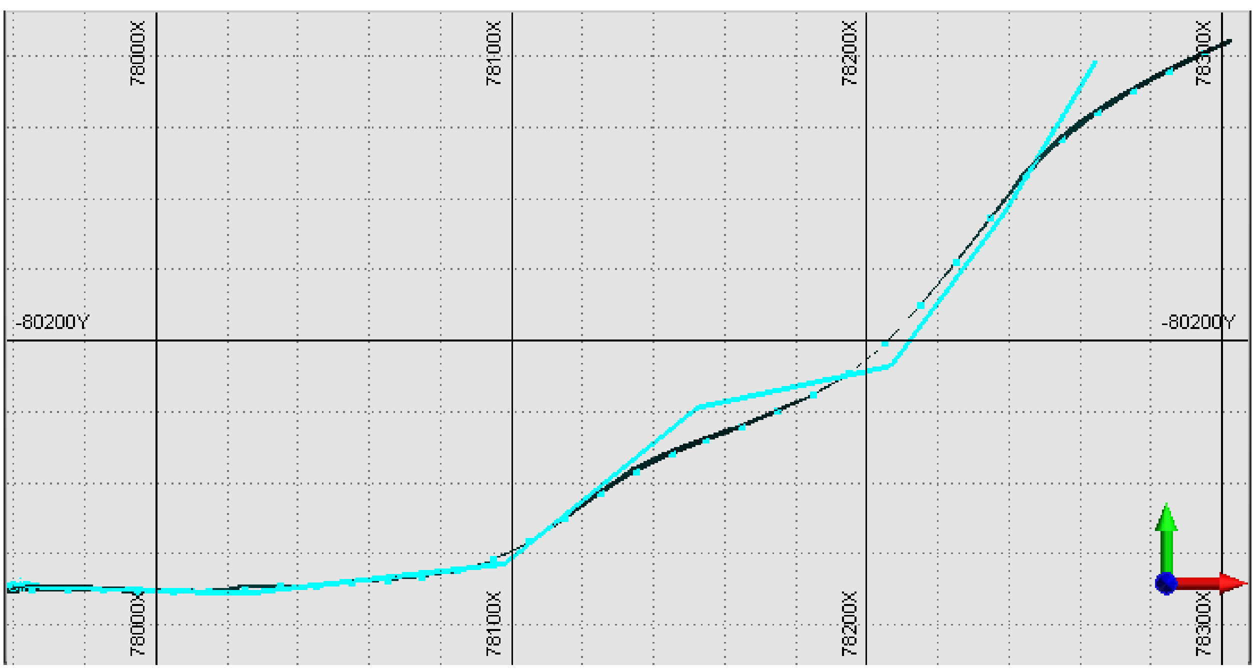

Figure 14-11: Vein Sketch, Vein Centerline, and Block Model Centroids Illustrating Changing Strike

14.3.2 Assigning Mined Out Areas

Each block model was flagged for mined out areas using the 2D vein map longitudinal sections. The 2D vein map longitudinal sections were converted into active polygons and used to assign a value of "1" to the block model column "mined out." **Figure 14-12** shows the West Chance Vein 2D vein map longitudinal section and the block model centroids, with filtering out of the "mined out" code.

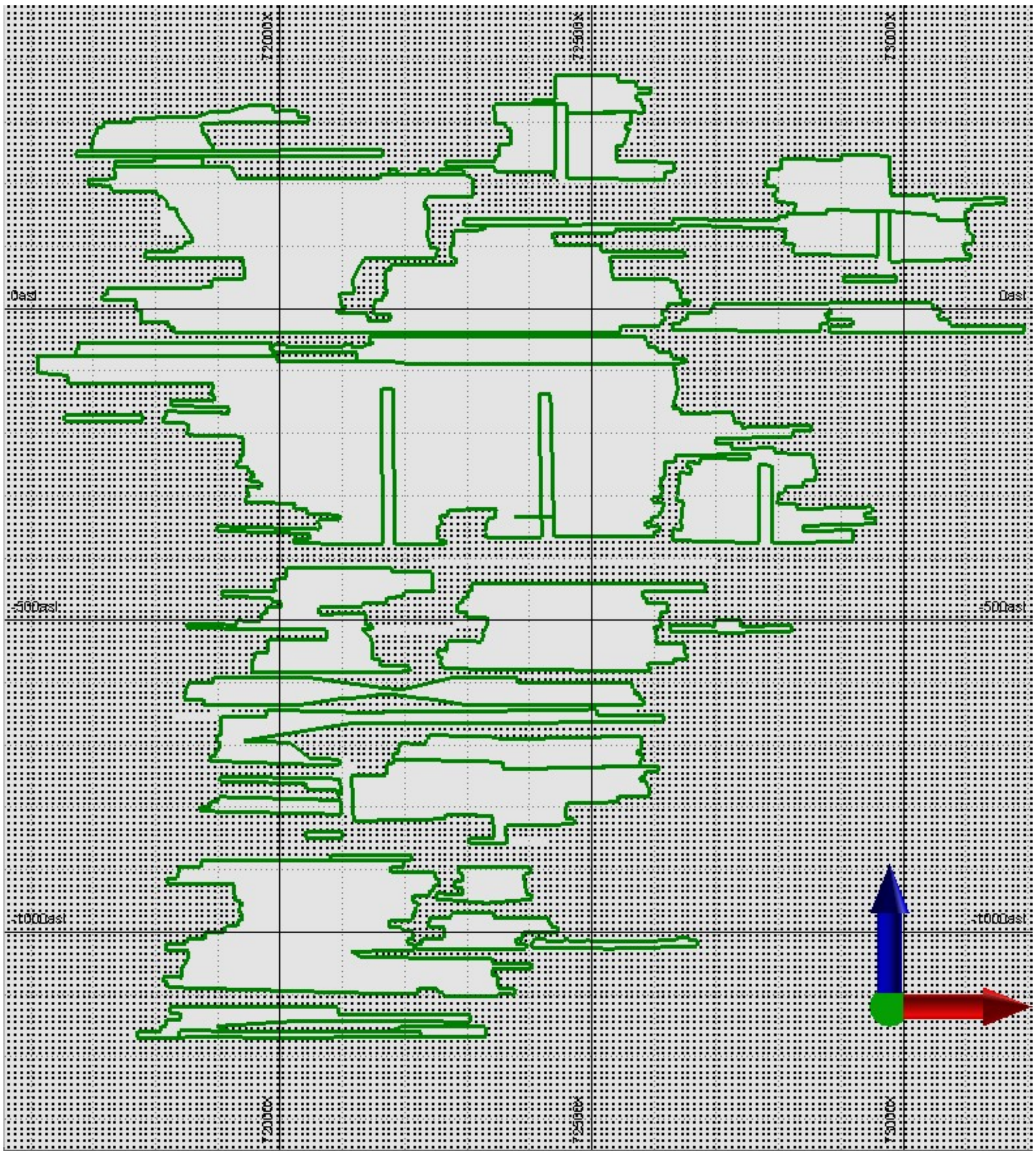

Figure 14-12: Block Model Centroids Filtered by Mined Out Code – West Chance Vein

14.3.3 Combining Assay Data Sources

Assay data used for estimation was derived from three sources: drill holes, level drift channel samples, and stope channel samples.

Based on assay interval vein assignments, drill hole assays were composited across vein intervals and then corrected for true thickness based on the orientation of the vein centerline surfaces. True thickness was assigned to the "width" column. The location (easting, northing, and elevation) of the center of the composite interval was also generated.

Level drift channel assay samples were digitized in true easting and northing and true thickness and the elevation was generated from level drift triangulations.

Stope channel assay samples were digitized relative to the 2D vein map longitudinal section raise locations and were brought into MicroMine® along with the 2D vein map longitudinal sections. Once proper easting and elevation positions were determined, the stope channel assay samples were draped to the vein centerline surfaces to best approximate their true location.

Following draping of stope channel assay samples, all three assay data sources were in true location (easting, northing, and elevation), referenced to true thickness, and could be used as one consolidated assay data set.

A combined assay file was generated for each vein surface with the columns: Data Type, Assay ID, East, North, Rl, Width, Ag, Cu, Pb, and Zn.

After combining the data sources, blanks or null values were present in the Ag, Cu, Pb, and Zn columns. Blanks in the Ag column were rare and were assigned 1.7 gpt, and Cu blanks were assigned 0.025%, Pb blanks were assigned 0.05%, and Zn blanks were assigned 0.05%. Blank values were determined by a review of the project-wide detection limits for the three data sources. Different detection limits have existed depending on the time period of the assay; the default values chosen represent estimated values. Assay values were top cut on a vein by vein basis.

14.4 Resource Estimation

Estimations of grade and thickness were completed by multi-pass inverse distance weighting and Ordinary Kriging using MicroMine®. Block volumes, tonnes, and contained metal values and summations were determined using SQL calculation queries in Microsoft Access®. A 343 gpt Ag grade cutoff was calculated for the reporting of the Resource. This information can be found in **Table 14-2** below.

Table 14-2: Cutoff grade parameters

	Value	Unit
Mining Cost	123.68	$/Tonne
Processing Cost	43.11	$/Tonne
G&A	21.86	$/Tonne
Reclamation	2.32	%
Refining	23.61	$/toz
Ag Recovery	97	%
Ag Price	20.16	$/lbs
Cutoff Grade	**343**	**Ag gpt**

14.4.1 Search Ellipse Orientation and Variography

Search ellipse orientations were determined using 2D vein map long section maps and fit to the orientations of mined out shapes. Search ellipse anisotropy was also generalized by the mined-out shapes. Search ellipse anisotropy ranged from a maximum of 1:0.5 for the initial Inferred pass to 1:0.25 to 1:0.4 for select Measured and Indicated passes. **Figure 14-13** shows the West Chance Vein with three nest search ellipse passes, Inferred shown in blue, Indicated in green, and Measured in red, all oriented with the mined out shapes. **Figure 14-13** also shows the 2D vein map longitudinal section, along with Ag assay points combined from all three assay data sources.

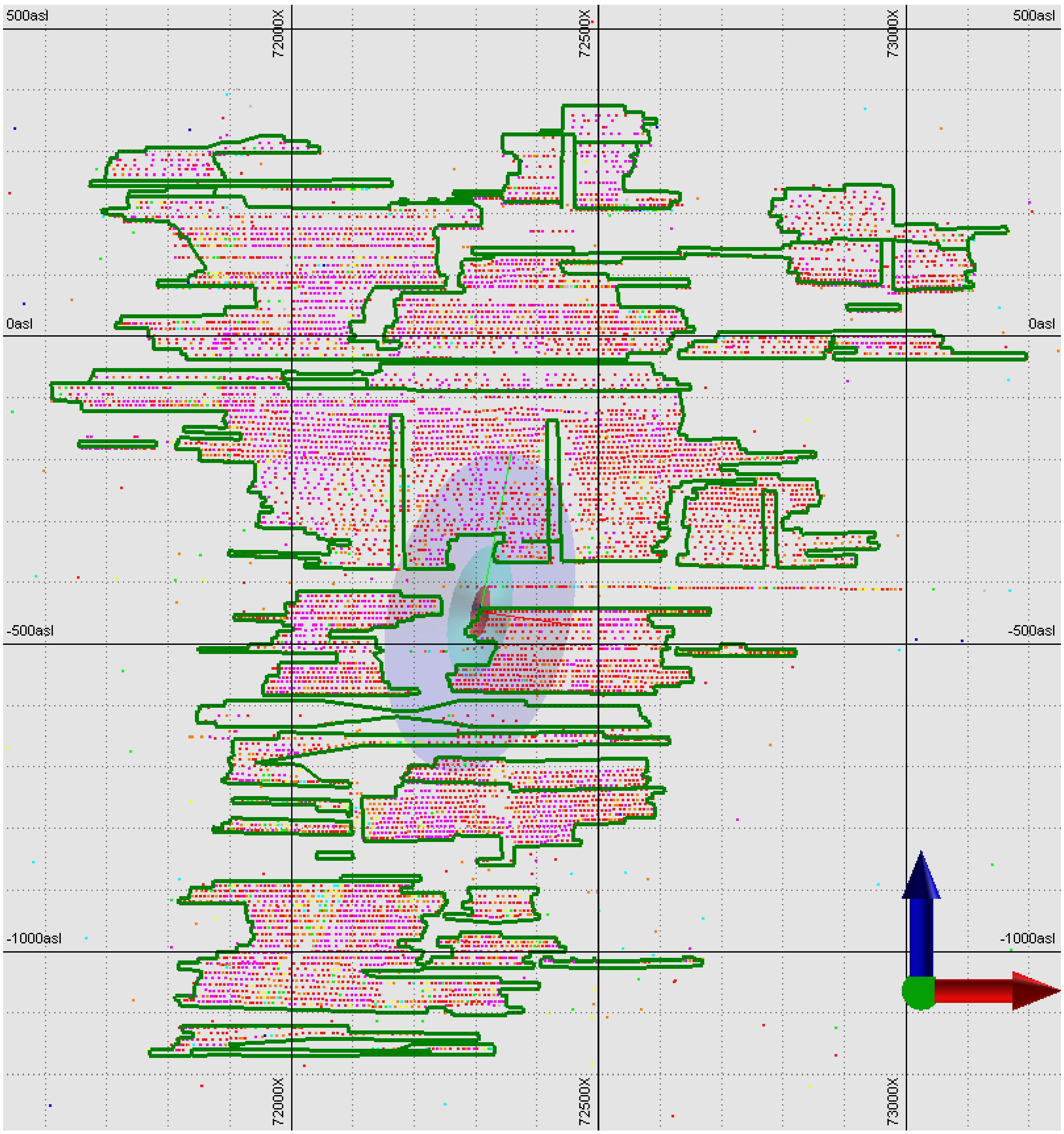

Figure 14-13: Nested Search Ellipses Orientation and Combined Ag Assay Data – West Chance Vein

Omni-directional variography was calculated on a vein by vein basis from combined assay files for silver. For instance, only assays labeled West Chance Vein were used to calculate the variogram for the West Chance Vein. Search distance parameters determined by Ag variograms were applied to Cu, Pb, Zn, and width.

The results of the omni-direction on a vein by vein basis indicate project wide a nugget between 40 and 60% of the sill and sill ranges at 27.4 to 45.72 m. To correct for a relatively high nugget, a nested variogram from 0 to 6.10 m was assumed to have a nugget of 0. From 6.10 m to the final sill, the variogram was determined by the omni-directional variography.

Inferred long axis search distance radii were between 76.2 and 91.44 m, generalized as twice the distance of the sill. Indicated long axis search distance radii were between 27.4 and 45.7 m. Measured long axis search distance radii were between 7.62 and 15.24 m. Additional parameters for Indicated and Measured classification were added and are described in the following paragraphs. **Figure 14-14** shows omni-directional variography for the West Chance Vein, modeled with the true nugget in blue and with the forced 0 nugget in red.

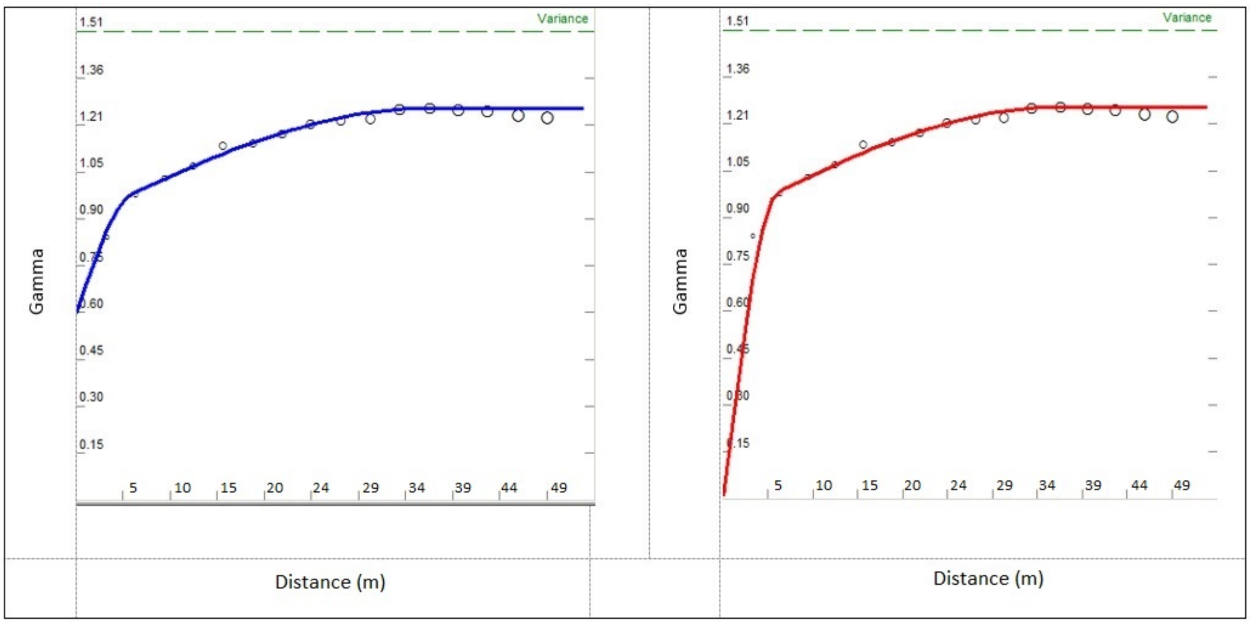

Figure 14-14: West Chance Omni-Directional Log Transformed Variogram

14.4.2 Estimation Passes and Block Classification

Estimation of Ag, Cu, Pb, Zn, and width were completed in three passes for each attribute. The first pass had a maximum range between 76.2 and 91.44 m and employed an inverse distance to the third power weighted estimate using the nearest five data points. All block estimates from the first pass were assigned an Inferred classification.

The second pass had a maximum range between 27.4 and 45.7 m and performed a two-sector Kriged estimate with a maximum of 10 data points per sector. All block estimates from the second pass were initially assigned Inferred and then reclassified as Indicated if a certain number of data points were used for estimation. Any block estimated in the second pass over wrote the same block estimated in the first pass. Minimum data points required for reclassification to Indicated was subject to data type available on a vein by vein basis. Veins with a large density of stope samples required more samples to achieve Indicated, and veins with only level data points required fewer data points. Classification by sample count was difficult to establish vein by vein due to the varying combination of data sources causing different sample location geometries. A single standard for Indicated classification could not be determined. Minimum sample counts were calibrated to previous ranges for Measured and Indicated classification made by SSMRC Resource geologists in previous Resource calculations.

The third pass had a maximum range between 7.62 and 15.24 m and performed a one sector Kriged estimate with a maximum of 10 data points and a minimum of three data points. Minimum data points required for Measured was adjusted in the same way as for the Indicated classification. If the third pass did not meet the minimum requirement the second pass block value was used.

In addition to the classification scheme described above, each vein was further reclassified using bounding strings as a final pass to limit the extension of Measured and Indicated along strike from known mined out areas. Bounding strings were drawn close to mined out stopes along strike and limited Measured and Indicated from passes two and three to only a few blocks along strike outside known stope boundaries. Up and down dip the bounding strings were drawn further away from mined out stopes and were less limiting to the Measured and Indicated blocks from passes two and three.

In select cases, bounding strings were also used to reclassify blocks failing to meet the requirements of Indicated classification in pass two but were assigned as Indicated by SSMRC Resource geologists in previous Resource calculations. In many instances the author has relied on SSMRC Resource geologists to establish areas for Measured and Indicated, in light of their extensive knowledge of the deposit.

Historically, assaying for Cu, Pb, and Zn were limited to locations where visual inspection indicated the potential for high grade values. For this reason, there are fewer data points for Cu, Pb, and Zn compared to Ag assays. Based on statistics and a review of the distribution of these elements, it was determined that they would be estimated in the Resource model. Production records indicate that the grades estimated are conservative for these metals.

Figure 14-15 shows block classifications for the West Chance Vein. Measured blocks centroids are in red, Indicated are in green, and Inferred are in blue. Black dots represent assay data points. The blue line represents the Inferred reclassification bounding string; the lime green line represents the Indicated reclassification bounding string.

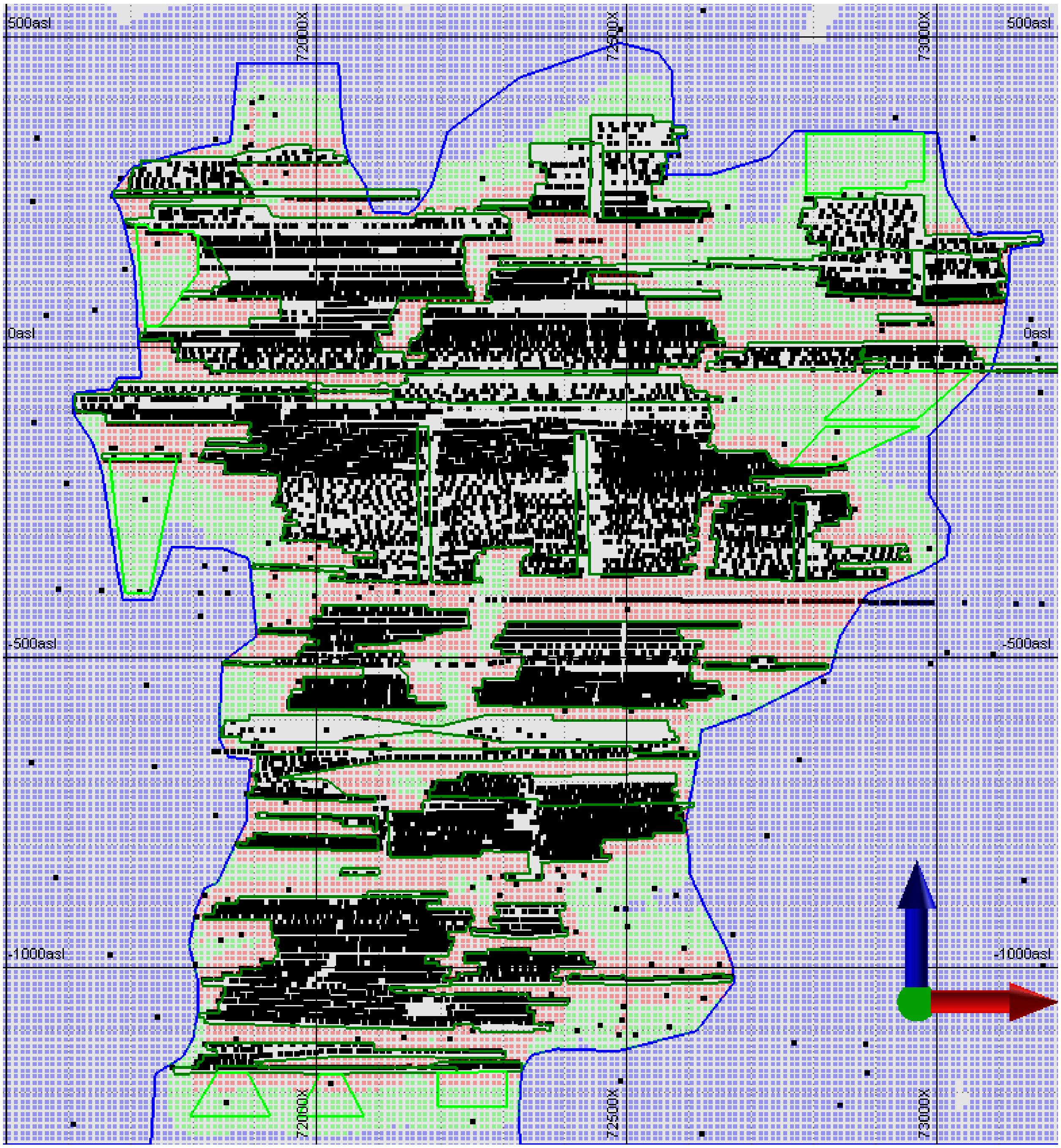

Figure 14-15: West Chance Block Resource Classification and Reclassification Bounding Strings

14.4.3 Block Calculations

Block volumes, tonnes, and contained metal values and summations were determined using SQL calculation queries in Microsoft Access®. Block volumes were calculated in g/cm^3 by multiplying east dimension by elevation dimension by width. Tonnes were calculated by multiplying volume by a density of 3.2 g/cm^3. A density of 3.2 g/cm^3 was used for both vein material and diluted material and represents an average density throughout the history of the mine of both vein material and diluted material. A density of 3.4 g/cm^3 was used for the West Chance veins due to the abundance of Pb. Contained Ag ounces per block were determined using tonnes multiplied by Ag grade.

Diluted tonnes were calculated assuming a minimum mine thickness of 2 m. If vein width was less than 1.37 m wide a diluted thickness of 2 m was assigned. If the vein width was greater than or equal to 1.37 m, then 0.61 m of dilution was also added. Dilution material was assumed at 0 Ag gpt. Diluted grade was then calculated from diluted tonnes and contained metal content. Resource tabulations were completed using diluted Ag grade, diluted tonnes, and contained metal.

14.4.4 Mineral Resource Estimates by Vein

Estimated Mineral Resources, effective January 17, 2020, were tabulated on a vein by vein basis. **Table 14-3** is a tabulation of estimated Measured Resources.

Table 14-4 is a tabulation of estimated Indicated Resources, and **Table 14-5** is a tabulation of estimated Inferred Resources.

Table 14-3: Estimated Measured Mineral Resources by Vein

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Contained Ounces	Cu %	Pb %	Zn %
06Vein	343	1-Measured	11,000	1,558	546,000	0.01	0.02	0.02
08BVein	343	1-Measured	6,000	974	173,000	0.02	0.02	0.02
08Vein-DHWVein	343	1-Measured	83,000	662	1,763,000	0.04	0.03	0.03
09HWVein	343	1-Measured	32,000	672	684,000	0.10	0.02	0.02
09Vein	343	1-Measured	15,000	675	326,000	0.03	0.02	0.02
625MVein	343	1-Measured	15,000	874	434,000	0.24	0.02	0.02
BVein	343	1-Measured	5,000	651	97,000	0.02	0.04	0.04
CFault	343	1-Measured	22,000	754	525,000	0.13	0.41	0.04
Chester	343	1-Measured	257,000	929	7,661,000	0.17	0.16	-
ChesterHang	343	1-Measured	28,000	837	756,000	0.09	0.69	-
CopperVein	343	1-Measured	33,000	751	798,000	0.10	0.04	0.02
DVein	343	1-Measured	20,000	915	600,000	0.10	0.03	0.03
FVein	343	1-Measured	11,000	857	297,000	0.01	0.05	-
HVein	343	1-Measured	9,000	994	300,000	0.35	0.17	0.03
KFWVein	343	1-Measured	1,000	730	14,000	0.37	0.01	0.01
KVein	343	1-Measured	5,000	813	122,000	0.24	0.12	-

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Contained Ounces	Cu %	Pb %	Zn %
NYankeeBoySunshine	343	1-Measured	79,000	854	2,155,000	0.02	0.03	0.03
S78Vein	343	1-Measured	13,000	717	306,000	0.12	0.02	0.02
SilverLine	343	1-Measured	3,000	459	44,000	0.01	2.32	0.02
SilverSummitNo4	343	1-Measured	48,000	720	1,118,000	1.04	0.03	0.03
SilverSyndicateLink	343	1-Measured	72,000	1,029	2,442,000	0.09	0.76	0.06
Sunshine2	343	1-Measured	2,000	610	49,000	0.01	0.02	0.02
SunshineFW	343	1-Measured	4,000	789	111,000	0.07	0.02	0.02
SYankeeBoy	343	1-Measured	139,000	816	3,655,000	0.02	0.03	0.03
W16Vein	343	1-Measured	1,000	631	13,000	0.06	0.01	0.01
WestChance	343	1-Measured	168,000	847	4,609,000	0.03	1.92	-
WestChanceFW	343	1-Measured	8,000	1,087	288,000	0.02	0.02	-
YankeeGirl	343	1-Measured	39,000	679	863,000	0.09	0.01	0.01

Table 14-3: Estimated Indicated Mineral Resources by Vein

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Ounces	Cu %	Pb %	Zn %
06Vein	343	2-Indicated	27,000	1,323	1,170,000	0.03	0.02	0.01
08BVein	343	2-Indicated	9,000	823	240,000	0.12	0.02	0.02
08Vein-DHWVein	343	2-Indicated	61,000	634	1,234,000	0.04	0.04	0.02
09HWVein	343	2-Indicated	28,000	617	554,000	0.19	0.02	0.02
09Vein	343	2-Indicated	55,000	720	1,275,000	0.02	0.02	0.02
10Vein	343	2-Indicated	1,000	415	9,000	0.12	10.10	0.01
101Vein	343	2-Indicated	8,000	514	139,000	0.06	0.02	0.01
625MVein	343	2-Indicated	67,000	761	1,640,000	0.16	0.02	0.02
BVein	343	2-Indicated	6,000	693	135,000	0.02	0.04	0.04
CFault	343	2-Indicated	58,000	720	1,334,000	0.13	0.31	0.03
Chester	343	2-Indicated	293,000	758	7,165,000	0.11	0.19	-
ChesterHang	343	2-Indicated	48,000	730	1,129,000	0.09	0.33	-
CopperVein	343	2-Indicated	58,000	686	1,296,000	0.07	0.52	0.02
DVein	343	2-Indicated	44,000	926	1,299,000	0.05	0.03	0.03
FVein	343	2-Indicated	10,000	669	215,000	0.04	0.05	-
HFWVein	343	2-Indicated	3,000	864	85,000	0.01	0.03	0.03
HVein	343	2-Indicated	12,000	754	289,000	0.17	0.09	0.03
KFWVein	343	2-Indicated	5,000	823	111,000	0.49	0.01	0.01
KVein	343	2-Indicated	30,000	648	617,000	0.26	0.06	-

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Ounces	Cu %	Pb %	Zn %
NYankeeBoySunshine	343	2-Indicated	159,000	723	3,704,000	0.03	0.04	0.03
S78Vein	343	2-Indicated	6,000	617	110,000	0.01	0.01	0.01
SilverLine	343	2-Indicated	13,000	641	273,000	0.05	1.58	0.02
SilverSummitNo4	343	2-Indicated	70,000	658	1,477,000	0.85	0.03	0.03
SilverSyndicateLink	343	2-Indicated	181,000	813	4,922,000	0.06	1.35	0.04
Sunshine2	343	2-Indicated	6,000	514	95,000	0.02	0.02	0.02
SunshineFW	343	2-Indicated	7,000	624	141,000	0.04	0.02	0.02
SYankeeBoy	343	2-Indicated	302,000	771	7,578,000	0.02	0.03	0.02
W16Vein	343	2-Indicated	1,000	2,462	110,000	0.42	0.01	0.01
WestChance	343	2-Indicated	148,000	675	3,205,000	0.05	1.96	-
WestChanceFW	343	2-Indicated	10,000	1,241	400,000	0.02	0.02	-
YankeeGirl	343	2-Indicated	162,000	689	3,600,000	0.07	0.01	0.01

Table 14-4: Estimated Inferred Mineral Resources by Vein

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Ounces	Cu %	Pb %	Zn %
06Vein	343	3-Inferred	87,000	1,111	3,169,000	0.06	0.02	0.02
08BVein	343	3-Inferred	102,000	782	2,563,000	0.21	0.02	0.02
08Vein-DHWVein	343	3-Inferred	132,000	909	3,835,000	0.03	0.03	0.02
09HWVein	343	3-Inferred	116,000	710	2,618,000	0.11	0.03	0.02
09Vein	343	3-Inferred	97,000	857	2,674,000	0.05	0.01	0.02
10Vein	343	3-Inferred	53,000	915	1,567,000	0.34	11.9	0.03
101Vein	343	3-Inferred	115,000	1,063	3,931,000	0.10	0.02	0.02
625MVein	343	3-Inferred	255,000	703	5,771,000	0.26	0.01	0.02
BVein	343	3-Inferred	38,000	857	1,073,000	0.02	0.04	0.04
CFault	343	3-Inferred	146,000	689	3,279,000	0.13	5.5	0.09
Chester	343	3-Inferred	561,000	771	14,173,000	0.15	0.14	-
ChesterHang	343	3-Inferred	243,000	789	6,156,000	0.08	1.31	-
ChesterHWSplit	343	3-Inferred	398,000	1,066	13,555,000	0.22	0.06	-
CopperVein	343	3-Inferred	294,000	1,035	9,457,000	0.05	0.18	0.02
DVein	343	3-Inferred	328,000	926	9,821,000	0.03	0.03	0.03
FVein	343	3-Inferred	112,000	706	2,577,000	0.08	0.10	-
HFWVein	343	3-Inferred	66,000	566	1,191,000	0.04	0.01	0.02
HVein	343	3-Inferred	98,000	1,265	3,984,000	0.15	0.04	0.02
KFWVein	343	3-Inferred	109,000	675	2,374,000	0.37	0.01	0.01

Vein	Cutoff Ag gpt Diluted	Resource Class	Tonnes Diluted	Grade Ag gpt Diluted	Ag Ounces	Cu %	Pb %	Zn %
KVein	343	3-Inferred	58,000	720	1,399,000	0.21	0.03	-
NYankeeBoySunshine	343	3-Inferred	464,000	785	11,779,000	0.04	0.05	0.03
S78Vein	343	3-Inferred	48,000	573	889,000	0.06	0.02	0.02
SilverLine	343	3-Inferred	71,000	566	1,286,000	0.17	1.9	0.02
SilverSummitNo3	343	3-Inferred	285,000	919	8,408,000	0.63	0.03	0.03
SilverSummitNo4	343	3-Inferred	1,191,000	867	33,650,000	0.74	0.02	0.02
SilverSyndicateLink	343	3-Inferred	648,000	850	17,833,000	0.13	0.60	0.04
Sunshine2	343	3-Inferred	37,000	624	733,000	0.05	0.01	0.01
SunshineFW	343	3-Inferred	66,000	648	1,371,000	0.06	0.01	0.01
SYankeeBoy	343	3-Inferred	504,000	843	14,096,000	0.03	0.03	0.02
W16Vein	343	3-Inferred	26,000	1,968	1,687,000	0.13	0.01	0.01
WestChance	343	3-Inferred	392,000	847	10,726,000	0.21	1.07	-
WestChanceFW	343	3-Inferred	97,000	655	2,023,000	0.01	0.01	-
WestChanceFWWest	343	3-Inferred	6,000	418	83,000	0.07	0.01	-
YankeeGirl	343	3-Inferred	751,000	706	17,021,000	0.05	0.01	0.01
YankeeGirl952Split	343	3-Inferred	55,000	439	773,000	0.01	0.01	0.01
YankeeGirlFW	343	3-Inferred	108,000	1,080	3,824,000	0.01	0.03	0.03
YankeeGirlHW	343	3-Inferred	64,000	617	1,264,000	0.01	0.02	0.02

14.4.5 Mineral Resource Estimate Grade Tonnage Relationships

Figure 14-16 shows the grade tonnage relationship of measured and Indicated Resources within all veins at a range of cutoff grades. **Figure 14-17** shows the grade tonnage relationship of Inferred Resources within all veins at a range of cutoff grades.

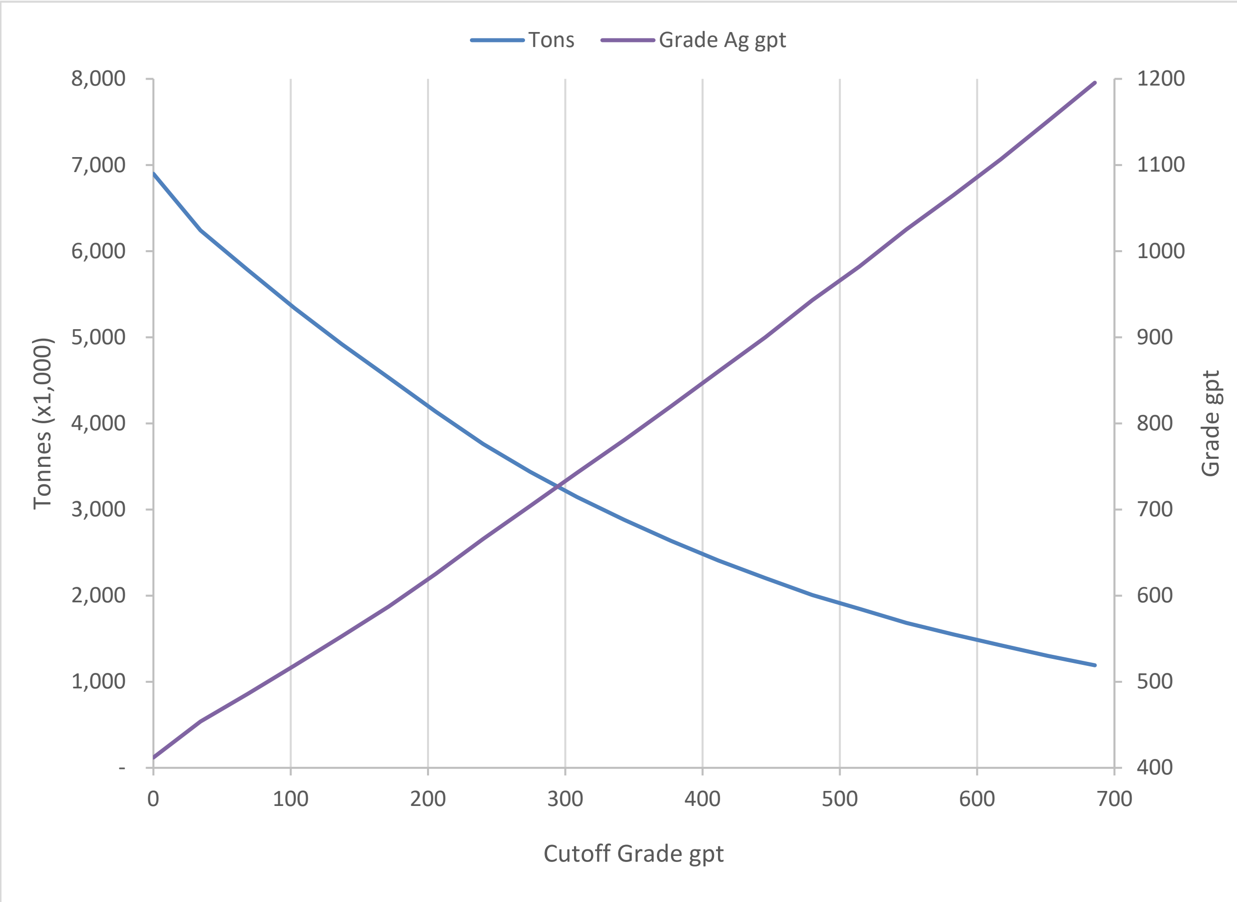

Figure 14-16: Grade Tonnage Curve Measured and Indicated Resources – All Veins

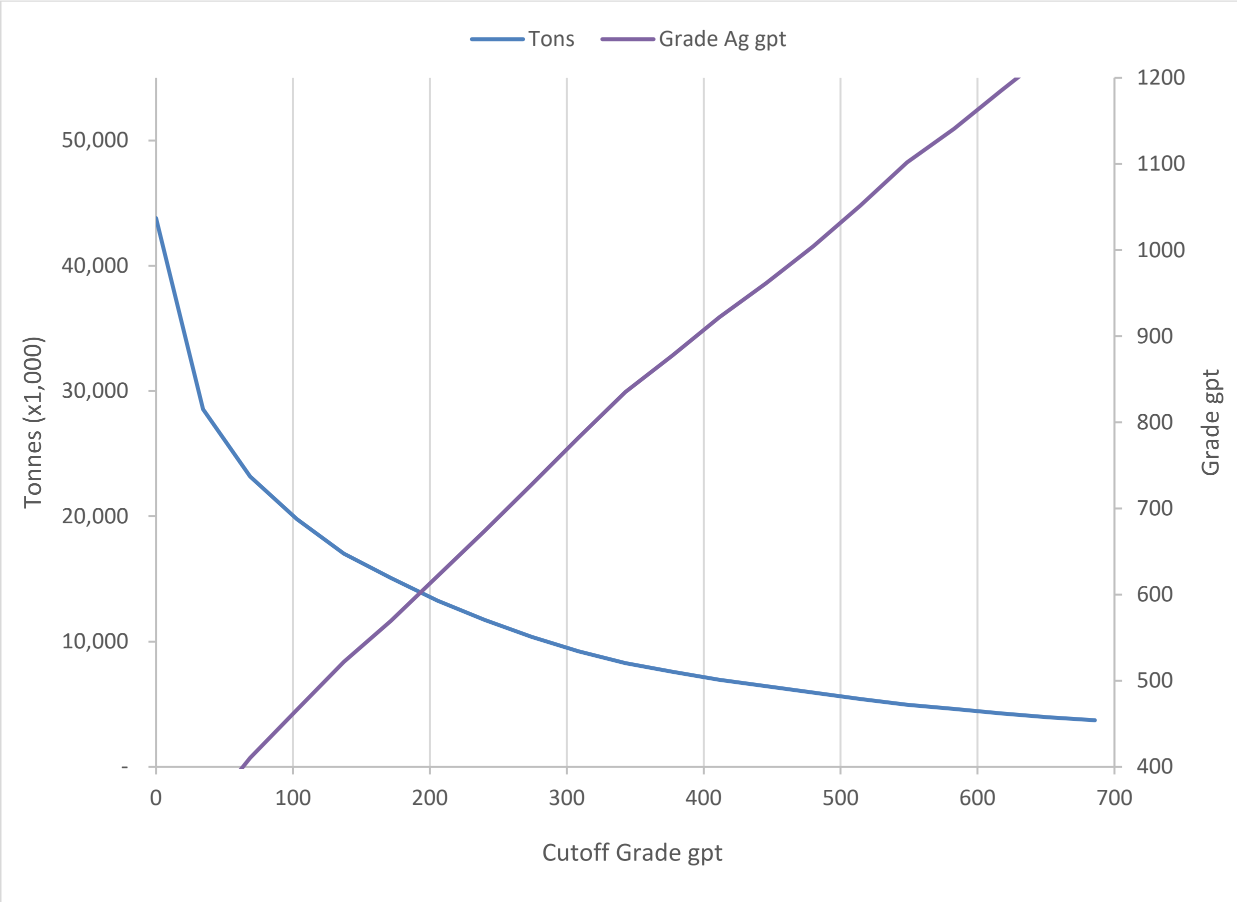

Figure 14-17: Grade Tonnage Curve Inferred Resources – All Veins

14.4.6 Validation and Visual Review

The author was provided with yearly production records for the Sunshine Mine from 1884 to 2001 and was able to compare the sum of the blocks flagged as mined out in this Resource estimate to the historic total production.

The records are based on annual mandatory reporting and contain yearly totals of tons and contained silver ounces. The annual totals are not broken out on a vein by vein basis. There are few data gaps, specifically, contained ounces from 1927 to 1928 are missing, but recovered ounces have been provided. These records are believed to be a reliable accounting for total mined material.

A direct comparison between this Mineral Resource estimate and the historic production is limited for two reasons. The first being production from the Rambo area veins was not considered as part of this Mineral Resource estimate, and second the true diluted width of each mined out block is not known. A diluted width of 2 m has been used as an approximation. **Table 14-5** shows the production record totals compared to the mined-out totals estimated by this Mineral Resource estimate. Results of historic production are not necessarily indicative of the remaining Mineral Resources. Comparisons of historic production records to estimations of mined material by this model contribute to the reliability of the estimation of remaining Resources but do not necessarily indicate that Mineral Resource estimations of the remaining material will be successful.

Table 14-5: Historic Production Comparison

	Total Mined Tonnes	Grade Ag gpt	Contained Silver Ounces
Production Records 1884 to 2001	11,954,566	960	369,423,312
Production Estimated by Block Model	11,126,813	987	352,951,717

Each estimate was visually reviewed on a vein by vein basis. Assay grades were compared to estimated block grades. In addition, estimated grade x thickness values were compared within and outside mined out boundaries. **Figure 14-18** shows Ag assays compared to estimated block grade for all Resource classes. **Figure 14-19** shows block grade x thickness flagged in the block model as mined out, and **Figure 14-20** shows block grade x thickness of remaining Resources.

Grade x thickness was used as a proxy for contained ounces and therefore used to identify areas most likely to have been mined. Visual comparison shows that on average areas of higher grade x thickness were mined out.

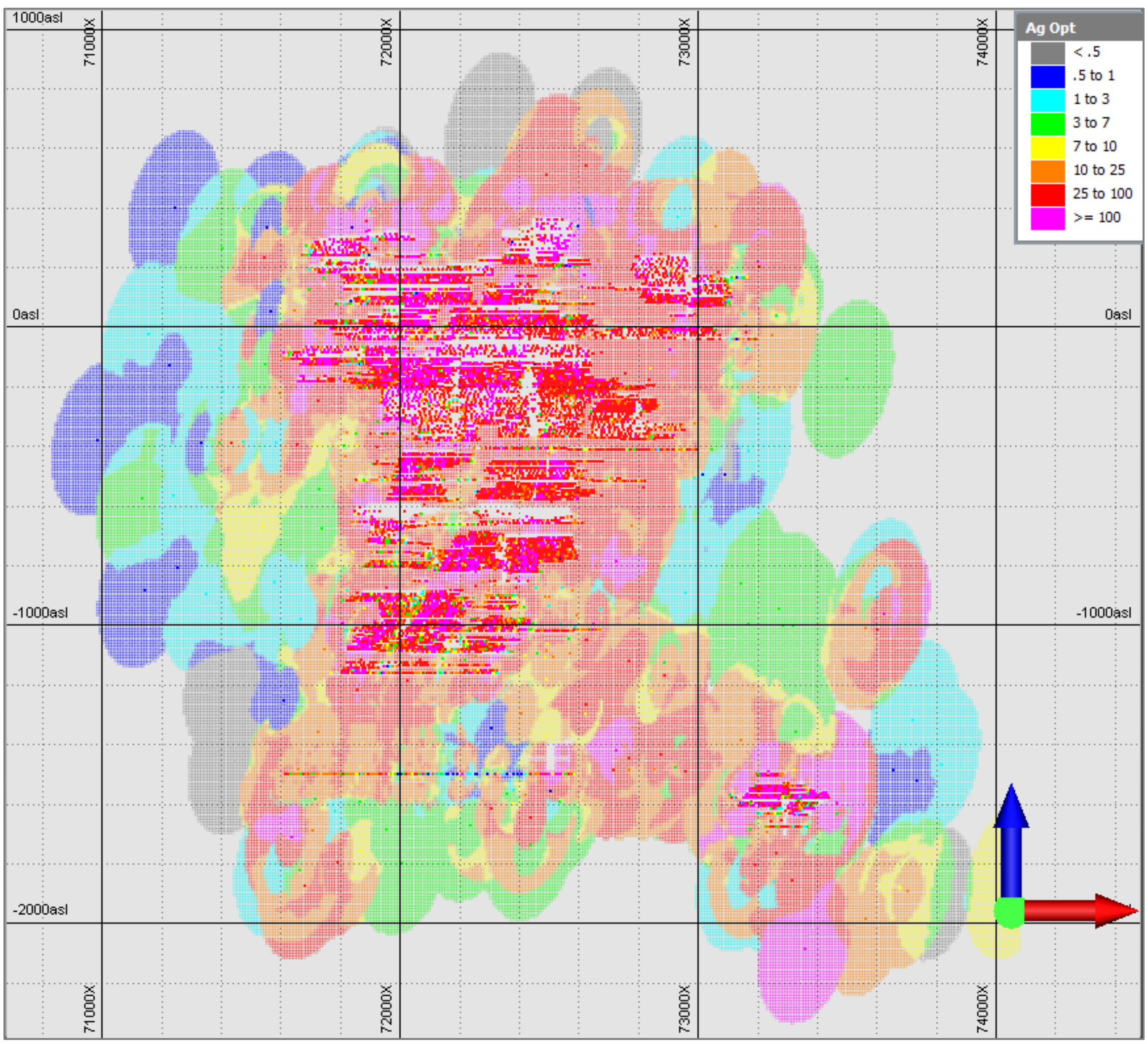

Figure 14-18: Visual Comparison of Assays Compared to Block Ag Grades – West Chance Vein

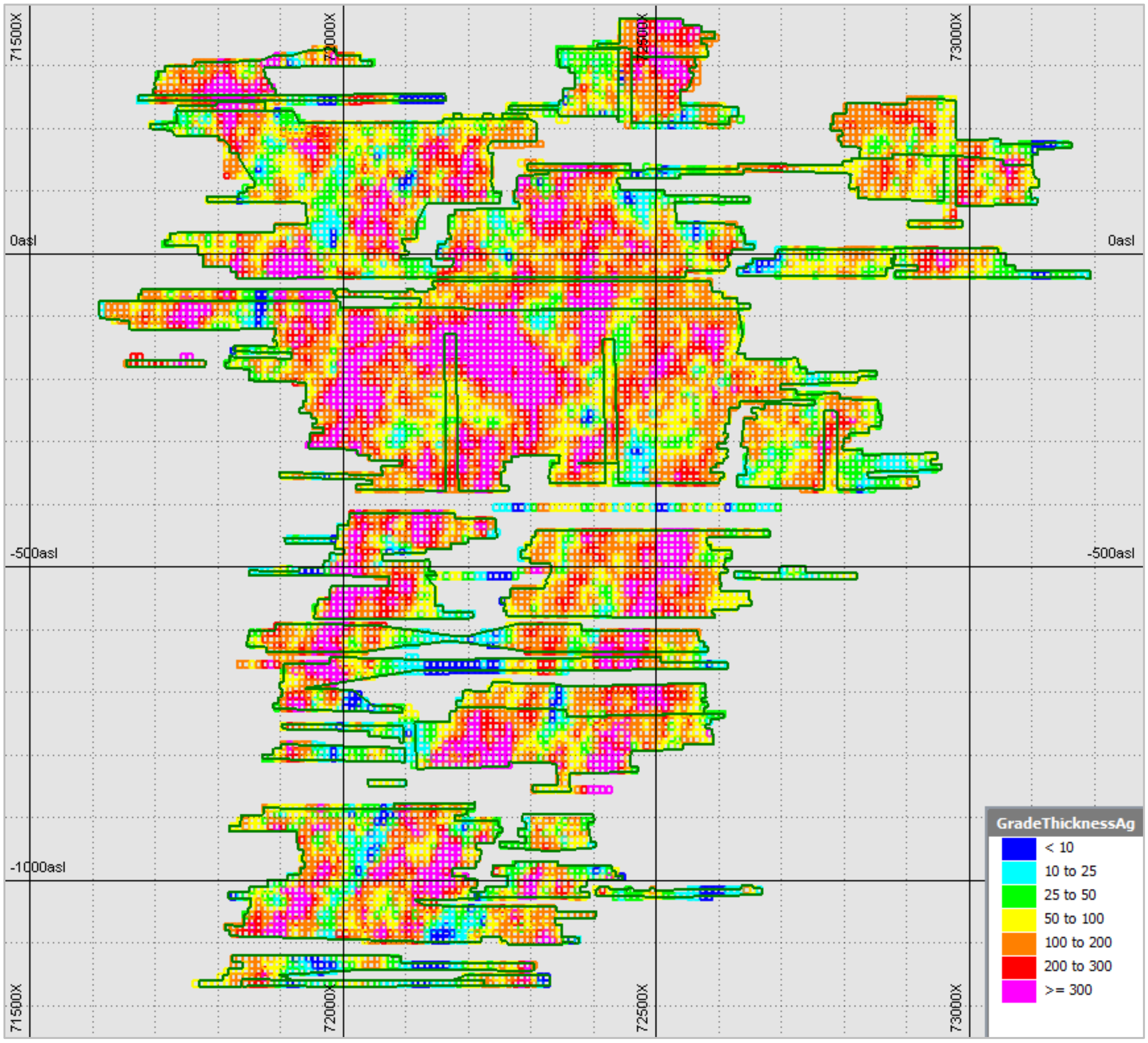

Figure 14-19: Visual Review of Grade x Thickness Ag Ft and Mined Out Areas – West Chance Vein

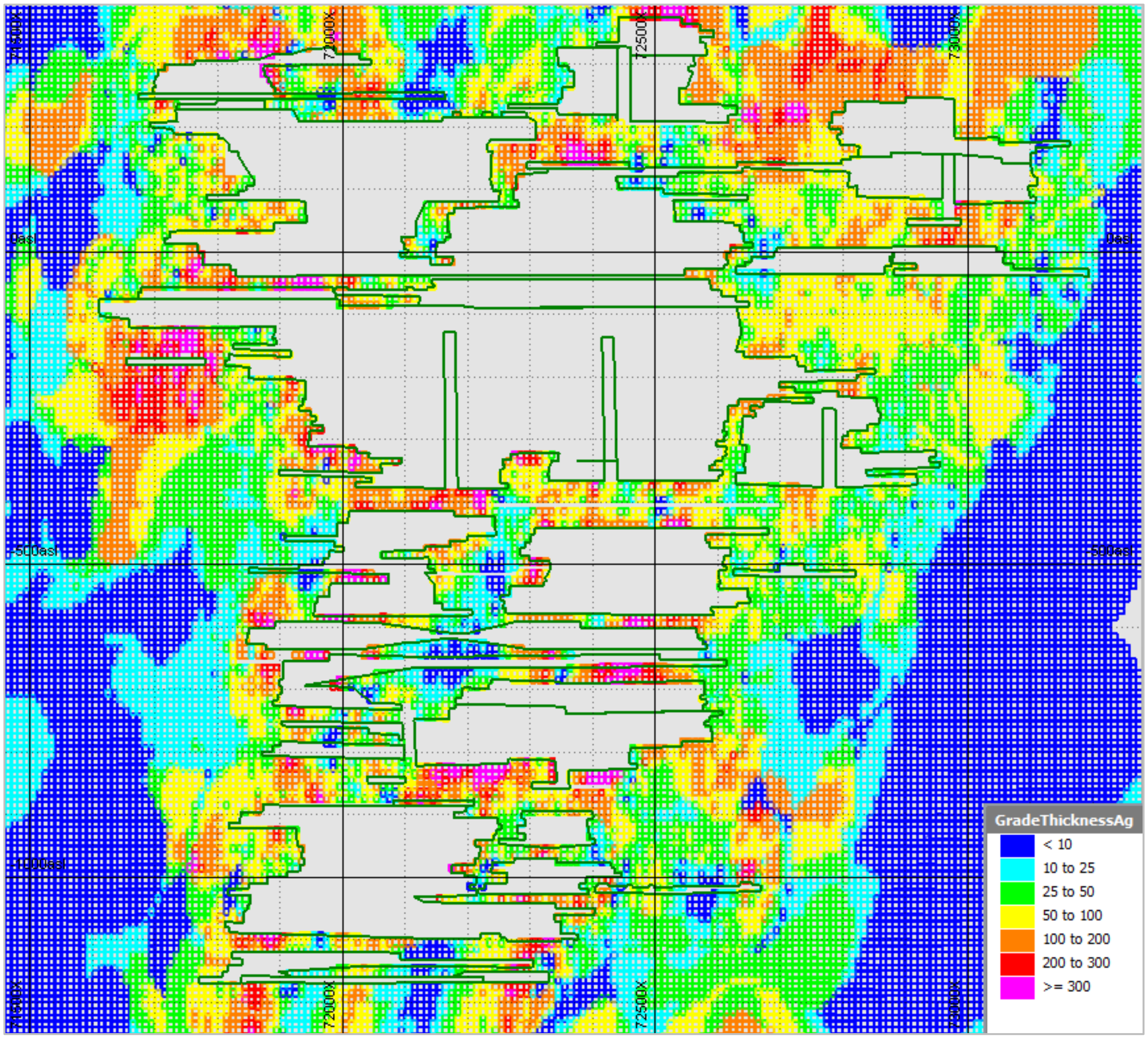

Figure 14-20: Visual Review of Grade x Thickness Ag Ft and Remaining Resources – West Chance Vein

Estimating grade and thickness independently was compared to estimating grade X thickness as a single entity for the H vein. The investigation confirmed that estimating grade and thickness independently provided satisfactory results.

Estimations were completed using both methods, and the resulting grade x thickness histograms and cumulative frequencies were compared. **Figure 14-21** shows grade x thickness calculated from grade and thickness estimated independently in red, and grade x thickness estimated as a single entity in blue. The resulting histograms and cumulative frequencies show no significant bias and validate the practice of estimating grade and thickness independently.

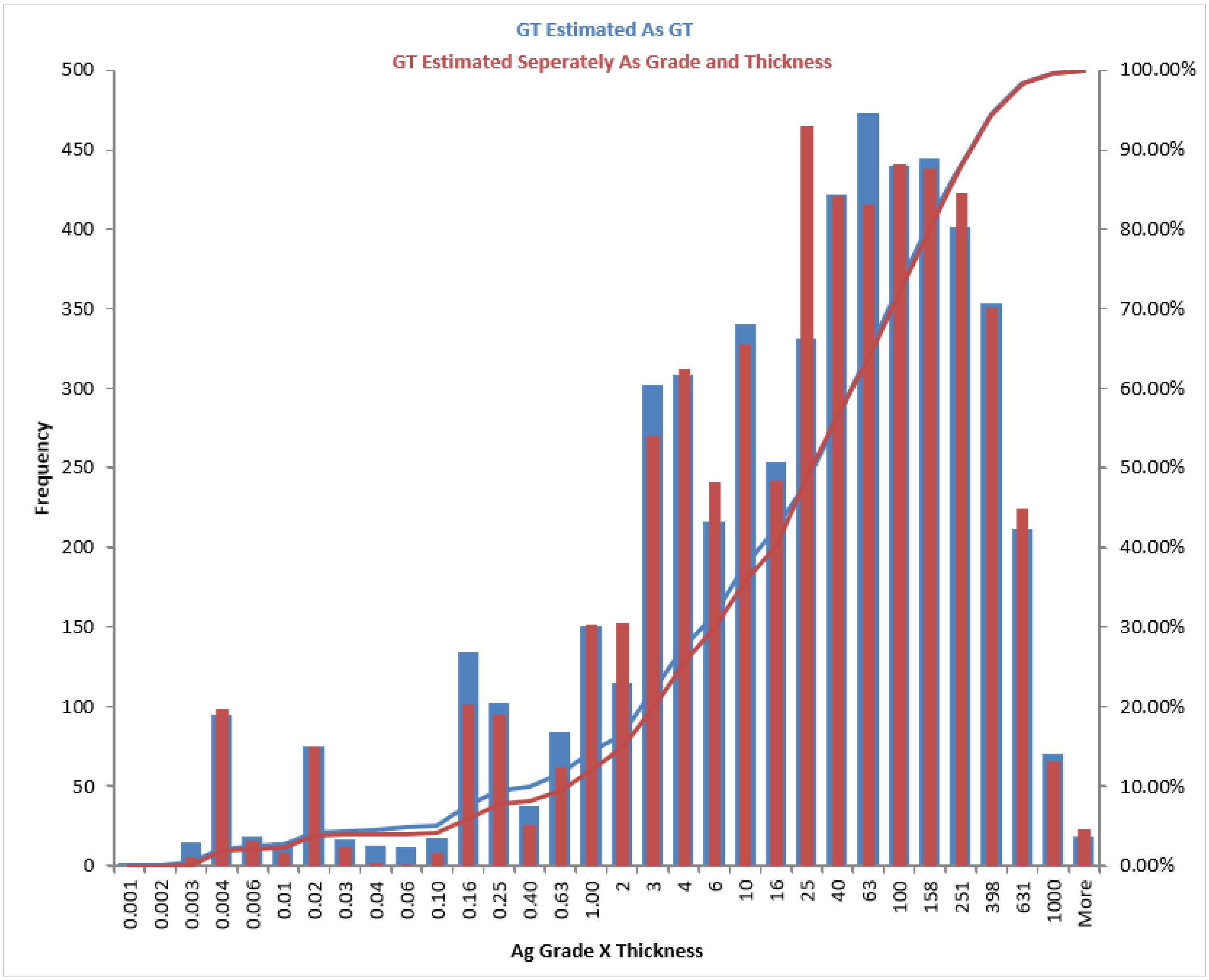

Figure 14-21: Comparison of Populations of Grade x Thickness Estimated Independently and as a Single Entity – H Vein

14.4.7 Relevant Factors

As described in Section 4.0 of this report, the property is subject to NSR agreements on various claims. The author is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect this Mineral Resource estimate.

14.5 Updates to Resources Following December 2012 Technical Report

Following the completion of the Resource estimate effective October 2012, SSMRC completed 41 drill holes and sourced additional historic data. Additional drilling and newly added historic data only affected the Resource estimates for the C-Fault, North Yankee Boy, South Yankee Boy veins, and the newly discovered 10 Vein.

15 MINERAL RESERVE ESTIMATES

This section does not apply as the Sunshine Mine property does not currently contain Mineral Reserves.

16 MINING METHODS

16.1 Historical Mining Methods

16.1.1 Infrastructure and Stope Access

Primary access to the lower levels of the Sunshine Mine is through the four-compartment Jewell Shaft. The shaft extends vertically downward 1,219 m with primary haulage ways connecting on the 3100 and 3700 Levels. The Jewell Shaft will have a nominal hoisting capacity of 1,179 tpd of mineralized material and waste after rehabilitation. An existing ramp system will be expanded to allow truck haulage from most stopes to the haulage level used to load the Jewell Shaft skip pockets on the 2300, 2700, 3100, or 3700 Levels. A new ore pass and loading pocket system will be installed to allow efficient skip loading. Prior to using the Jewell Shaft for production, about a year of rehabilitation work is required.

The Silver Summit Tunnel and vertical shaft (winze) provide a secondary escapeway and could be used to augment the haulage of mineralized material and waste from the mine. Rehabilitation work has started on the Silver Summit Tunnel and Shaft and is expected to be completed prior to the Jewell Shaft hoisting of mineralized material. Additional required work on the Silver Summit Shaft includes upgrading the shaft, conveyance, and top station infrastructure in support of waste and mineralized material movement.

The underground winze #10 Shaft that crosses the Chester Vein will be abandoned due to poor ground conditions within the shaft. Access to areas of the mine served by the #10 Shaft will be replaced by LHD ramps descending from the east end of the 3100 Level (CSR) existing ramp system. An additional ramp system (existing with new portions) will be used to mine the West Chester deposit. No rehabilitation is currently planned for the underground #12 Shaft for this study. All material between the bottom of the Jewell Shaft and the 4600 Level will be transported using new ramp systems.

Main haulage levels are spaced on 45.7 to 91.44 m intervals. Historic haulage on all the levels was by rail. The 3100 Level drift area damaged in the 2012 fire has been repaired. A by-pass drift will be required to complete a new ventilation system from the Jewell Shaft side of the mine to the Silver Summit Shaft side. A loading pocket on the 1900 Level for the Jewell Shaft will be installed prior to production. The 3100 Level will be widened to allow truck transport of materials from the ramp systems to the shaft dump pockets. The cost of basic rehabilitation for other levels and keeping the mine dewatered is included in the capital cost estimate. Most levels will use rail haulage to move material delivered to the shaft station loading pockets. Ramp and raise systems will provide for truck movement of material from the stopes to the levels. Most of the mineralized material will travel up the Jewell Shaft, while the waste materials will be used for backfilling or deposited in the existing WRSF. A surface cement paste plant will be installed for primary stope backfill.

During shaft rehabilitation, a ramp system that was initiated in 2012 from the Sterling Tunnel will be continued to the 2300 Level. The ramp system continued development will facilitate a new ventilation system for the upper mine and provide access to explore deeper upper mine areas. Continuation of the new ramp will begin immediately upon project initiation. Exploration during the past year has identified three new areas of economic mineralization in the upper areas of the mine. Sunshine refers to this as the Upper Country program.

Material between the 4600 Level and 5800 Level has been included in the production schedule, although more work is required to reliably define the cost of mining in this material including further study of the geotechnical and seismicity conditions, pumping requirements, and cooling requirements. Additional drilling is also required for this material to evaluate development requirements and Inferred materials. This material has been included in the production schedule during the last several years of the operation. A new or rehabilitated underground shaft will be required to access this material.

16.1.2 Historic Mining Methods

Historically, mining was initially completed using timbered overhand open stopes and fill mining. These methods gave way in the 1930's to overhand cut and fill mining with raise access to the stopes. In the 1970's hydraulic sandfill was added and used as a floor for stope mining to proceed. It was not until the 1990's that two ramp systems were developed to provide mechanical access to some of the stopes. The mine has been developed to the 5800 Level. Since the introduction of mechanical access, the mining methods have been divided into conventional slusher stopes that are less than 2.1 m and mechanical stopes, which are greater than seven feet wide. This study assumes that the narrow stopes will now be mined by Alimak raise mining, and the stopes wider than 2.1 m will be mined by mechanical mining.

16.1.3 Historic Conventional (Slusher) Stopes

In the "conventional" or slusher mining method, a stope of mineralized material was developed by extending an underground opening (drift) to the bottom of the block. The drifts were on levels in the mine and were typically spaced 61 m apart. Once accessed, the block was mined in a series of slices, or cuts, starting at the bottom. The cuts were typically 2.74 m high, and after each cut was mined, the resultant void was filled with hydraulically-placed classified mill tailings (sandfill). Ground control was facilitated by the fact that there was never more than one cut open in the stope at any given time.

An opening was maintained from the level below and up through the filled cuts to the current cut. This opening, called a "raise", was boxed off from the sandfill on both sides and provided access to the work area. The raise had three compartments: two divided compartments manage broken mineralized material, and a third isolated man way for ladder, piping, and equipment access.

The stope was advanced by drilling the end of the stope (face) and blasting the rock. The broken rock, a mixture of mineralized material and waste, was pulled to the raise using a slusher. The rock was loaded into rail cars at the bottom of the raise and hauled to the main production shafts.

Typically, slusher stopes were less than 1.83 m wide, or too narrow for mechanical equipment, but at least 1.37 m wide. **Figure 16-1** shows a typical historic overhand cut and fill stope.

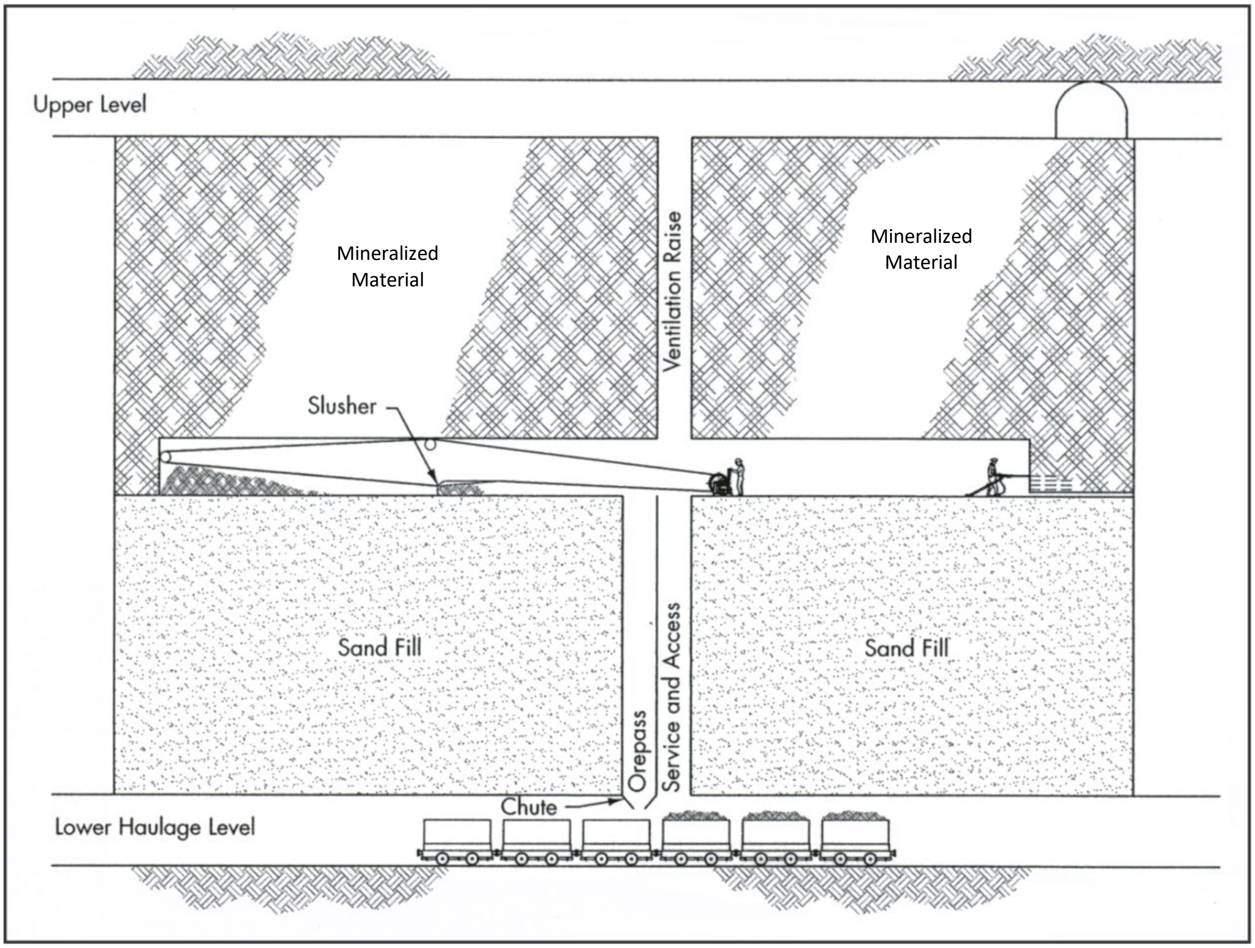

Figure 16-1: Typical Historic Overhand Cut and Fill Stope – Longitudinal section View

16.1.4 Mechanical Stopes

Beginning in the 1990's, Sunshine introduced diesel mechanical rubber tire methods to mine stopes exceeding 1.83 m in width. Access to each stope was provided by an attack ramp that was driven to the lowest level of the stope. As the stope was advanced in an overhand or upward method, the attack ramp was raised one cut by breasting down material dozed and used as a base for the next cut of the stope. **Figure 16-2** and **Figure 16-3** show typical historic cut and fill mining method utilizing diesel equipment. **Figure 16-4** shows a drawing of the existing mine workings in longitudinal section view.

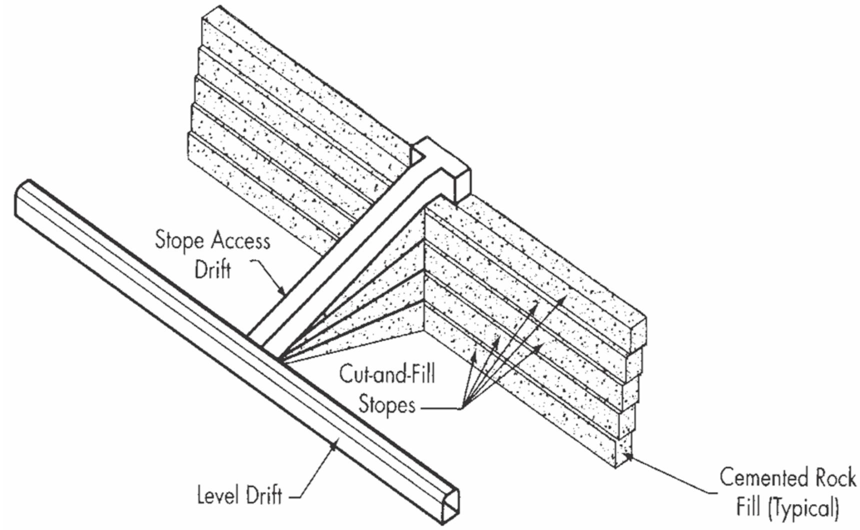

Figure 16-2: Typical Historic Overhand Mechanical Cut and Fill Stope – Isometric View

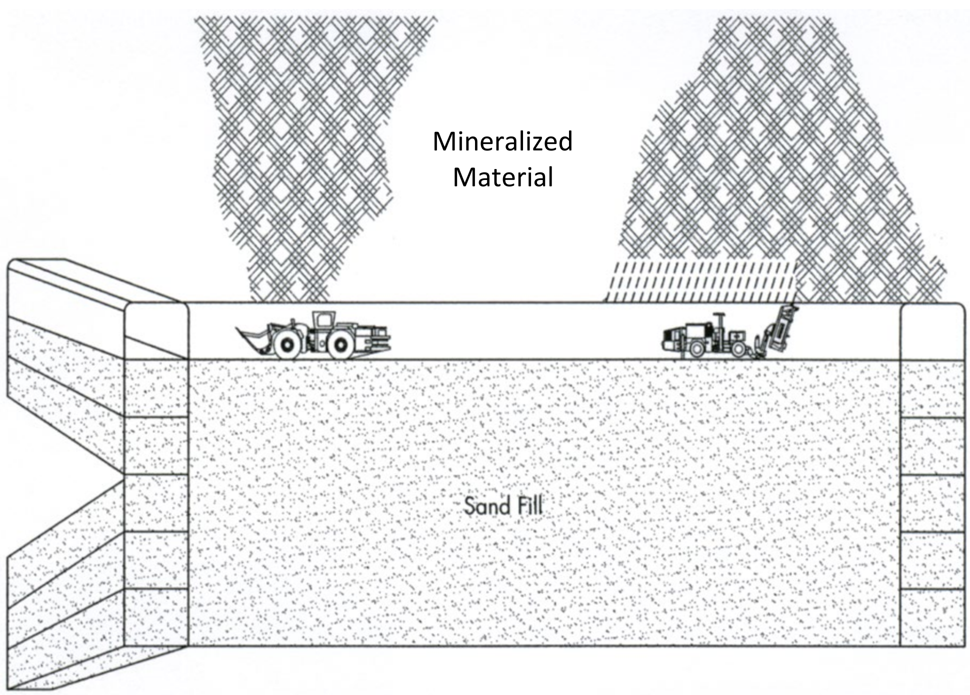

Figure 16-3: Typical Historic Mechanical Cut and Fill Mining – Longitudinal section View

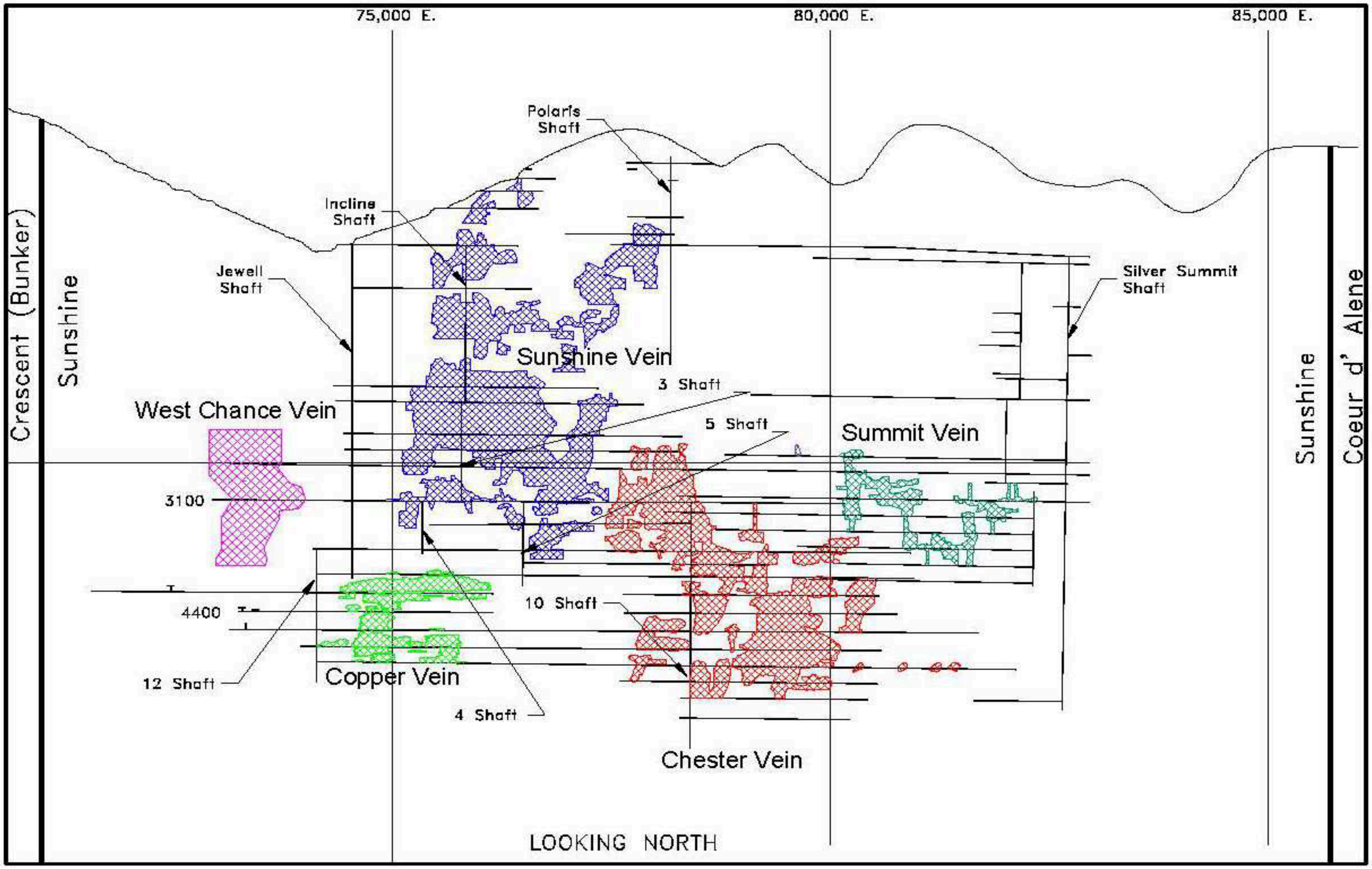

Figure 16-4: Existing Sunshine Mine Workings – Longitudinal section View

16.2 Current Mine Condition and 2012 Mine Fire

The Jewell Shaft and Sterling Tunnel have been under rehabilitation since 2011. A mine fire started just below the 3100 Level in February 2012. The fire was terminated in June 2012, and the damaged 3100 Level drift area was repaired. Jewell Shaft and Sterling Tunnel rehabilitation work has resumed. Work in the Jewell shaft was initiated at the collar elevation working down. The shaft work includes stripping all lacing, relieving all loose muck, re-heading and/or replacing timber as needed, re-bolting and re-lacing. The utilities compartment is also being stripped of all ancillary historical piping, wiring, and unused utilities in the process. Basic rehabilitation on other mine levels is defined in the mine plan schedule and associated costs included in capital and sustaining capital estimates.

This study includes an updated ventilation system for the mine as well as a refrigeration system for areas on and below the 3700 Level. The Measured and Indicated Resources are scattered below the 4600 Level and are included in the mine plan at the end of mine life after mining all the material above the 4600 Level. The Sunshine Mine has been maintaining the water level of the mine by pumping water out of the mine immediately above the Jewell Shaft 3500 Level station.

16.3 Geotechnical Considerations

A memo report completed on June 23, 2012 by Mark Board of Itasca Consulting Group summarized the general geotechnical conditions of the mine and mining methods. With his familiarity with the Silver Valley mines, their respective ground conditions relative to mining, and his significant career experience with seismic issues, he reviewed the locations, sizes, shapes, and orientation of stopes to mined out areas. This allowed him to recommend the best mining and backfill method for the stopes reviewed, including destressing when appropriate. This level of assessment was considered to be adequate for this TR. More detailed modeling of stresses using the ultimate mine design was recommended for the next phase of development. Mark Board's recommendations in the sequencing of the stopes. Excerpts of this report are incorporated in this section below:

> *a) preliminary, empirical assessment of the geotechnical assessment of the mining methods and risk assessment of seismic potential based on Reserve blocks defined by SSM staff and Mine Development Associates (MDA), Reno, Nevada. In this memo a sampling of the general types of mineable ore (mineralized material) Reserve blocks (supplied by SSM) (sic) from the prominent veins at the mine are examined from a geotechnical perspective and the following empirical assessments made:*
>
> - *estimate of the type of mining method that could be used to mine the block of ground*
> - *estimate of the seismic risk associated with removal of this block of ground*
>
> *Unfortunately, detailed geological information on each block of ground is not available at this time to assist in prediction of other types of ground problems such as dilution and general squeezing ground issues. Therefore, only the general seismic risk is assessed based on experience in pillar bursting issues from Coeur d'Alene mines. Additionally, recommendations are given for studies to be performed during the feasibility-level studies and when underground access is re-established.*

16.3.1 Geotechnical Assessment of Mining Approach

16.3.1.1 General

The Sunshine Mine ore (mineralized material) Resources are found within the St. Regis and Revette formation, which consists of interbedded quartzites and argillites that vary from vitreous, strong and brittle quartzites, siltite, argillaceous quartzites and argillites. The beds vary in thickness from thin units (less than 1 ft) to several feet in thickness and dip steeply (typically 65° or greater) to overturned in some cases. Over 30 veins have been named and mined at the Sunshine Mine. Principal vein systems in the mine include the Sunshine, Chester, Copper, Yankee girl and West Chance. These veins strike east-west and dip about 65° to the south. Locally, dips range from 45° to 90°. Strike lengths exceed 2000 feet and dip lengths are two to three times greater than the strike length. Major veins are located between major faults at an angle of about 25° to the bounding faults. Veins vary in width from a few inches to over 30 feet but are generally 1 to 5 feet thick. Mineralized material includes tetrahedrite and galena with siderite and quartz as the principal gangue minerals. Other minerals include pyrite and arsenopyrite with minor to trace amounts of chalcopyrite, sphalerite, boulangerite, bournonite, pyrargyrite, and magnetite.[1] *Of importance from a geotechnical perspective is that the mineralized material tend to be strong, silicified and brittle in most cases and may be coupled with strong and brittle quartzitic wall rocks.*

The in-situ stress state has been measured at numerous mines in the Coeur d'Alene district, indicating a northwesterly bearing of the major horizontal stress component. Breakouts observed in the 10 and 12 shafts at Sunshine Mine are consistent with the northwest orientation of the major stress. Measurements at the Lucky Friday mine indicate a ratio of the major horizontal to vertical stress of about 1.5.

Seismicity at the Sunshine Mine has been documented by Scott, et al., (1997)[2]*, Whyatt, et al., (2002)*[3] *and Blake and Hedley (2003)*[4]*. Whyatt, et al. (2002) summarized basic rockburst mechanisms in the Coeur d'Alene district, which indicates that the Sunshine was one of the more seismically active mines with most damaging seismicity related to pillar or face bursting. At Sunshine Mine, the overhand mining method created numerous small pillars that were subjected to high stress concentrations. The relatively brittle silicified mineralized material and wall rocks of the Revette formation were subject to localized sudden failures of these brittle rocks. Some instance of fault-slip seismicity has also been noted. Scott, et al. (1997) document a fault-slip related seismic event between the 4400 and 4600 Levels of the Chance Vein, but it appears that fault-slip related events are less prevalent here than at other district mines.*

16.3.1.2 Geotechnical Classification of Resources Blocks

For the pillar case, the pillar will likely be in a highly-stressed state when mining is initiated. Due to the generally strong and brittle mineralized material in the Sunshine lower levels, and the highly-confined nature of the pillars due to narrow vein thickness, there is no reason to assume that these pillars have naturally yielded and destressed since completion of the surrounding

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[1] Geologic description taken from Wikipedia: Sunshine Mine.

[2] Scott, D.F, T.J. Williams, and M.J. Friedel. (1997) "Investigation of a Rockburst Site, Sunshine Mine, Kellogg, Idaho," in Proceedings of the 4th International Symposium on Rockbursts and Seismicity in Mine (Krakow, Poland), pp 311–315.

[3] Whyatt, J., Blake, W., Williams, T. and B. White. (2002). "60 Years of Rockbursting in the Coeur d'Alene District of Northern Idaho, USA; Lessons Learned and Remaining Issues," in 109th Annual Exhibit and Meeting, Society for Mining, Metallurgy, and Exploration (Phoenix, Arizona, February 25-27).

[4] Blake, W. and D.G.F. Hedley. (2003) Rockbursts: Case Studies from North American Hard Rock Mines. Society of Mining Engineers.

mining. Therefore, these pillar cases are considered to be of high potential seismic risk. The recommended mining method in these cases is underhand stoping with paste fill with potential use of destress blasting in advance of mining to precondition the ground.

In the case of blocks bounded on one side by mining, it can be assumed that the block will be subjected to some additional mining-induced stress, but not to the extent of a typical pillar condition. The seismic potential for this case is classified as moderate. Typically, these blocks would be mined by retreating from the adjacent mined face toward the solid abutment. Depending on the particular geometry, these blocks can be mined by either underhand mining (retreating downward away from a mined block above), by overhand mining (retreating upward from a block mined below), or by narrow-vein blasthole to endslice a block toward an abutment. In all cases, paste fill would be used with varying cement content depending on the mining method.

Finally, in the case of a block of ground isolated from existing stopes, any of the above mining methods are possible. Here, the stopes will be subjected to the in-situ stress state and the seismic potential is classified as low. The geotechnical classification is summarized in ***Table 16-1****.*

Table 16-1: Classification Method for Mining Blocks

Geometry of Block and Surrounding Mining	Suggested Mining Methods	Seismic Potential
Pillar surrounded on two or more sides by existing stopes – full impact of stress concentration from previous mining	Underhand cut-and-fill with paste	High
Block against one existing stope face – impact of stress concentration from previous mining	Underhand cut-and-fill or end-slicing with narrow-vein blasthole (if appropriate) with paste fill	Moderate
Block surrounded by solid abutments – under in situ stress conditions only	Underhand cut-and-fill, overhand cut-and-fill, narrow-vein blasthole (all with paste fill)	Low

It is suggested that about 50% of the tonnage in these lower level mineralized material blocks be mined by underhand mining with paste fill, about 10% by overhand mining and the remaining 40% by one of the other methods, depending on the specific geometry of the mineralized material block and its relation to adjacent mining. The approximate seismic potential of these lower blocks, based on the percentage of the total tonnage, indicates about 70-75% would be classified as having low potential, 20% moderate, and 5-10% in pillars with high potential.

The result of this classification of the mineralized material Reserves at depth (below 2700') indicates that the majority of identified mining blocks are not contained in high-risk pillar situations, but in isolated blocks, or blocks bounded on only one side by previous mining. This situation will provide Sunshine Mine with significant flexibility in scheduling production to optimize mining method and to manage geotechnical risk.

Itasca recommended that geotechnical work continue, as summarized in the conclusions and recommendations section. Future studies should include a stope-by-stope review of seismicity risks to evaluate potential mining methods. For this study, all material above the 3100 Level was assumed to be mined by overhand methods, while material below the 3100 Level will be mined by underhand methods.

16.4 Mining Methods

Production mining has been broken into three mining areas. The three mining areas are identified as the Upper Country (above 2300 Level), the Lower Country (below the 2300 Level and above the 4600 Level), and the Bottom Area (below the 4600 Level and above the 5800 Level). The Bottom Area includes 23 stopes on the 4600 Level that were initially omitted from the Lower Country area.

Most of the mineralized material is planned to be hauled to the Jewell Shaft mineralized material loading pockets and hoisted to the surface up the Jewell Shaft. The exception will be material above the 2300 Level, most of which is planned to be hauled up the upper mine ramp system to the surface. Waste material will either be used as backfill or hauled to the Silver Summit Shaft. Some waste may also be hoisted by the Jewell Shaft.

The Jewell Shaft and hoist is planned to be rehabilitated and equipped with new lighter bottom dump skips, raising the hoisting capacity to 1,179 tpd. The mineralized material is planned to be unloaded into the concentrator's coarse mineralized material bin, while the first 453,600 tonnes of waste is planned to be placed in the existing WRSF and the remaining waste will be hauled to the ConSil WRSF or hoisted up the Silver Summit Shaft and hauled to the nearby ConSil WRSF. Some waste can be used as backfill in longhole and overhand stopes.

Potential mining methods include underhand and overhand cut and fill mining generally using paste backfill, longhole stoping, and breast-down of exposed mineralized material with minimal vertical extent.

16.4.1 Stope Design

The Resource models contained information on the silver, copper, lead, and zinc grades for each block within the model, although many areas did not contain information on copper, lead, and zinc grades, which were modeled as half the detectable assay limits for these metals. The model contained a vein width and a diluted vein width.

Each of the veins was plotted in longitudinal section view to determine where mining had taken place (coded in the vein models) and where the remaining mineralization was. A cutoff grade of 343 gpt for the diluted vein was used to outline Upper Country stopes. All Lower Country stopes used a 343 gpt cutoff grade but concentrated on mining higher grade stopes earlier in the mine life. A minimum 3.05 m pillar was left between mined stopes and new stopes, and is typically 6.1 m. Two mining methods are planned for the stopes. Alimak slusher mining will be used for areas where the stopes were diluted to less than 2.1 m, and mechanical cut and fill mining will be used for areas where the stopes were greater than 2.1 m.

Additional work was completed in the latest modeling evaluation to evaluate diluted stope widths. The model is segregated into an upper and lower section based upon the 2300 Level of the mine. The upper model comprised two dilution model widths, one at 1.5 m diluted width and a second model at 2.1-meter diluted width. The segregated dilution widths are a refinement to verify assigned mining methods within the first 10 years of the mine plan. Both dilution models were compared to define Alimak slusher stopes and mechanized stopes. The lower model was carried at an overall 2 m diluted width, which is acceptable to both Alimak and mechanized mining practices, assigning increased dilution to the predominate narrow veins.

Additional geotechnical work is required to determine the correct areas to mine by overhand or underhand methods. Rock-bursts have occurred at the mine in the past, and for that reason, most of the material was assigned to be mined by underhand methods to minimize the chance of rock-bursts. In general, underhand mining would be employed below the 3100 Level and overhand above the 3100 Level. Underhand stopes start at the top of a stope block and each new cut proceeds downward after the working cut has been backfilled with a cemented paste made from filtered tailings. Eight to ten percent cement is estimated to be added to the paste to provide a stable back to work under for the next stope cut.

Table 16-2 shows a summary of the Measured, Indicated, and Inferred stopes that were outlined at a 343 gpt silver cutoff that are in the Upper Country (above the 2300 Level), and Lower Country (below the 2300 Level to the 4600 Level) or Bottom Area (below the 4600 Level to the 5800 Level). About 19% of the stope tonnes are contained in Measured and Indicated Resources, while 77% are in Inferred Resources, and about 4% of the tonnage in stopes that is included has been diluted to less than 343 gpt.

Table 16-2: Measured, Indicated, & Inferred Resources Considered for the Mine Plan

Area	Vein	Stope Tonnes 000's	Ag gpt	Cu %	Pb %	Zn %	Ag Oz 000's	Diluted Width m
Upper Country								
	08-DHW	14.6	705	0.01	0.01	0.01	299.78	1.54
	10	51.3	1,003	0.27	10.62	0.03	1,500.12	2.13
	B	93.9	953	0.02	0.04	0.04	2,609.18	2.05
	CFault	212.8	787	0.12	3.24	0.07	4,883.00	1.79
	D	190.4	696	0.02	0.04	0.04	3,866.06	2.14
	NYankeeBoySunshine	358.5	817	0.04	0.03	0.03	8,544.80	2.03
	SilverSyndicateLink	50.8	684	0.01	0.05	0.05	1,012.30	1.66
	SYankeeBoy	849.6	908	0.02	0.03	0.02	22,502.10	1.94
	Subtotal	*1,821.9*	*851*	*0.05*	*0.89*	*0.03*	*45,217.33*	*1.95*
Lower Country + Bottom								
	6	112.5	1,346	0.08	0.02	0.01	4,415.70	1.54
	08B	105.3	895	0.23	0.02	0.02	2,747.60	1.59
	08-DHW	220.02	858	0.05	0.04	0.03	5,505.72	1.65
	09HW	158.4	750	0.16	0.04	0.02	3,465.00	1.56
	9	166	866	0.04	0.01	0.02	4,191.00	1.59
	101	109.8	1,144	0.13	0.03	0.02	3,663.00	1.52
	625M	286.45	798	0.27	0.02	0.02	6,664.00	1.56
	B	11.38	606	0.02	0.04	0.04	201.15	2.20
	Chester	946.05	893	0.14	0.15	0	24,650.00	1.64
	ChesterHang	287.1	865	0.09	1.1	0	7,245.00	1.84
	ChesterHWSplit	338.3	1,167	0.22	0.05	0	11,517.50	1.87
	Copper	358.2	1,054	0.07	0.24	0.02	11,011.10	1.72
	D	215.7	939	0.03	0.03	0.03	5,908.70	1.96
	F	119.2	863	0.08	0.13	0	2,998.80	1.55

Area	Vein	Stope Tonnes 000's	Ag gpt	Cu %	Pb %	Zn %	Ag Oz 000's	Diluted Width m
	HFW	62.1	636	0.05	0.02	0.02	1,152.00	1.58
	H	108.9	1,324	0.16	0.05	0.03	4,206.50	1.72
	KFW	103.5	786	0.44	0.01	0.01	2,374.05	1.53
	K	87.1	816	0.22	0.03	0	2,072.00	1.64
	NYankeeBoySunshine	273.3	920	0.03	0.03	0.03	7,331.20	1.65
	S78	56.95	670	0.06	0.02	0.02	1,113.50	1.59
	SilverLine	82.7	632	0.15	1.92	0.02	1,522.85	1.55
	SilverSummitNo3	270.8	1,011	0.54	0.03	0.03	7,987.60	1.69
	SilverSummitNo4	1,112.7	949	0.84	0.03	0.03	30,808.25	1.77
	SilverSyndicateLink	731.6	1,025	0.12	0.91	0.05	21,876.70	1.50
	Sunshine2	37.4	521	0.01	0.02	0.02	568.20	1.52
	SunshineFW	67.5	749	0.06	0.01	0.01	1,474.20	1.56
	W16	23.8	2,221	0.09	0.01	0.01	1,541.90	1.58
	WestChance	601.8	898	0.16	1.35	0	15,759.00	1.62
	WestChanceFW	109.4	807	0.02	0.01	0	2,575.45	1.54
	YankeeGirl	884.1	791	0.07	0.02	0.01	20,409.80	1.58
	YankeeGirl952Split	52.3	482	0	0.01	0.01	734.35	1.52
	YankeeGirlFW	96.5	1,291	0.02	0.03	0.03	3,632.80	1.76
	YankeeGirlHW	56.1	734	0.01	0.03	0.03	1,200.80	1.68
	Subtotal	*8,252.7*	*924*	*0.22*	*0.29*	*0.02*	*222,525.41*	*1.65*
Total All Potential Stopes		**10,074.59**		**0.19**	**0.40**	**0.02**	**267,742.74**	**1.71**

Once the possible stopes were drawn, they were investigated to determine which stopes were potentially minable. Small isolated stopes as well as lower grade stopes were omitted in the production schedule. The amount of material excluded was approximately 1.2 million tonnes (31.2 million oz).

The potential stopes below the 4600 Level were only added to the production schedule after mining all the material above the 4600 Level. The total material contained in the stopes below the 4600 Level at 343 gpt cutoff is about 1.4 million tonnes containing 35.6 million ounces of silver.

By including the stopes below the 4600 Level, the life of mine was extended by several additional years. Production from below the 4600 Level will commence in year 20, extending the mine life to 28 years.

16.5 Mine Development

16.5.1 Upper Country Mine Development

A 3.6 x 3.6 m decline ramp system will be driven from the Sterling Tunnel to the 2300 Level of the mine. This ramp will have several purposes:

- To provide drill stations for continued exploration;
- To potentially mine Resources prior to the planned study mill start-up date; and
- To provide stations to continue advancing required raise development for the new ventilation system.

This mine development is expected to commence at Project initiation. This project is called the Upper Country Project by SSMRC and is intended to result in production increasing to a maximum rate of 544 tpd after about a year of production.

To reduce mine development in cut and fill stopes, Alimak raise mining is proposed for the stopes that are not wide enough for mechanical cut and fill mining. It should be noted that a detailed cost comparison, per case basis should be completed for lower grade mechanical stopes to make sure the high development demands are justified for the mechanical stopes. Most of the Sunshine Mine veins are less than 0.91 m wide and have been diluted to 1.52 m wide. Most of the veins can be diluted to more than 0.91 m wide and still meet mining cutoff grades of 343 to 411 gpt. The cost of Alimak slusher mining and processing a vein diluted to 1.5 m should be compared to the cost of mechanically mining and processing a vein diluted to 2.13 m, including required development in future studies. **Figure 16-5** shows a typical Alimak raise setup for a stope.

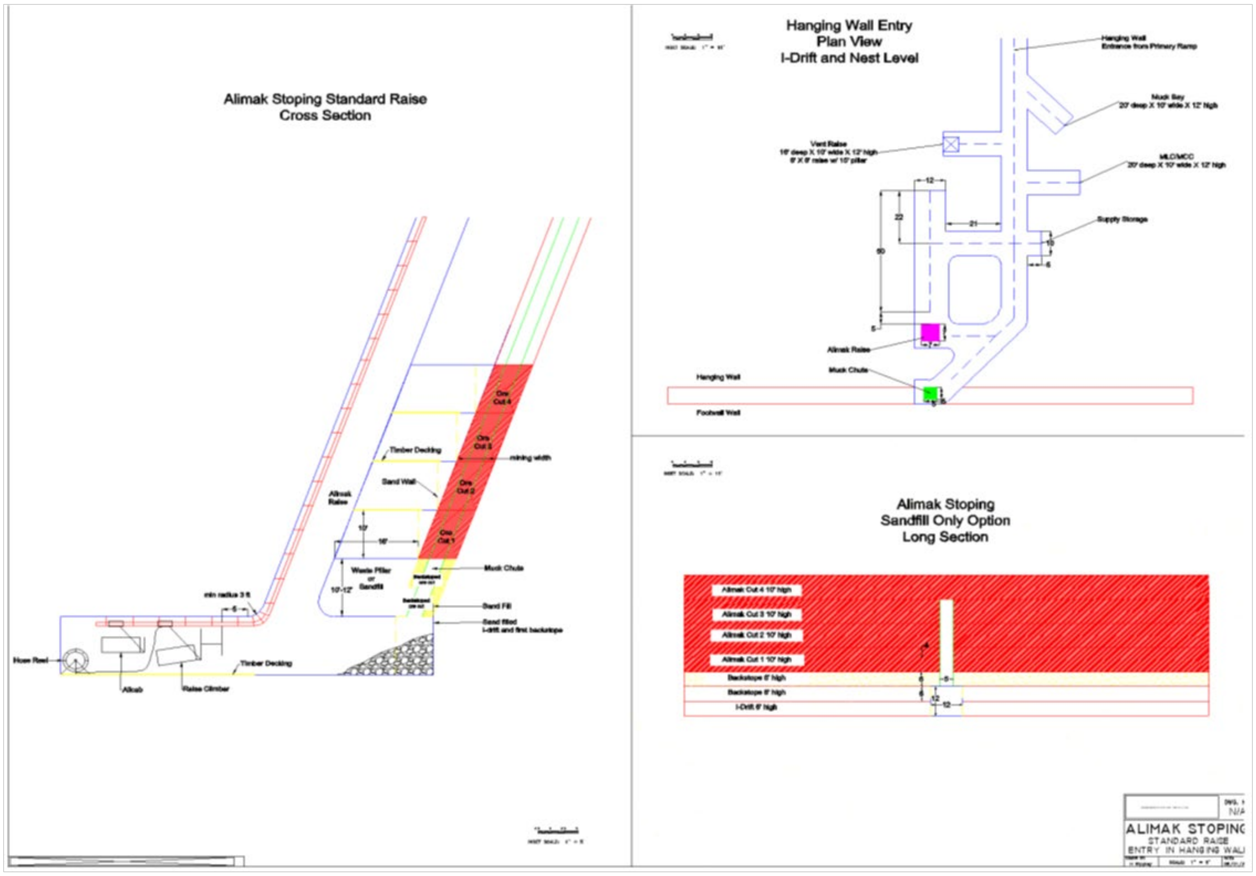


Figure 16-5: Typical Alimak Raise Setup for a Stope

16.5.2 Lower Country Development

Mineralized material grade material below the 2300 Level will be developed from a 3.6 x3.6 m 13.5% ramp system. This ramp system will proceed up and down from the 3100 Level to provide access to material between the 2300 and 4600 Levels. An ore pass system will also be developed for mineralized material flow above the 3700 Level loading pocket.

Development below the 4600 Level was included in the schedule using a development per tonne of mineralized material ratio from the designs and Upper and Lower Country schedules.

16.5.3 Mine Rehabilitation and Upgrading

The mine has operated over a considerable period of time and requires upgrading or rehabilitation in a number of areas. The new headframe and hoist will comply with internal and external safety requirements, support the mine plan, modernize the facility and provide availability of redundant spare parts, while establishing a new reliable service life for the Jewell Shaft.

16.5.3.1 Jewell Shaft Rehabilitation and Headframe Replacement

The Jewell Shaft repair activities recommenced in June 2012. The activities planned for preproduction years -2 and -1 are:

- Detailed Jewell Shaft cleandown and repair was initiated in 2013. Starting from the Jewell Shaft top station working down, a repair crew has been stripping all lacing, relieving all shaft sets of accumulated debris, re-timbering, re-heading, and bolting as necessary, subsequently re-lacing each set upon completion. Additionally, the shaft utilities compartment is being stripped of all old power and ancillary piping in preparation for future, new utilities installation. The work is currently a single shift five days per week operation and is expected to take 18 months. Work will be expanded to a double shift, seven days a week upon mine plan initiation. Shaft bearing sets will be installed or upgraded during this period. In addition, a new 13.2 kV power cable, pump column, and communications will be installed following the completion of the rehabilitation work.
- A detailed Jewell Shaft Headframe tradeoff study was completed in fourth quarter 2013. The study was a tradeoff analysis to address repairs and upgrades to the Jewell Shaft headframe in support of an additional service life of 30 years to reliably support the mine plan hoisting requirement of 1,089+ tpd. The study determined the existing headframe, with repairs and upgrades, could support the mine plan, but would be working an extensive duty cycle to maintain the mill tonnage requirement. Historically, the shaft supported hoisting 907 tpd. The study identified that the repaired headframe is limited in available vertical surface travel as related to top sheaves, scrolls and muck dump transfer. It would not be amenable to a substantial increase in muck skip volume in support of reducing the duty cycle or in support of optional increased future production. The additional cost of a new replacement headframe, when compared to the recommended repairs, was selected as the best alternative. The headframe replacement cost, which has been estimated by a third-party hoist engineering company, is approximately $10.4 million. The new headframe will be installed in the preproduction period while the Upper Country ramp development is being completed.
- Repair and rebuild of the current skip loading facilities on 2700 and 3100 Levels. The rebuilds are planned to be temporary in anticipation of a complete refurbishment of the 3850 muck transfer system. The TR includes costs for the replacement of the Jewell skips and cages, so any temporary modifications to the current skip loading facilities will need to take into account the future conveyances.

16.5.3.2 Jewell Shaft Hoist

The 700 hp Nordberg Jewell Shaft double drum hoist was placed into service in 1935. Prior to 1935 the hoist was in service at the Black Rock Mine in Butte, Montana. The 1,000 hp Nordberg Jewell Shaft “Chippy” hoist was installed new in 1967. The “Chippy” has multiple cages and is used primarily for hoisting men and supplies. The double drum hoist, though a proven asset to the property, has provided 100 years of service and requires modern electrical and mechanical upgrades. The old motor generator’s direct current technology needs to be replaced by AC motors with variable frequency drives (VFDs). The “Chippy” hoist has recently had some electrical upgrades but is still old technology. Additionally, major spare parts for either hoist are limited or must be custom made. Various analyses and cost estimates to complete the double drum upgrade, including additional “Chippy” hoist upgrades, have been conducted. The additional cost of a new replacement 1,000 hp double drum hoist, when compared to the recommended upgrades, was selected as the best alternative. The double drum hoist replacement cost, including re-purposing the "Chippy" hoist, is estimated to be $13 million. The new hoist will be installed in the preproduction years while the extensive Upper Country ramp development is being conducted. Utilizing a similar 1,000 hp double drum hoist in tandem with the 1,000 hp "Chippy" hoist will reduce the critical spare parts inventory. The cost estimate includes the construction of a new modern hoist house containing both hoists, located east (rather than west) of the Jewell headframe. The new location removes the hoist house from a potential flooding area adjacent to Big Creek and eliminates the rope idler towers.

16.5.3.3 Silver Summit Shaft Rehabilitation

As of the end of July 2012, the Silver Summit Shaft headframe replacement was complete and, in a condition, ready to commence sub-collar repair to the 3000 Level Silver Summit station. All equipment necessary for this repair has been received, with the exception of a small stripping deck and a Cryderman tugger. An initial order of new shaft timber for the repair has been ordered and received and is being properly stored. The remaining repair has been deferred. The current plan estimates completion of this repair 18 months from the start.

16.5.3.4 Level Rehabilitation

The 2700 Level and part of the 3100 Level will be rehabilitated as a sunk cost. The cost of the 3100 bypass is included in the capital cost. Levels 1700, 1900, 2300, 2900, 3400, 3700, 4000, 4200, 4400, 4600, and 4800 will be rehabilitated over the life of the mine. Level rehabilitation includes clearing loose muck on the tracks, replacing utility lines, track, and installing rock bolts and support as necessary.

16.5.3.5 Muck Handling Improvements

An upgrade to the Jewell Shaft muck transfer system is planned in the first two years of production, which is based on the scope shown below. The results of implementing these upgrades will be:

- Improvement for the safety of workers when loading muck skips,
- Centralization of skip loading activities in the shaft at the 3180 Level, improving overall shaft efficiency, and
- Increased underground muck storage.

These upgrades will improve the overall productive capacity of the system. The upgrade will include:

- A waste pass from the 1900 Level to the 3800 Level,
- A cascaded ore pass system from the 1900 Level to the 3800 Level,
- Grizzly stations on the 2700, 3100, and 3700 Levels,
- Camel back car dump system on levels,
- Access drift to a new skip loading facility from the 3700 Level to the 3850 Level, and
- Skip loading station infrastructure.

16.5.3.6 Mine Dewatering

The mine is currently flooded below the 3490 Level. The current pumping system is capable of pumping about 41 l/s from the mine and consists of:

- Two 75 hp submersible pumps in the Jewell Shaft bottom (3500 Level), one operating and one spare,
- One 200 hp two-stage centrifugal pump (3100 Level),
- Two 400 hp two-stage centrifugal pumps (2700 Level), one operating and one spare, and
- Two 350 hp eight-stage centrifugal pumps (1700 Level), one operating and one spare.

Mine dewatering below the 3500 Level is by a series of portable pumps. Improvements planned for the mine dewatering system include rebuilding all of the stationary pumps with new motor control centers, a new 20.3 cm pump column for the Jewell Shaft collar to the 2700 Level and excavating a new 2700 Level pump room and sump assembly.

16.5.3.7 Mine Compressed Air

The current compressed air system has two Atlas Copco 700 hp screw compressors with a combined capacity of 6,000 cfm. The mine and mill will require 10,000 cfm to accommodate the plan in this TR. Two additional Atlas Copco 700 compressors are planned to be added to supplement the current system, including a cooling package upgrade, which will eliminate the need to use cooling water from Big Creek.

16.5.3.8 Mine Power

A new 13.2 kV power feeder line has been included down the Jewell Shaft. New electrical substations have also been included.

16.5.3.9 Mine Ventilation and Refrigeration

The mine ventilation system will be completely revamped. Mark Butterworth from BBE Consulting (South Africa) completed conceptual studies for mine ventilation. BBE wrote in the executive summary of their report, Sunshine Mine Concept Study: Ventilation and Cooling Requirements (Rev 1) of May 2012:

> *The objective of the work is to determine technical and cost viability and relates to engineering analyses, general design and conceptual descriptions at concept level of detail. The ventilation design principles used are proven and recognized internationally. The ventilation design is based on achieving an average stope wet-bulb temperature of 80.0°F at depths where the virgin rock temperature will approach 107°F for the deepest mining level when mining at 4800'.*
>
> *A total airflow of 450 kcfm is required and will be provided by main fan stations located at the exit to the Sterling Tunnel and at the top of a new RBH located on surface in the vicinity of Silver Summit shaft. Refrigerated air will be required when mining below 3700L [cooling horizon]; this will be provided by a 1000-ton underground refrigeration plant located on 3100L. Cold water will be distributed in closed circuit to spot coolers located on or below 3700L.*
>
> *Existing shaft infrastructure cannot provide 450 kcfm ventilation and a number of additional RBHs are required, specifically:*
>
> - *Downcast from surface to 1900L [adjacent to Jewell Shaft]*
> - *Downcast from 1900L to the cooling horizon [3700L]*

- *Upcast from 3000L to 1750L [adjacent to Silver Summit Shaft]*
- *Upcast from 1750L to surface/Silver Dollar tunnel*

Figure 16-6 shows a longitudinal section view of the proposed new ventilation concept.

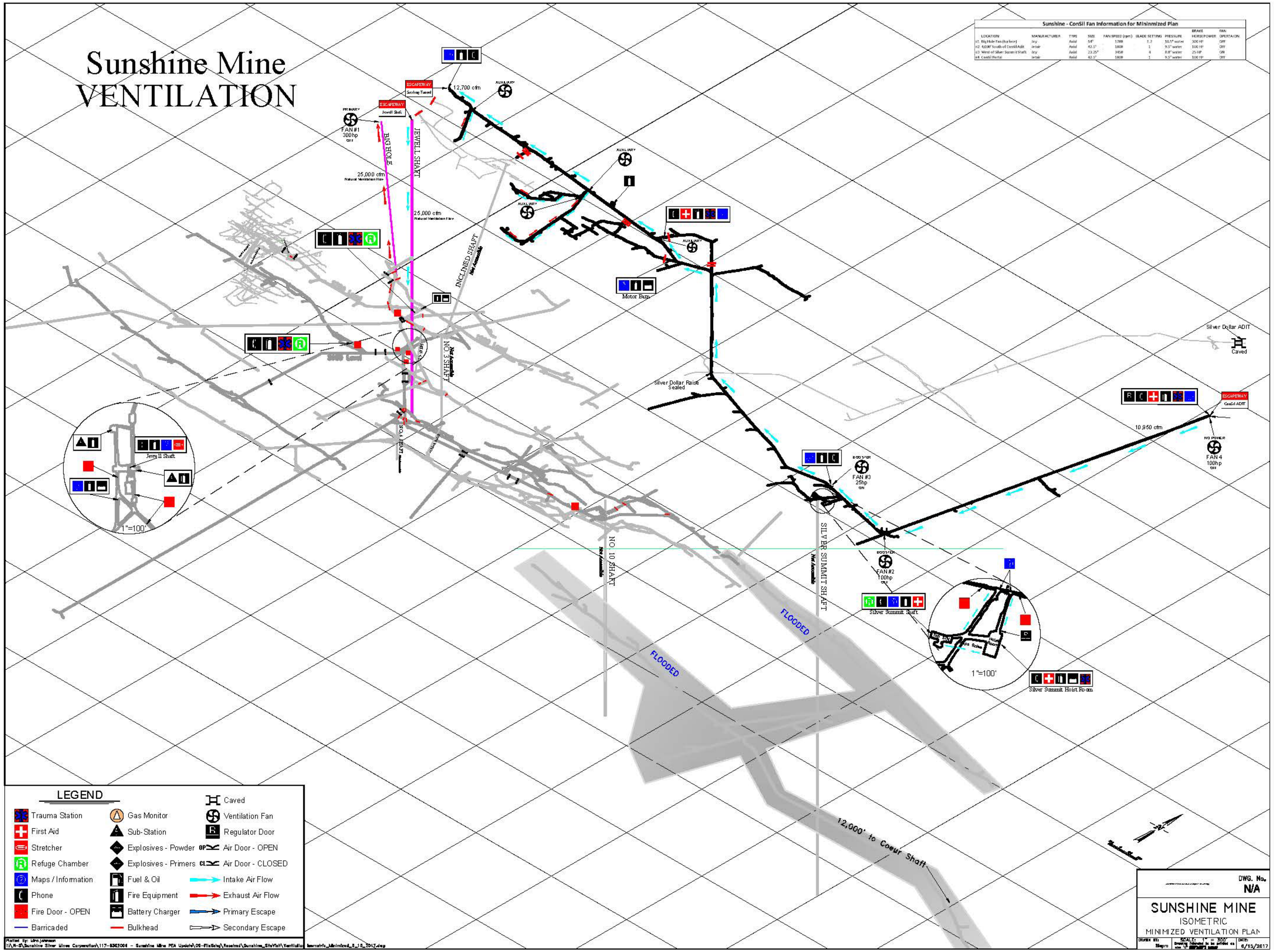


Figure 16-6: New Sunshine Ventilation Concept

16.5.3.10 Backfill Distribution

A paste backfill system was conceptually designed by Fred Brackebusch of Mine System Design, Inc. from Kellogg, Idaho in May 2012. In Mr. Brackebusch's report, entitled Design Rationale and Paste Distribution System Conceptual Backfill System Design, he reported:

> *The planned mining rate generates about 312 cubic meters of void space to be filled per day. It was decided by consensus that a rate of 45 Tph of tailings would be established for this study with the possibility of increasing to 68 Tph. Generally, the entire tailings stream would be sent to backfill when the backfill plant operates, but a processing option of the paste plant would allow classification of the tailings stream with about 67% recovery to underflow or 30 Tph of tailings to be used for paste backfill. This range of rates of tailings usage together with 5% binder corresponds to a range of filling rate from about 22 cubic meters per hour to 33 cubic meters per hour. If it is assumed that the average filling rate is mid-range, the daily filling rate would be 660 cubic meters per day, which would fill 636 cubic meters of stope volume assuming 3.6% bleed. Thus, the backfill plant utilization would be 49%, assuming all stopes are filled with paste. The plant utilization could be increased, if needed in the future, to about 85% thus providing paste backfill for a total of 1,540 Tpd of production.*
>
> *A paste pump is required due to need to distribute paste a significant distance horizontally before entering the borehole or shaft pipeline. Maximum pump pressures should not exceed 300 psi. In most cases the pump will be metering paste to the surface borehole or shaft pipeline with only minimal pressure, say 125 psi. Other issues including operating procedures, emergency procedures, flushing, and pipe wear will be addressed in the detailed engineering phase.*
>
> *Paste would be distributed by duplicate inclined boreholes would be drilled from the surface in the concentrator area to intersect [or nearly] mine workings on the 3100 level. All boreholes at the Sunshine mine, including intermediate boreholes between mine workings, must be cased with steel casing because of ground conditions and fault zones. The intermediate boreholes would be cased to 10-cm internal diameter without an internal pipe liner, but the main boreholes would be cased with approximately 15-cm internal diameter steel casing. In the main boreholes an internal liner consisting of 10-cm pipe with 0.86 cm wall thickness and hardened to 600 brinnel would be installed. The annulus would be protected from corrosion by painting and lubricant so that the internal pipe can be removed and replaced.*
>
> *Assuming a near full pipe, flowing condition the maximum pressures occur either at the bottom of the shaft pipeline or the bottom of the main boreholes, depending on which option is chosen. In the shaft option the pressures are slightly greater than 1,200 psi, and in the borehole option the pressures are about 600 psi.*
>
> *The permanent pipeline would be 10-cm [100-mm] diameter rated for 1,500 psi [dependent upon coupling types]. The orebody extends to a significant height above 3100 level, so the paste distribution system will have to be modified by taking off from either the shaft pipeline or the main boreholes at a higher elevation. A crosscut would be driven to intercept the boreholes on an upper level.*

A new process plant with a paste backfill facility is expected to startup at the end of the two-year preproduction period. Prior to the startup of the new paste plant, a contractor will provide a cemented crushed rock slurry to be used as backfill of the preproduction stopes.

16.5.4 Development Schedule

A mine development schedule was prepared, and two items determined the duration of the development program. The Silver Summit Shaft must be rehabilitated to provide a second escapeway for the mine. This is planned to commence during the second quarter of the mine plan and be completed 18 months later. The second item to be completed concurrently is the new ventilation system, prior to commencing mine production. This requires two new vent raises and a 4.3x4.3 m bypass drift on the 3100 Level tying together the Jewell Shaft and Silver Summit Shaft.

It is planned that development will commence on the Upper Country mine program, parts of which will be used to develop the mine's new western ventilation raise. A new 1,090 tpd processing plant is expected to be constructed and operational. Stopes planned in the Upper Country are scheduled to provide plant feed until the 3100 Level bypass and new ventilation system are subsequently completed.

A mine contractor will be used for all development and mining for the first two years of development (preproduction period). During year -1 preproduction, the Owner will begin to phase in Upper Country production mining personnel. All vent raises are planned to be completed by a contractor. The 3100 Level bypass is over 1,829 m in length and is planned to be completed by contractor crews working on both sides of the bypass from the Jewell and Silver Summit shafts. All mining and development after the two years of preproduction will be phased to the Owner, with the exception of the ventilation raises.

Table 16-3 shows estimated mine development unit costs and **Table 16-4** shows the planned development for the Upper Country, **Table 16-5** for the Lower Country, and **Table 16-6** for the Bottom Area. **Table 16-7** summarizes the overall development requirements through year 21, when the mine development will be completed. **Figure 16-7** shows the planned mine development in long section view.

Table 16-3: Mine Development Unit Costs ($/m)

Development Type	Owner – Cost ($/m)	Contractor – Cost ($/m)
3.7 x 3.7 Ramp	3,379	4,725
3 x 3 Drift	2,822	3,937
2.5 x 3.0 Attack Ramp	2,428	
3.0 x 3.0 Alimak Vent Raise		4,462

Table 16-4: Mine Development Schedule – Upper Country (m)

Year	Alimak	Attack	Drift	Rehab	Ramp	Vent Access	Vent	Totals
-2	230		388	305	2,002	100	351	**3,377**
-1	92		1,977	457	2,002	25	673	**5,227**
1	780	320	2,008	152	2,002		53	**5,316**
2	438	829	940		1,251			**3,458**
3		279						**279**
Totals (m)	**1,541**	**1,428**	**5,313**	**914**	**7,259**	**125**	**1,077**	**17,658**

Table 16-5: Mine Development Schedule – Lower Country (m)

Year	Alimak	Attack	Bypass	3100 Bypass	Drift	Rehab	Ramp	Vent Access	Vent	Totals
-2										
-1			132	673		1,082		160	286	**2,332**
1	802	221	635	1,234	169	1,687	1,249	52	1,122	**7,172**
2	1,780	888	1,335		644	2,842	948			**8,438**
3	4,386	413	154		1,043	2,837	777			**9,610**
4	326	783			1,335	1,780	1,652			**5,875**
5	2,768	1,625			1,339	1,785	2,116	17	183	**9,833**
6	1,492	308			1,335	782	2,268			**6,185**
7	935				1,335	875	2,002			**5,147**
8	1,990	82			1,335	1,292	1,522			**6,222**
9	927	502			1,339	1,785	759			**5,311**
10	410	1,418			1,335	1,780	847			**5,789**
11	572	721			856	1,780	479			**4,407**
12		753			1,018	1,780	596			**4,147**
13		397			427	1,785	0			**2,609**
14	144	158			705	1,780	121			**2,908**
15	799				1,152	1,780	201			**3,931**
16	1,766	1,209			2,861	1,780	1,780			**9,397**
17	576				869	890	598			**2,933**
18	650				1,246					**1,897**
Totals (m)	**20,323**	**9,480**	**2,256**	**1,907**	**20,342**	**30,101**	**17,913**	**230**	**1,591**	**104,143**

Table 16-6: Mine Development Schedule – Bottom Area (m)

Year	Alimak	Attack	Bypass	Drift	Rehab	Ramp	Vent Access	Vent	Totals
10							46		**46**
11	914	305		479		436			**2,133**
12	914	152		317		914			**2,298**
13	914	213	152	908	1,780	914			**4,882**
14	914	213	152	630	457	914	42	152	**3,476**
15	457	213	152	183	680	714		152	**2,553**
16									
17	457	305	101	466	890	610		213	**3,042**
18	457	213		89	1,780	914		142	**3,596**
19	457	213		1,335	1,780	318			**4,104**
20	457	61		1,335	305	436			**2,594**
21	106			605		56			**767**
Total (m)	**6,050**	**1,890**	**558**	**6,346**	**7,672**	**6,226**	**88**	**660**	**29,489**

Table 16-7: Mine Development Schedule – All Areas - Summary

Year	TOTAL DEVELOPMENT IN METERS													Waste Tonnes
	ALI V	ATK H	BYP H	BYP3100 H	DFT H	RHB R	RMP H	VAC H	VNT V	Total	Horizontal	Rehab	Vertical	
-2	230				388	305	2,002	100	351	**3,377**	2,138	262	500	71,026
-1	92		132	673	1,977	1,539	2,002	186	959	**7,560**	4,267	1,321	902	135,024
PP	323	0	132	673	2,365	1,844	4,005	286	1,310	**10,937**	6,406	1,583	1,402	206,051
1	1,582	542	635	1,234	2,177	1,839	3,251	52	1,175	**12,488**	6,776	1,579	2,367	252,778
2	2,218	1,717	1,335		1,585	2,842	2,200			**11,896**	5,870	2,440	1,904	268,885
3	4,386	693	154		1,043	2,837	777			**9,890**	2,289	2,436	3,767	127,368
4	326	783			1,335	1,780	1,652			**5,875**	3,237	1,528	280	130,870
5	2,768	1,625			1,339	1,785	2,116	17	183	**9,833**	4,377	1,533	2,534	226,100
6	1,492	308			1,335	782	2,268			**6,185**	3,359	671	1,281	119,124
7	935				1,335	875	2,002			**5,147**	2,865	751	803	85,371
8	1,990	82			1,335	1,292	1,522			**6,222**	2,524	1,110	1,709	86,019
9	927	502			1,339	1,785	759			**5,311**	2,232	1,533	796	90,086
10	410	1,418			1,335	1,780	847	46		**5,835**	3,130	1,528	352	157,927
11	1,486	1,025			1,335	1,780	914			**6,541**	2,812	1,528	1,276	136,891
12	914	905			1,335	1,780	1,511			**6,445**	3,221	1,528	785	140,108
13	914	611	152		1,335	3,565	914			**7,492**	2,587	3,061	785	107,641
14	1,058	372	152		1,335	2,237	1,035	42	152	**6,384**	2,522	1,921	1,040	96,687
15	1,256	213	152		1,335	2,460	914		152	**6,484**	2,245	2,113	1,209	82,361
16	1,766	1,209			2,861	1,780	1,780			**9,397**	5,024	1,528	1,517	204,052
17	1,033	305	101		1,335	1,780	1,207		213	**5,974**	2,532	1,528	1,070	94,773
18	1,108	213			1,335	1,780	914		142	**5,492**	2,115	1,528	1,073	76,589
19	457	213			1,335	1,780	318			**4,104**	1,603	1,528	393	53,620
20	457	61			1,335	305	436			**2,594**	1,573	262	393	44,334
21	106				605		56			**767**	567		91	13,455

Year	TOTAL DEVELOPMENT IN METERS													Waste Tonnes
	ALI V	ATK H	BYP H	BYP3100 H	DFT H	RHB R	RMP H	VAC H	VNT V	Total	Horizontal	Rehab	Vertical	
Ops	27,591	12,798	2,682	1,234	29,636	36,843	27,393	158	2,019	**140,355**	63,458	31,636	25,425	2,595,039
Total	**27,914**	**12,798**	**2,814**	**1,907**	**32,001**	**38,687**	**31,398**	**443**	**3,329**	**151,291**	**69,864**	**33,220**	**26,827**	**2,801,089**

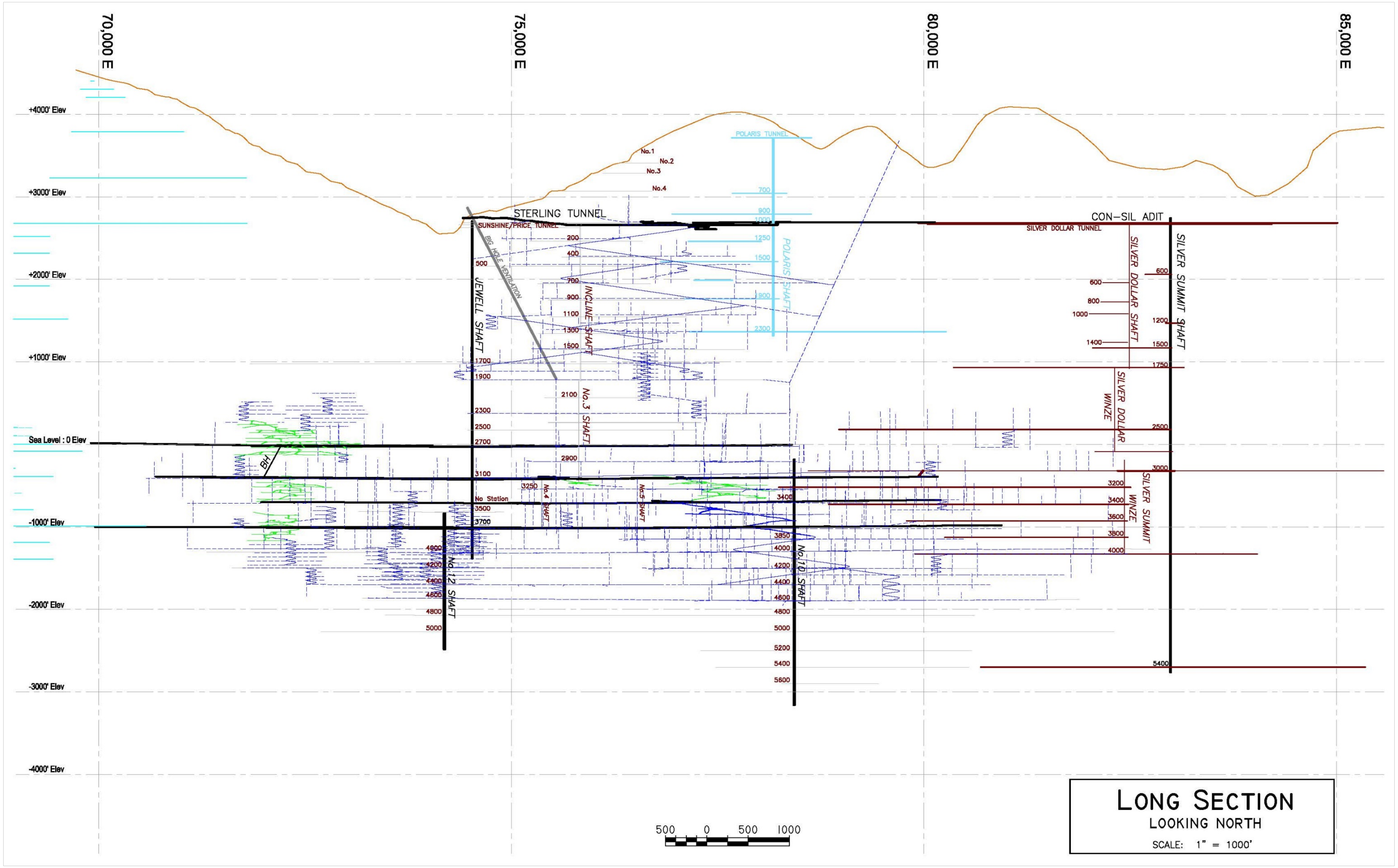


Figure 16-7: Sunshine Mine Development

16.5.5 Production Schedule

The Upper Country decline ramp will initiate mine ramp development while also providing initial stope access development in support of preproduction. During this time, the mill process plant will be built. A two-year preproduction period is required for mine development, plant, and infrastructure construction. Preproduction material from stope development will be stockpiled for the mill startup. Production from the mine is initially limited to the Upper Country stopes until the shaft rehabilitation and deeper ventilation system with a deep secondary escapeway are completed. Mine production in the Upper Country will gradually increase while the Jewell Shaft rehabilitation is completed allowing Lower Country preproduction development. A production transition will occur as the Lower Country production increases via the Jewell Shaft, affording an Upper Country production decline. The long-term production goal is an 1,830 metric tpd operation, while also moving 272-363 metric tpd of development waste. The production was scheduled in detail for the first 15 years, with the remaining production added from material above the 4600 Level. Mining from the 4600 Level down was assumed to start at year 20 as mining production decreases above the 4600 Level. The last several years in the schedule includes material only from below the 4600 Level.

Table 16-8 summarizes the mine production schedule based on a 343 gpt silver cutoff.

Table 16-8: Mine Production Schedule

Year	Mineralized Material Tonnes *000's*	Ag gpt	Cu %	Pb %	Zn %	Ag ozs *000's*
1	108.1	767.43	0.07	0.14	0.03	2,668.1
2	244.7	818.50	0.17	0.10	0.03	6,438.5
3	411.2	777.86	0.16	0.23	0.02	10,283.8
4	440.0	762.80	0.17	0.26	0.02	10,790.1
5	387.6	844.86	0.21	0.35	0.02	10,529.6
6	391.9	822.25	0.22	0.38	0.02	10,359.9
7	393.9	894.75	0.25	0.25	0.02	11,331.8
8	393.8	895.24	0.16	0.31	0.02	11,335.0
9	395.0	930.21	0.16	0.32	0.02	11,812.4
10	392.5	937.28	0.17	0.38	0.02	11,829.0
11	393.9	977.45	0.19	0.41	0.02	12,378.6
12	393.2	991.35	0.15	0.60	0.02	12,530.9
13	394.6	889.11	0.15	0.55	0.02	11,280.1
14	393.9	832.29	0.17	0.61	0.02	10,539.7
15	389.9	805.59	0.22	1.18	0.03	10,098.0
16	393.9	865.81	0.32	0.70	0.02	10,963.8
17	392.9	872.28	0.29	0.67	0.02	11,018.4
18	393.8	863.80	0.26	0.57	0.02	10,935.7
19	384.6	864.34	0.13	0.36	0.02	10,688.8
20	381.9	765.60	0.10	0.27	0.01	9,401.5

Year	Mineralized Material Tonnes *000's*	Ag gpt	Cu %	Pb %	Zn %	Ag ozs *000's*
21	362.9	762.81	0.14	0.22	0.01	8,899.4
22	351.9	767.81	0.17	0.20	0.01	8,688.0
23	315.9	776.32	0.26	0.17	0.01	7,884.9
24	325.2	701.30	0.19	0.14	0.01	7,332.4
25	321.6	701.29	0.22	0.14	0.01	7,251.1
26	324.7	689.34	0.17	0.13	0.01	7,196.3
27	324.8	663.33	0.17	0.03	0.01	6,926.9
28	276.3	714.93	0.17	0.03	0.01	6,350.1
Total	**10,074.6**	**827**	**0.19**	**0.36**	**0.02**	**267,742.7**

17 RECOVERY METHODS

The Sunshine Mine's processing facility will receive ROM mineralized material, initially from the Upper Country portion of the deposit through the Sterling Tunnel. Later the Lower Country mineralized material will be delivered by an existing hoist in the Jewell Shaft on the Sunshine Mine site. ROM mineralized material will be delivered from the hoist to the ROM mineralized material bin and then fed to the primary crushing circuit. Material from the Sterling Tunnel will be delivered to a truck dump area at an above ground stockpile that will also be fed to the primary crushing circuit.

The processing facility is expected to consist of a comminution circuit followed by a silver and copper flotation circuit and a subsequent lead flotation circuit to produce two concentrates. The two concentrates are planned to be thickened and filtered for load out to bulk containers. Bulk concentrate would be stored onsite for shipment to appropriate metal recovery facilities. The concentrate storage facility would accommodate enough concentrate for at least five days production.

The silver, copper, and lead metals will all be included within the two concentrates produced in the flotation system. During processing of the Upper Country mineralized material, in total approximately 92% of the silver, 93% of the copper, and 61% of the lead is expected to be contained in the two concentrates. Based on historical estimates of recovery, approximately 96% of the silver, 94% of the copper, and 85% of the lead in the Lower Country mineralized material is expected to be contained in the two concentrates. The recovery values, for the Upper Country mineralized material, may improve once additional metallurgical testwork has been completed and the grinding and flotation process has been adjusted to optimize recovery of all three metals. **Figure 17-1** presents the conceptual simplified flowsheet for the proposed flotation plant operations.

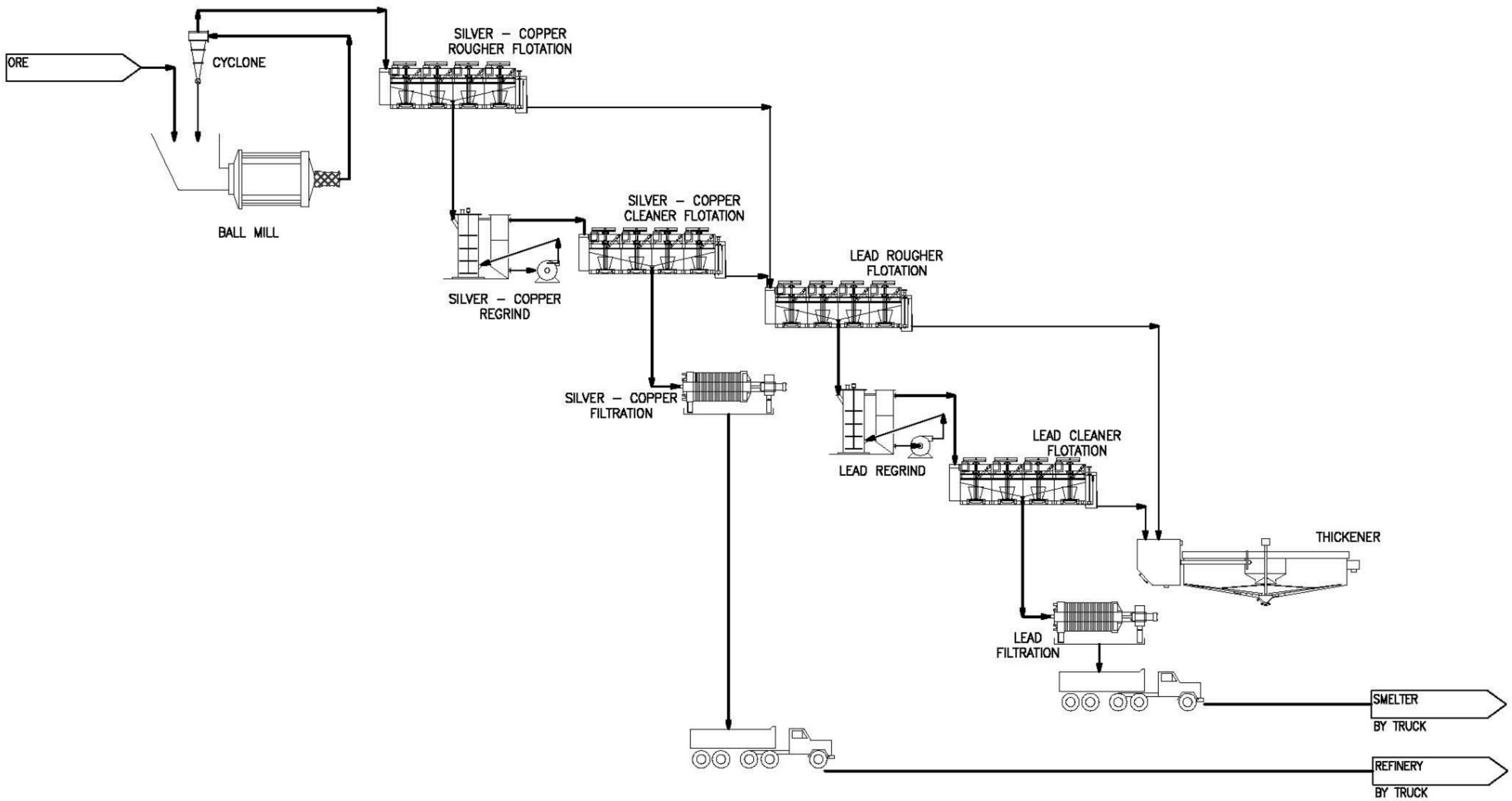


Figure 17-1: Proposed Sunshine Mine Process Flowsheet (Lyntek, 2014)

The lead concentrate will also contain varying amounts of silver depending upon the origin of the ROM plant feed from the mine. Historically, the Coeur d'Alene district has produced silver rich galena concentrates as well as the high silver-copper tetrahedrite containing concentrates. Stopes outside of the main Sunshine zone area of the mine contain increasing amounts of galena-bearing mineralized material. Depending upon the production stopes feeding the mill, variable amounts of lead-bearing mineralized material will be processed in the mill. The lead concentrates with the galena-argentite mineral association have considerably lower contents of silver compared to the silver-copper tetrahedrite concentrates. The lead-silver concentrate will be sold to a lead toll smelter, such as Teck Metals Ltd.'s smelter at Trail, BC, Canada.

The high-grade silver-copper concentrate will be further refined by:

- Transport the flotation concentrate to a new antimony facility that would recover antimony-rich products, as well as reduce the antimony content and potential impact on subsequent refining operations.
- Process the residue from the antimony facility in the existing refinery to produce a silver doré and electrolytic copper for market.

The total estimated power requirement for the concentrator is 3,000 kW (3,780 connected hp). This includes crushing, grinding, flotation, pumping, concentrate handling and storage, reagent mixing and storage, process utilities, and tailings handling and pumping, using as much tailings as possible as a cemented paste mine backfill. Based on typical demand and load factors, the maximum demand is estimated to be 2,850 kW and the average demand is estimated to be 2,550 kW. The additional estimated power for the antimony plant is approximately 1,800 kW and the additional estimated power for the refinery is 2,063 kW.

The estimated make-up water requirement for flotation plant operations is 12.6 l/s, based on 15% moisture in the flotation concentrate filter cake, a 50% (w/w) slurry being sent to the TSF, and the balance of the water recovered from the process plant recycled to the flotation plant.

18 PROJECT INFRASTRUCTURE

18.1 Site Plan

The Sunshine Mine is located in a constrained, topographically-challenged area approximately 4 km (2-1/2 miles) south of I-90 on Big Creek Road. The mine site is divided into an east and west side by Big Creek. Big Creek Road passes through the property on the west side of Big Creek and the majority of the existing mine site, dating back to the early 1900’s, is situated on the east side of Big Creek.

Due to the age of the existing infrastructure, the majority of the buildings will be demolished, and new buildings are planned to be constructed for operations. Numerous options for facility locations were identified and sequencing of the demolition will be evaluated in the next stage of project development. Potential locations for the process plant and ancillary facilities were based on the following considerations:

- Utilization of the existing topography to minimize site development and mass earthworks;
- Incorporation of vertical facilities to the extent possible due to limited space

For purposes of this TR, one possible site plan of those identified is shown below in **Figure 18-1**. Further evaluation of all potential site plans will be completed during the next phase of project development.

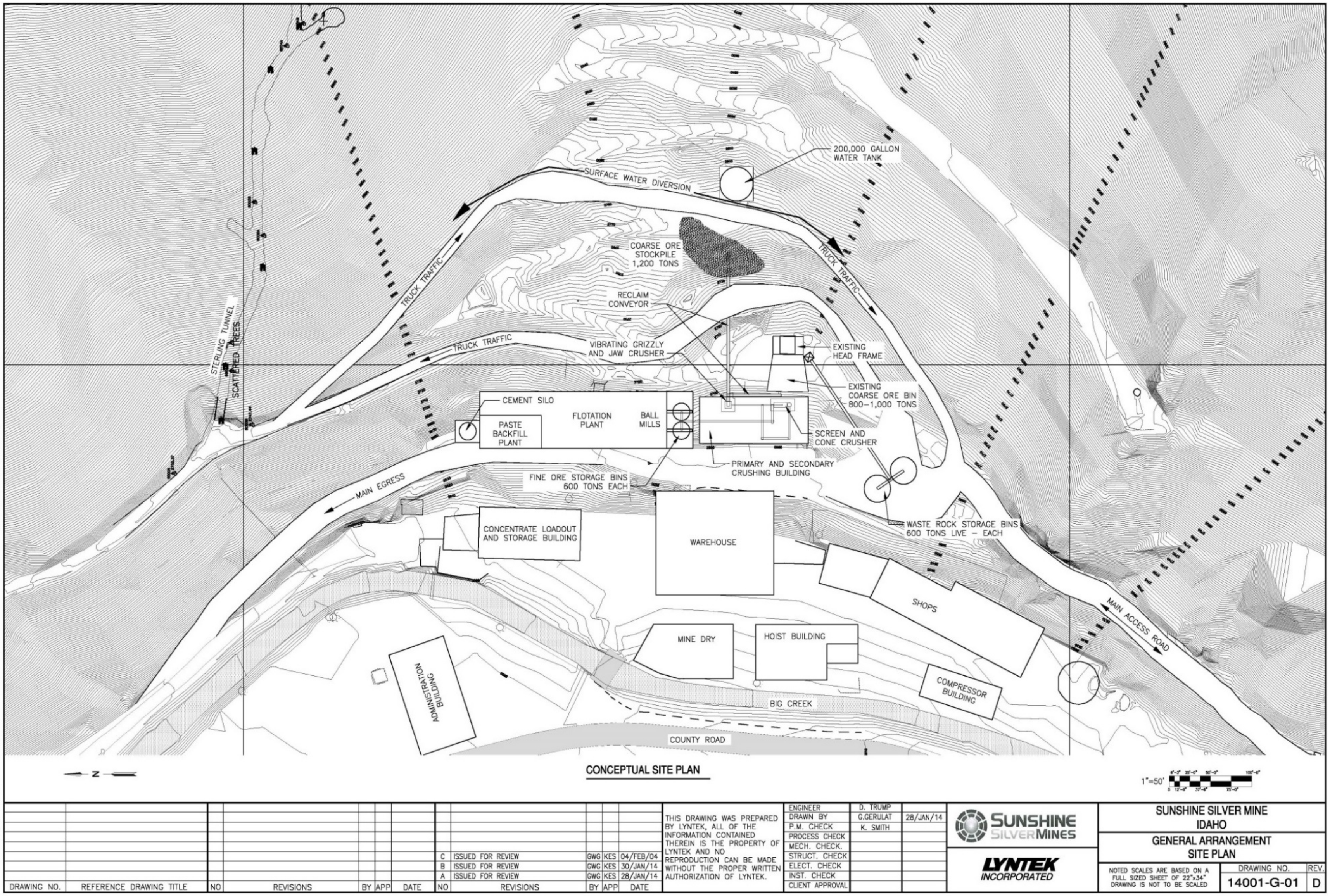


Figure 18-1: Conceptual Site Plan

18.2 Tailings Storage Facility

The existing TSF is located in close proximity to the mine, approximately 1.6 km north of the mine site on the west side of Big Creek and Big Creek Road. The TSF was permitted for seven lifts and it is currently halfway into lift number five. **Figure 18-2** for the ultimate layout of the currently permitted facility with stages five, six, and seven constructed.

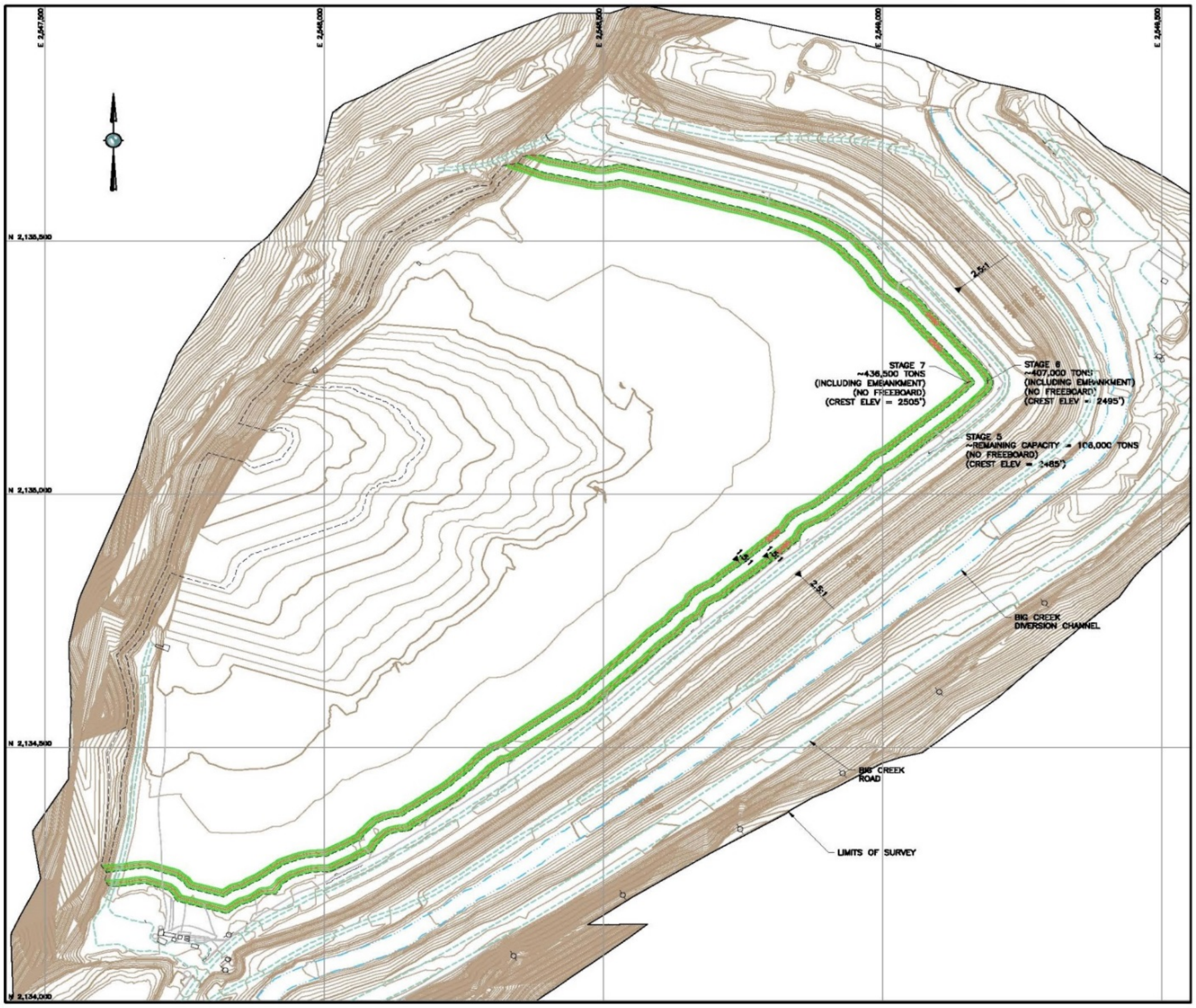


Figure 18-2: Ultimate Layout of the Permitted Tailings Storage Facility (AMEC, 2012)

The remaining storage capacity in the permitted facility, which includes the balance of stage five, six, and seven, is estimated at 862,000 tonnes at an average tailings density of 1.2 grams per cubic centimeter (g/cm^3).

Current plans are to expand the TSF using "dry stack" tailings depositional techniques by building on top of the conventional tailings facility shown in **Figure 18-2** above. The dry stack facility currently under consideration can be referenced in **Figure 18-3** below.

This facility will be constructed from relatively dry "filter cake" from the filter plant. The filter cake will be transported to the dry stack facility via trucks and compacted using selective routing of haul traffic and a vibratory compactor. Access on top of the conventionally deposited tailings mass, for dry stack development, will be provided by placement of up to 1.8 m of mine waste rock on top of the conventionally deposited tailings. This waste rock layer will also serve as a drain layer to provide ongoing drainage of the tailings mass. Process solutions collected from the tailings will be treated in the adjacent water treatment plant to meet permitted discharge limits and returned to the mill as process make-up water to the extent possible or released to the outfall located at the South Fork of the Coeur d'Alene River. The dry stack portion of the TSF as presented in **Figure 18-3** will add approximately 3.6 million tonnes (3.4 million needed) of additional storage capacity at an average tailings density of 1.44 g/cm^3.

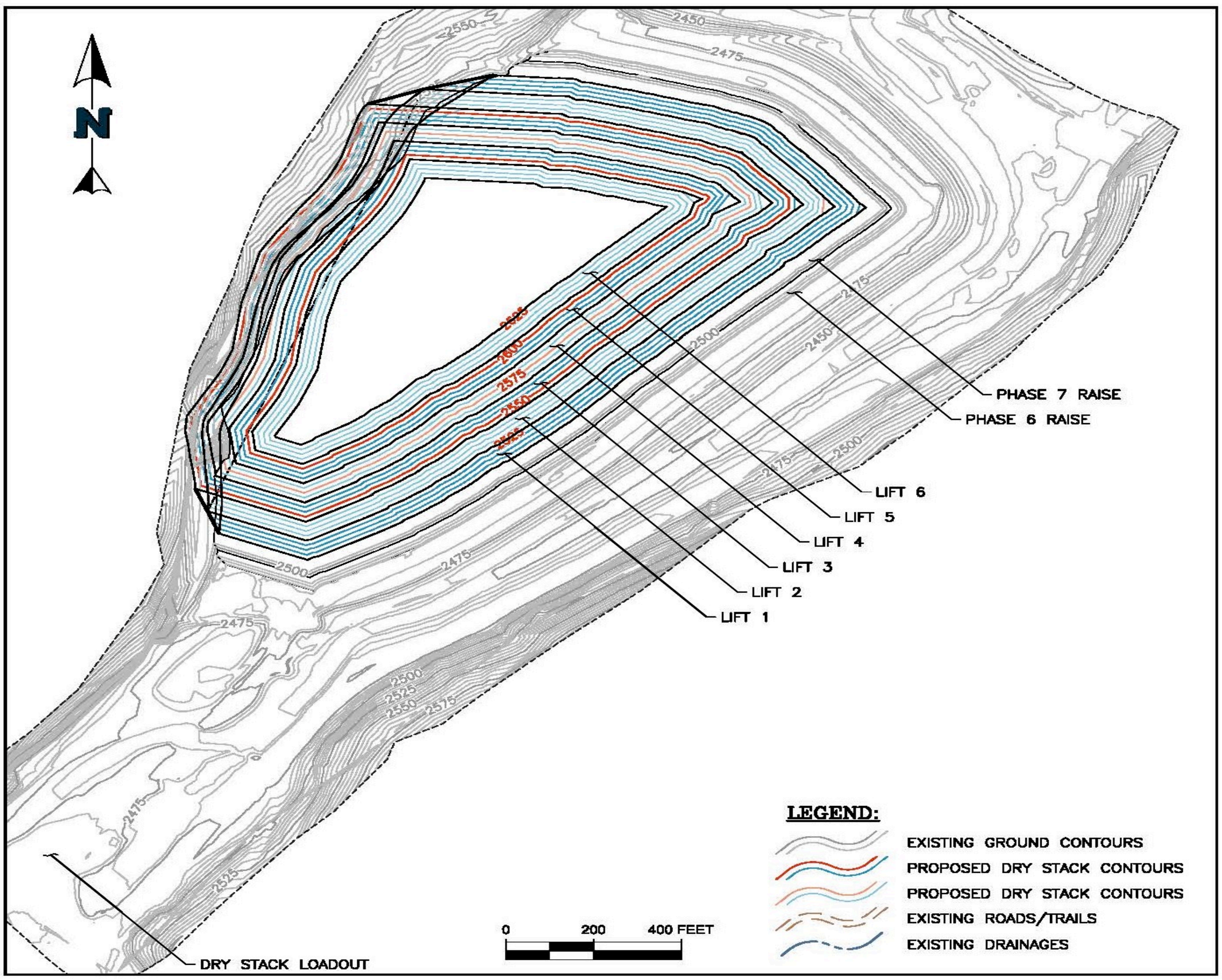


Figure 18-3: Conceptual Dry Stack Tailings Configuration (AMEC, 2012)

18.3 Waste Slurry and Process Solution Streams Management

Currently tailings, sewer and domestic water from the mine, storm water runoff from the plant site, and mine water flow from the Sterling Tunnel and Sunshine Portal are conveyed by gravity flow in a 35.56 cm diameter buried pipeline from the plant site to the TSF. Mine water and drainage from the Crescent Mine are conveyed to the TSF via a 20.32 cm diameter buried pipeline. No dual wall containment or leach detection is present in the existing systems.

The project described as the basis for this TR includes the following actions/components:

- Excavation of a new trench in the existing right-of-way for the three new pipelines described below.
- Installation of a new 20.32 cm diameter Arctic dual walled HDPE pipe from the process plant to the TSF to replace the 35.56 cm diameter pipe described above, carrying the same flows listed. Initial flow will be largely by gravity, but with assistance from the tailings thickener underflow pump. As the TSF embankment is raised, a booster pump will be employed at the TSF to provide additional lift.
- Installation of a second new 20.32 cm diameter Arctic dual walled HDPE pipe from the process plant to the WTP. This pipe, replacing the 20.32 cm diameter pipe described above, will carry mine water and drainage from the Crescent Mine. Both 20.32 cm diameter dual walled Arctic HDPE pipelines will include leak detection systems by the use of remote pressure monitoring at specified intervals.
- Installation of a new 10.2 cm diameter HDPE pipeline from a reclaim water tank located at the TSF to the mill process water storage tank. Pressure to overcome the static head differential and friction losses within the pipe will be provided by two 30 hp pumps, one operating and one in standby.

18.4 Waste Rock Storage Facilities

The WRSF is located approximately one-quarter mile north of the mine site on the east side of Big Creek Road. It currently has the capacity to handle the waste from the Sterling Tunnel and some of the existing waste rock will be used for development of the remaining lifts for the TSF. SSMRC is also permitted to store waste rock in the ConSil WRSF located approximately four miles east of the mine site. Costs to transport waste rock by truck from the Jewell Shaft to the ConSil WRSF have been included in mine development costs.

18.5 Fresh and Process Water Supply

Water supply is abundant as Big Creek passes directly through the mine site and SSMRC currently has four water rights licenses; three surface water licenses from Big Creek and one groundwater well. Water from Big Creek is drawn from an intake station located south of the mine and is used for water supply, including process make-up, non-contact cooling, fire protection, and other non-potable uses. The combined water volume available is approximately 255 liters per second (l/s). Water storage is not an issue for the mine due to the abundance of water rights.

Preliminary water requirements for the project were developed by Golder Associates. The complete make-up water requirement of 12.6 l/s can be taken from Big Creek via the pump station located 1.6 km south of the mine site, should mine water from dewatering or reclaim water from the TSF be temporarily unavailable for any reason. Two new steel storage tanks for fresh and fire water and process water, with capacities of 757,082 l and 75,708 l, respectively, are currently planned. Recycling of water from the process plant, use of mine water from mine dewatering, and recycling of reclaimed water from the TSF will be maximized to the extent possible to reduce the amount of fresh water make-up required.

Potable water is obtained from a water line that parallels Big Creek Road to the mine and is owned and maintained by the municipal water district, Central Shoshone County Water.

18.6 Main Access Road

The Sunshine Mine is located approximately 60 km of Coeur d'Alene, Idaho along I-90, and 7.25 km southeast of the town of Kellogg, Idaho at the Big Creek exit. The main access road to the Project is Big Creek Road, which is paved and well maintained year round. Roads to all plant facilities currently exist, so no new roads are expected to be constructed.

With the mine site just south of I-90, there are neither logistical issues for equipment and supply deliveries nor shipment of concentrates for refining. From I-90, concentrate can be trucked to smelters and refineries located in Idaho, Montana, or Canada, or transported to overseas or eastern Canadian smelters.

18.7 Security

Access to the main plant site is via an SSMRC-owned bridge across Big Creek. A guard house is located at this entrance and is manned 24/7 to monitor access to the site. Security personnel maintain perimeter security, authorizing access to incoming personnel, and performing roving patrols around the site area. Natural barriers, including Big Creek and rugged terrain, are augmented with wire fencing to enhance security.

18.8 Power Supply

The local utility company, Avista, owns and maintains the 13.2 kV line, which parallels Big Creek Road to the mine site. This power line is dedicated to the Sunshine Mine and it terminates at the Avista substation located on the north end of the property. Conceptual designs in support of this TR have considered replacing as many as a dozen older, existing substations throughout existing facilities with several modern, more efficient substations located adjacent to the major load centers envisioned as part of the new processing facilities. Preliminary load profiles have been estimated and initial discussions between SSMRC and Avista have occurred to allow Avista to identify any required upgrades to their power supply to the Sunshine Mine. A back-up diesel generator to maintain power to critical systems, during power outages, is currently planned.

18.9 Water Treatment

Excess water from process operations that may require treatment will be treated using oxidation and precipitation utilizing lime and polymer treatment. The waters to be treated include:

- Refinery and antimony plant waste water
- Mine dewatering
- Crescent Mine water
- Mill discharge water
- Grey water and runoff water

The proposed location of the water treatment plant (WTP) is to the northeast of the existing refinery. This area is currently not in use and is large enough to accommodate all water treatment needs, and if necessary, temporary storage of produced solids. Refer to **Figure 18-4** for a conceptual site general arrangement.

Due to the nature of the various waste streams, two separate WTPs are envisioned to ensure compliance with the discharge standards at the lowest possible cost. Anticipated discharge standards were projected by Tetra Tech based on recent permitting activity in the area. The refinery and antimony WTP will treat water discharged from the refinery and antimony plant. The mill and mine WTP will treat water from the mill, mine, Crescent Mine, and grey water. The two WTPs will be constructed side by side in the same building for ease of operations and costs. Refer to **Figure 18-5** for a conceptual flowsheet.

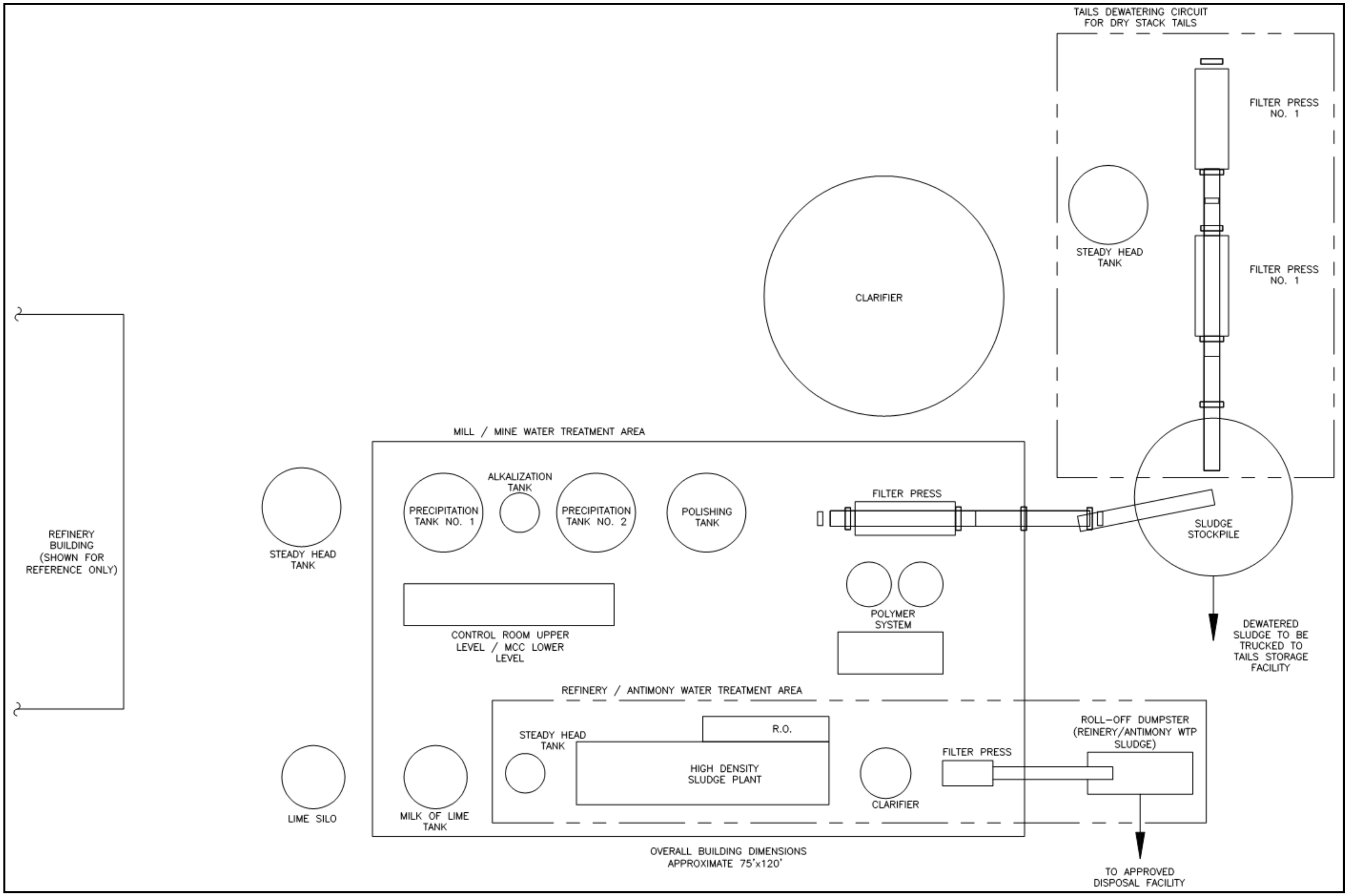
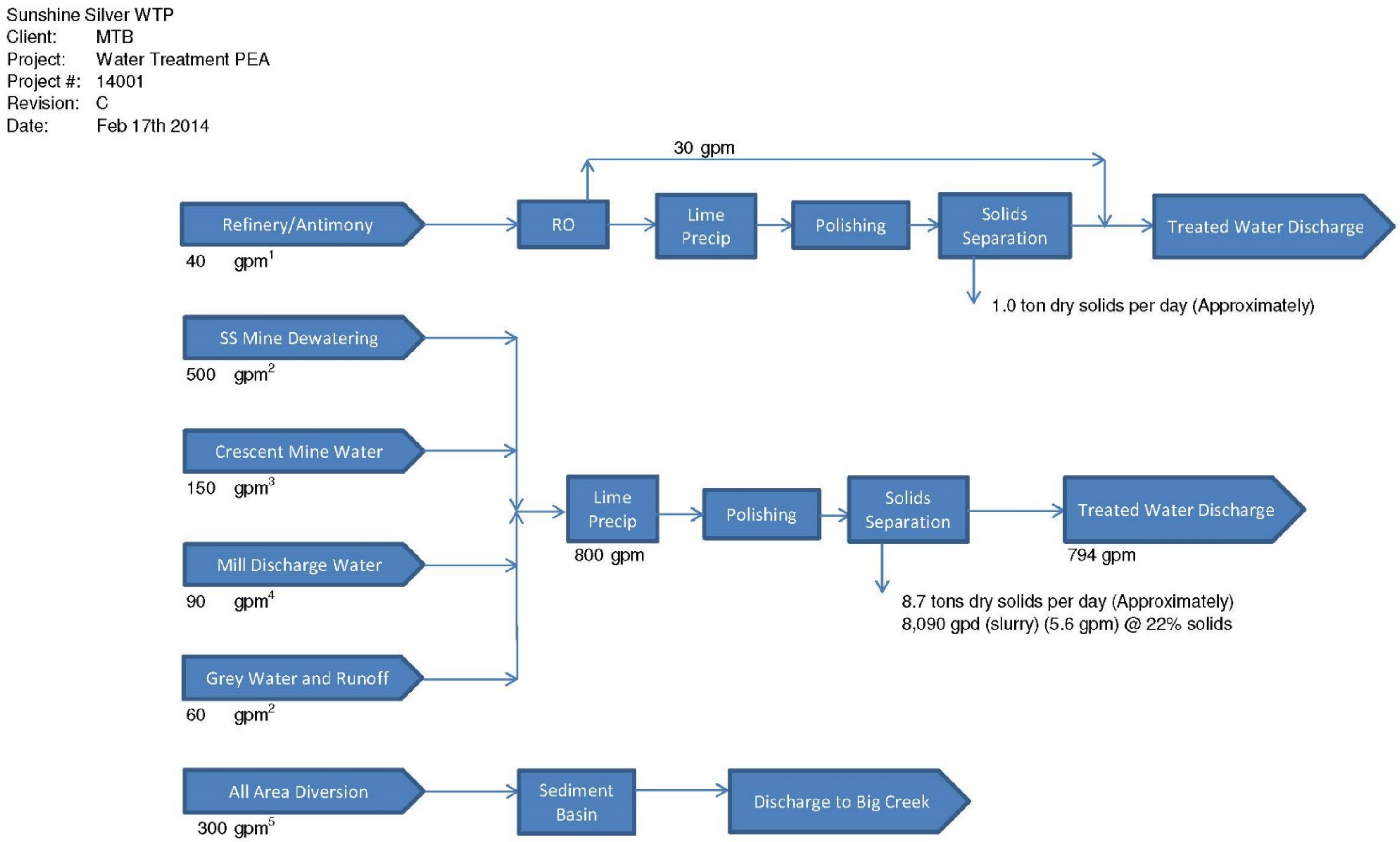


Figure 18-4: Conceptual Water Treatment Process General Arrangement (Lyntek, 2014)



Notes:

1 Based on Flow Rates Provided by Samuel Engineering's mass balance estimate.
2 Based on Flow Rates Provided by Golder Associates Figure 9-2.
3 Expected flow rate from the Crescent Mine is 75 to 150 gpm. The water treatment plant has been designed at the upper limit of 150 gpm.
4 The mill is expected to require 600gpm. 510 gpm will be recycled with 90 gpm to be sent to the WTP for treatment.
5 All storm water will be diverted and sent to a sediment basin prior to release.

Figure 18-5: Conceptual Water Treatment Process Flowsheet (Lyntek, 2014)

18.9.1 Refinery and Antimony Water Treatment Process

Waste water from the refinery and antimony plant will be combined and treated with a combination of reverse osmosis, oxidation, lime precipitation, and polymer treatment. After treatment, the resulting treated water is anticipated to be in compliance with the expected discharge standards and can be discharged offsite. The precipitated solids are anticipated to be high in heavy metals, which will need to be disposed of at an approved offsite disposal facility. Total solids generation is estimated to be approximately 0.9 metric tonne (dry) solids per day. The solid waste produced will be a combination of iron hydroxide, copper hydroxide, manganese hydroxide, and heavy metal hydroxides.

18.9.2 Mill and Mine Water Treatment Process

All other waters produced from the mill, mine(s), grey water, and runoff, requiring treatment will report to a separate WTP utilizing lime precipitation, oxidation, and polymer treatment. Mine water will be treated underground using an anti-scalant to prevent iron and hardness scaling in pipes, prior to being pumped to the surface for use in the process to the extent possible. Treated water from the mill and mine WTP is expected to meet all discharge standards for surface discharge and may be discharged to the current outfall pipe depending on the mill's make-up water requirements at the time. These solids, as a dewatered filter cake, are expected to pass Meteoric Water Mobility tests (MWM) and will be sufficiently stable to be disposed of within the existing TSF. Total solids generation is estimated to be approximately 12.9 metric tonnes (dry) solids per day.

Any site precipitation (rain and snow melt) and surface runoff will be intercepted prior to coming into contact with process areas and diverted offsite to a sediment basin and discharged to Big Creek.

18.10 Domestic Waste

A sewage leach field is located to the south of the current administration building under the parking lot. The leach field supports the administration building. Effluent from processing and ancillary facilities east of Big Creek is discharged to the TSF. In an ongoing effort to improve the overall infrastructure of the Big Creek transportation corridor, Shoshone County and the South Fork Sewer District have identified the need to enlarge and extend the current municipal sewer system to include the Sunshine Mine. This improvement is reportedly scheduled to occur within several years.

18.11 Employee Transportation

With the mine site being located near a well populated region, SSMRC does not provide company housing or transportation. Movement of workers about the project site is by company-supplied vehicles.

For management, supervisory, and technical staff subject to call-out during off-hours, company vehicles are assigned for transportation between local communities and work locations.

18.12 Fire Protection

The existing fire protection system, comprised of a diesel driven fire pump, hydrants, and dry pipe sprinklers will be modernized and extended throughout the new facilities at site. A new 757,082 l fresh and fire water storage tank will be constructed, maintaining dedicated firewater storage per code requirements.

Valve stations are equipped with water flow detection alarms, which alert mine personnel to contact the local authorities upon flow detection.

Portable fire extinguishers are located throughout the mine site facilities in accordance with fire codes and standards and MSHA standards. All extinguishers are inspected monthly and tested annually.

The Kellogg Fire Department is located approximately 8 km from the mine site and responds in a timely manner. Thus, the mine does not maintain a fire brigade or firefighting hoses.

19 MARKET STUDIES AND CONTRACTS

This section of the report has been sourced from the 2014 TR.

19.1 Market Studies

An independent marketing consultant, Takefumi Maene, conducted a marketing study for the Sunshine Mine Project in the second quarter of 2012. The study included a review of preliminary concentrate composition, identification of potential smelters, information on the marketability of the products, recommended market pricing for payable metals, treatment charges, refining charges, penalty elements, and freight charges. Additional information regarding the concentrate composition was provided to Mr. Maene, and the study recommendations were updated for current market conditions and the most recent concentrate characteristics.

Throughout plant operation, the lead concentrates are planned to be shipped to commercial refineries or smelters. Pricing was obtained from Teck Metals Ltd.'s facility in Trail, BC to process the lead concentrate. The typical terms and conditions received from this facility form the basis for the terms used in the economic model and are shown in the **Table 19-1** below.

Table 19-1: Concentrate Processing Charges and Penalties

Description	Rate *USD*	Unit
LOM – Lead Concentrate		
Payable: Silver @ 95%		
Lead @ 95%		
Treatment Charges – Lead Con	400	/dt
Refining Charges – Lead Con	1.5	/Toz
Penalties – Lead Con		
Antimony @ 2.193% [1]	$3.86	/dt
Arsenic @ 0.69% [2]	$11.69	/dt
Mercury @ 70.432 ppm [3]	$18.12	/dt

1 Sb penalty is $2 per dry tonne of Pb Con for each 0.1% greater than 2.0%.
2.193% - 2.0% allowed = 0.193 penalized x $2/0.1 or $3.86/dry tonne.
2 As penalty is $3 per dry tonne of Pb Con for each 0.1% greater than 0.3%.
0.69% - 0.3% allowed = 0.39 penalized x $3/0.1 or $11.70/dry tonne.
3 Hg penalty is $3 per dry tonne of Pb Con for each 10 ppm > 10 ppm.
70.432 ppm - 10 ppm allowed = 60.432 penalized x $3/10 or $18.12/dry tonne.

The following inputs were considered for establishing base metals prices for economic evaluation purposes:

- Silver, and lead market prices are based upon market prices $20.16 per ounce of silver and $0.92 per pound of lead. The copper price is the long-term price from BMO. Consensus pricing is accomplished by periodically surveying major commodity forecasters and reporting their results for yearly and long-term forecasts.

After reviewing the above information, the basis elected for the prices in the economic analysis was to use the median future price forecasts provided by Morgan Stanley for the first three years of production and use the long term median future price forecasts for the remainder of mine life. Because the pricing was done on a long-term basis, it has been reviewed and is still considered relevant.

19.2 Contracts

Presently, there are no contracts in place for services contemplated in this Technical Report. As PFS or FS activities recommended in Section 26.0 commence, contracts will be put in place for the indicated services.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

This section summarizes the environmental studies that have occurred and are planned for the future, the project permitting requirements and status, and potential social or community issues associated with reopening the Sunshine Mine.

The Sunshine Mine has been operated for various periods between 1921 until 2008, with numerous changes of ownership, operating rates, and processing methods employed. The current property holdings reportedly consist of approximately 9,391 ha including fee simple ownership, patented mining claims, and unpatented mining claims. The primary components of the mine around which environmental monitoring and permitting are associated include: the Sunshine Mine and Mill area; the Sunshine WRSF, adjacent laydown yard and storage buildings; the Sunshine TSF (also known as Tailing Pond #2); and the adjacent Consolidated Silver Mine (also known as Silver Summit and ConSil) and the ConSil mill, waste rock, and tailings area. In October 2013, SSMRC also acquired the Sunshine Precious Metals Refinery located at 1098 Big Creek Road.

The Sunshine Mine and related facilities are located in the Big Creek watershed. Big Creek flows into the South Fork. The ConSil facilities are located in the Rosebud Creek watershed. Rosebud Creek flows toward the South Fork, however surface water flow in the creek appears to infiltrate downhill of the mine facilities and before reaching the South Fork. No surface discharge to the South Fork has been identified or observed via Rosebud Creek. The South Fork is included on the State of Idaho's Clean Water Act (CWA) 2010 and Draft 2012 303(d) list as impaired (exceeding water quality standards) for suspended sediments, cadmium, lead, and zinc. This is due to historic mine operations located in the Silver Valley that discharged mine wastes and tailings into the South Fork and tributaries before environmental laws were created.

EPA included the South Fork and adjacent areas, including Sunshine, ConSil, and numerous other historic mines in the Upper Basin of the Coeur d'Alene River, in the Bunker Hill Mining and Metallurgical Complex Superfund Site, listed pursuant to the Comprehensive Response, Compensation, and Liability Act (CERCLA). EPA Region 10 has developed a Remedial Investigation/Feasibility Study for the CERCLA site and in August 2012, issued an Interim Record of Decision Amendment, which proposes remediation of certain parts of the Basin.

Sunshine has applied for and was granted continued coverage under the Multi-Sector General Permit (MSGP) in September 2015. The EPA issued a new MSGP in June 2015 and subsequently Sunshine applied for coverage under the new permit. The Storm Water Pollution Prevention Plan was updated to reflect the new permit and the mine site is inspected monthly to maintain compliance.

20.1 Environmental Baseline

Environmental data currently exists for the Sunshine Mine and Mill, ConSil, and refinery areas from several sources, including:

- monitoring and studies associated with past mine operations;
- monitoring and studies performed as required under permits for past mine operations;
- monitoring and studies used for the Superfund documents prepared by EPA and Idaho Department of Environmental Quality (IDEQ); and

- 2004 Site Characterization Report prepared for the former owners of the refinery property.

This existing data provides some information to characterize environmental baseline conditions. However, SSMRC determined that more current and comprehensive data was needed to provide information for developing plans and permits for reopening the Sunshine Mine. In 2012, SSMRC initiated environmental studies to provide the following information:

- surface water quality and hydrology;
- groundwater hydrogeology; and
- waste rock geochemical characteristics.

In 2013, as part of a Phase II Environmental Site Assessment (ESA) conducted in connection with the acquisition of the Sunshine Refinery, SSMRC performed soil, surface water, and groundwater sampling at key locations throughout the refinery property

The subsections below summarize the current environmental monitoring program.

20.1.1 Surface Water

A surface water sampling program was initiated in March 2012 to evaluate the water quality around the Sunshine Mine and ConSil Mine facilities. Sample locations were selected based on the location of existing and proposed facilities associated with the Sunshine Mine. Two rounds of sampling were conducted at 11 locations in Big Creek, the South Fork, and Rosebud Creek. In addition, five seeps in the vicinity of the Sunshine Mine and a seep discovered between the Sunshine TSF and Big Creek were sampled. Samples were analyzed for field parameters, major ions, and a full suite of metals. Additional baseline surface water sampling was also conducted upstream and downstream of the refinery property as part of the Phase II ESA, with analysis for the following parameters.

- Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO);
- Volatile Organic Compounds (VOCs);
- Semi-Volatile Organic Compounds (SVOCs);
- Total and Dissolved Metals – Antimony, Arsenic, Cadmium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Silver, and Zinc;
- Polychlorinated biphenyls (PCBs); and
- Wet Chemistry – Alkalinity, Chloride, Conductivity, Nitrate/Nitrite, pH, Total Dissolved Solids, and Sulfate.

The observed concentrations of trace metals detected in Big Creek, Rosebud Creek, and the seeps do not exceed Idaho or EPA aquatic life surface water quality standards.

In addition, SSMRC implements an annual receiving water quality monitoring program in compliance with NPDES permit requirements, which includes the collection of samples from Big Creek, above and below mine facilities, and from the South Fork, upstream of the NPDES outfall and downstream of the confluence with Big Creek.

20.1.1.1 National Pollutant Discharge Elimination System (NPDES) Permits

No change to permits ID0000060 (discharge from Sunshine TSF) or ID0000159 (Polaris Mill/ConSil). Permit Discharge Monitoring Reports (DMRs) are submitted each month and sampling is conducted and reported according to permit requirements.

Sunshine currently discharges from the tailings impoundment under a permit that was administratively extended in 1996. It is anticipated that Idaho DEQ will request Sunshine submit a new permit application once a new mill is built and mining operation resume. A new permit will be more restrictive and require upgrades to the water treatment plant. Sunshine has worked with an engineering firm to develop a conceptual model for a new water treatment facility and has developed supporting documents for a new permit application.

US EPA conducted a site inspection in August 2015 and found no violations of our NPDES permits. The inspectors inspected the mine site and tailings impoundment. All records were reviewed including DMRs, permits, sampling plans and Storm Water Pollution Prevention Plan.

Idaho DEQ recently took primacy of the NPDES program in Idaho. Sunshine has been attending all DEQ required training and is submitting DMRs to Idaho DEQ.

20.1.2 Hydrology

Measurements of surface water flow have been collected in Big Creek, the South Fork, and in Rosebud Creek at the same locations identified for water quality analysis. The USGS maintains several stream flow stations on the South Fork that provide historical and real time data that can also be used to characterize hydrology around the site. The Big Creek watershed hydrograph is dominated by spring snowmelt typical in north Idaho.

20.1.3 Hydrogeology

Hydrogeology baseline studies included the collection of groundwater from the alluvial (shallow) groundwater system and collection of water exiting the mine portals and seeps. Groundwater was sampled at 17 locations within the Big Creek and Rosebud Creek drainages. This preliminary groundwater characterization effort was conducted at temporary monitoring locations established through direct-push and air-rotary drilling methods. The establishment of a permanent network of groundwater monitoring wells is currently being considered, based on the results of these initial investigations.

During the Phase II ESA of the refinery property, five existing monitoring wells around the refinery property were sampled for TPH-DRO, VOCs, SVOCs, total and dissolved metals, PCBs, and wet chemistry. Samples collected from several of the wells indicated concentrations of copper, iron, antimony, and manganese above drinking water limits. However, as no down gradient domestic wells utilize the alluvial aquifer for drinking water, there are currently no exposure pathways affecting human health.

As discussed in the surface water section above, samples were also collected from five mine-related discharge points and surface seeps, including: Old Sunshine Mine Portal, Silver Summit Mine Portal, Lower Crane Portal, Gullickson Seep, and Mill Seep.

Piezometers in place at the Sunshine TSF have been evaluated to determine if they could be redeveloped to provide information on water levels.

20.1.4 Soils

Surface and shallow subsurface (to approximately 1.5 m) soil sampling was performed as part of the Phase II ESA at the refinery property. Soil samples from eight test pits and one additional surface location were obtained and analyzed for TPH-DRO, VOCs, SVOCs, metals, and PCBs.

Elevated levels of antimony, arsenic, cobalt, lead, mercury, and silver were detected in soil samples, consistent with the understanding that waste rock was used as fill material for the refinery pad. Other constituents were not detected above reporting limits.

20.1.5 Wetlands

SSMRC has no plans to construct project facilities in wetland areas, therefore no jurisdictional wetlands surveys are planned at this time.

20.1.6 Meteorology and Air Quality

At the time of writing this report there are no plans to install a meteorological monitoring station. Based on correspondence with the Air Quality Division of the IDEQ, meteorological data for use in dispersion modeling in support of an air permit application will be provided by the IDEQ. The Sunshine Mine is in an area of Idaho, which is in attainment of the national ambient air quality standards.

20.1.7 Rock and Mine Waste Characterization

SSMRC plans to place waste rock produced during renewed underground mining on the Sunshine WRSF. SSMRC intends to use some of this waste rock at the Sunshine TSF for construction of additional dam raises and ultimately for closure. There was limited waste rock geochemical data available; therefore, a preliminary characterization program was conducted to evaluate the potential for acid generation and metal leaching from waste rock and to evaluate geotechnical properties. Samples representing the range of rock types in the Sunshine and ConSil WRSFs were collected and subjected to the following test procedures:

- Mineralogical and elemental analyses;
- Static geochemical testing and acid-base accounting using standard geochemical techniques (sulfur analysis, paste pH, acid neutralization potential, and acid generating potential) to determine acid rock drainage potential; and
- MWMP analyses to evaluate metals leaching Potential.

The primary findings of this preliminary analysis are as follows:

- Waste rock is non-acid generating under several different evaluation criteria;
- Trace metal concentrations are generally low or below reporting limits in the MWMP leachates from the ConSil and Sunshine waste rock samples; and
- Concentrations of antimony, arsenic, barium, boron, copper, manganese, molybdenum, and strontium were detected above reporting limits. The remaining trace metals were all below 0.5 mg/L in the waste-rock leachates.

Tailings will be deposited in the existing Sunshine TSF. Characterization of the tailings is not planned since processing methods are expected to be substantially similar to the methods previously used and therefore, the chemistry of water coming into contact with the tailings is expected to be similar to the current discharges from the Sunshine TSF. The discharge chemistry has been monitored for years as a requirement of the NPDES permit.

The Sunshine TSF was constructed in the 1980's and currently covers approximately 13.35 ha. Additional dam lifts have been approved to provide capacity for tailings from the Project. A TSF expansion evaluation was completed to evaluate the applicability of the existing tailings facility design to current permitting standards, evaluate the geotechnical stability of the facility, and develop capacity of the existing facility and planned lifts to accommodate tailings from the reopened Sunshine Mine. The expansion study was completed by AMEC Environment and Infrastructure in 2012 and 2013. The results of the study concluded that the facility could in fact be completed as originally designed and would offer a sustainable design from a geotechnical standpoint.

Currently for Tailing Storage Facility (TSF) there are no changes. The TSF is inspected monthly by Sunshine staff and annually by Idaho Department of Water Resources (IDWR) inspectors. Sunshine will need to supply IDWR with the designs for review and approval before additional dam lifts are added. IDWR issues a certificate to operate the impoundment annually.

20.2 Material Environmental Issues

There are no environmental issues that are anticipated to materially impact the ability to reopen the Sunshine Mine. This conclusion is based on a review of the studies completed to date and planned for the immediate future and review of the permits and approvals needed for the Project and associated regulatory requirements.

20.3 Permitting

Numerous federal and state permits, plans, and approvals will be required for this Project. The permits are described in the Permit Handbook for the Sunshine Mine, produced by Tetra Tech and summarized in **Table 20-1**.

In certain situations, issuance of a Federal permit requires compliance with the National Environmental Policy Act (NEPA) and development of an Environmental Impact Statement (EIS) or Environmental Assessment (EA). Based on the current proposed operating plan, reopening of the Sunshine Mine will not require development of an EIS. The NPDES permit will be a reissuance of an existing permit. CWA 404 actions, if any, would be authorized under a nationwide permit. Neither of these Federal actions will require development of an EIS or EA.

Table 20-1: Potential Sunshine Mine Activities and Permits

Activity	Permit, Approval, Certification Requirement	Responsible Agency
Building Demolition	Asbestos Removal-permit not yet issued.	USEPA NESHAP
	Institutional Controls Permit-permit not yet issued.	Panhandle Health District
	Site Disturbance permit-permit not yet issued	Shoshone County Planning and Zoning
	Contaminated soil investigations and cleanup-permit not yet issued.	Idaho Department of Environmental Quality (IDEQ)
Storm water runoff that discharges to waters of the U.S. during construction and operations	EPA Multi-sector general permit (2008 MSGP) and SWPPP, expires June 2020.	USEPA Region 10
Point source discharges of wastewater to waters of the U.S.	NPDES-indefinite permit extension.	USEPA Region 10
Point source discharges of wastewater to waters of the U.S.	State CWA 401 certification-indefinite permit extension.	IDEQ
Building construction	Building and Site Disturbance Permit-permit not yet issued	Shoshone County Planning and Zoning Department
Tailings Impoundment modifications, if beyond current design capacity	Form 1721-permit not yet issued	Idaho Department of Water Resources (IDWR)
Tailings dam modifications; if beyond current design capacity	Form 1710-permit not yet issued.	IDWR
	CWA 404 permit for dredge and fill if in waters of the U.S-permit not yet issued.	USACE
	401 certification of the 404 permit, if necessary-permit not yet issued.	IDEQ
Tailings Dam Operation	Idaho Dam Emergency Action Plan-no expiration, annual review.	IDWR
Petroleum storage	SPCC- no expiration, annual review	USEPA Region 10
Facility construction and operation	Air Quality Permit-permit not yet issued	IDEQ
Groundwater Protection	Point of Compliance- permit not yet issued	IDEQ
Stream Channel alterations associated with construction activities	Joint Stream Channel Alteration Permit-not yet issued	IDWR
	CWA 404 permit-not yet issued	USACE
	401 certification of 404-permit not yet issued	IDEQ
Metal contaminated soils removal	ICP permit- permit not yet issued	Panhandle Health District
Waste rock facility expansion, if in waters of the U.S.	CWA 404-permit not yet issued	USACE
	401 certification of the 404 permit- permit not yet issued	IDEQ
Repair or maintenance of outfalls, if in waters of the U.S.	CWA 404 permit-not yet issued	USACE
	401 certification-not yet issued	IDEQ
Refinery	No Exposure Certification for Storm water under MSGP/SWPPP-permit expires December 2020.	USEPA Region 10
	Air Quality Permit-permit not yet issued.	IDEQ

20.4 Status of Permit Applications

Sunshine has applied for and was granted continued coverage under the Multi-Sector General Permit (MSGP) in September 2015. EPA issued a new MSGP in June 2015 and subsequently Sunshine applied for coverage under the new permit. The Storm Water Pollution Prevention Plan was updated to reflect the new permit and the mine site is inspected monthly to maintain compliance.

20.4.1 Air Permit

A preliminary emissions inventory for the Sunshine Mine and Mill has been developed and SSMRC has been in communication with the Air Quality Division of the IDEQ regarding air permitting requirements. Based on the work performed to date it is anticipated that the facility will be considered a minor source and a Permit to Construct (PTC) will be required prior to commencing construction of the new mill facilities. In anticipation of developing a permit application, an Air Dispersion Modeling Protocol has been submitted and approved by the IDEQ.

Although no evaluation of potential emissions from the proposed refinery have been performed at this time, documents reviewed as part of the Phase I ESA conducted for the refinery property indicate that the facility operated in compliance with Idaho air quality regulations under a PTC exempt status. As plans for the refinery operations are developed, additional evaluations regarding air permitting requirements should be performed.

Idaho DEQ Air Permit to Construct (PTC). Sunshine will apply for an air quality PTC before constructing a new mill facility. A PTC is required prior to construction of a building or facility that may emit pollutants into the air. Sunshine held an initial meeting with DEQ and Tetra Tech in 2014 but work on the PTC was put on hold until a final mill design is completed. DEQ supplied the required meteorological data and approved Tetra Tech’s modeling method. Once a complete PTC application is submitted DEQ strives to issue a permit within 100 days.

Idaho DEQ conducted an air quality compliance inspection in 2015 and found no violations.

20.4.2 NPDES Permit Status and Reissuance

No change to permits ID0000060 (discharge from Sunshine TSF), which expired in 1996, but was extended indefinitely by the EPA, or ID0000159 (Polaris Mill/ConSil). Permit Discharge Monitoring Reports (DMRs) are submitted each month and sampling is conducted and reported according to permit requirements.

Sunshine currently discharges from the tailings impoundment under a permit that was administratively extended in 1996. It is anticipated that Idaho DEQ will request Sunshine submit a new permit application once a new mill is built and mining operation resume. A new permit will be more restrictive and require upgrades to the water treatment plant. Sunshine has worked with an engineering firm to develop a conceptual model for a new water treatment facility and has developed supporting documents for a new permit application.

US EPA conducted a site inspection in August 2015 and found no violations of our NPDES permits. The inspectors inspected the mine site and tailings impoundment. All records were reviewed including DMRs, permits, sampling plans and Storm Water Pollution Prevention Plan.

Idaho DEQ recently took primacy of the NPDES program in Idaho. Sunshine has attended all DEQ required training and is submitting DMRs to Idaho DEQ.

Sunshine has applied for and was granted continued coverage under the Multi-Sector General Permit (MSGP) in September 2015. EPA issued a new MSGP in June 2015 and subsequently Sunshine applied for coverage under the new permit. This continued coverage expires June 2020. The Storm Water Pollution Prevention Plan was updated to reflect the new permit and the mine site is inspected monthly to maintain compliance.

20.4.3 CERCLA Issues

EPA has proposed cleanup actions that may affect some aspects of SSMRC's plans for reopening the Sunshine Mine. Likewise, it is important to ensure that proposed mine activities do not adversely affect the cleanup activities. According to EPA's Proposed Plan "USEPA intends to manage its Superfund responsibilities in the Upper Basin in a manner that will allow for responsible mining and mineral processing activities as well as exploration and development."

In 2001 the former owners of the Sunshine Mine (Sunshine Mining and Refining Company and Sunshine Precious Metals, Inc.) entered into a consent decree with the U.S. Government and Coeur d'Alene Tribe that settled Sunshine's CERCLA liability and federal natural resource damage claims. SSMRC should continue to consult with EPA and IDEQ to ensure that reopening the Sunshine Mine will not impact cleanup activities and that cleanup activities will not affect proposed mine operations. Any contaminated soils or other materials from historic operations encountered during demolition or construction must be managed and disposed under the Institutional Controls Program (ICP) run by the Panhandle Health District.

20.5 Social or Community Related Requirements and Plans

The Sunshine Mine is located approximately 60 km from Coeur d'Alene, Idaho in Shoshone County. The Project occurs three miles north of the U.S. Forest Service, Coeur d'Alene National Forest boundary (Idaho Panhandle National Forests) exclusively on private lands.

The Sunshine Mine is located approximately four and one-half miles outside the city limits of Kellogg. Kellogg had a population of 2,081 in 2017, which is down from 6,000 in 1980, after the closure of the Bunker Hill Mine. The town has since developed a ski resort community at the base of the Silver Mountain Resort. It is expected that the 300 workers the mine would employ would live in Kellogg or the surrounding communities of Pinehurst, Osburn, Silverton, or Wallace, or would commute from Coeur d'Alene. The local residents of Kellogg and the surrounding communities will be important stakeholders in the region and to the Project.

Shoshone County demolition and building permits. Sunshine will need to apply for a building or site disturbance permit with Shoshone County before demolition of any buildings, removal of contaminated soil, excavation or re-grading post demo activities or construction of new buildings. If a significant requirement of the county's site disturbance permit for storm water management, Sunshine can utilize sections of the MSGP storm water pollution prevention plan to fulfill these requirements. Sunshine staff has met with Shoshone County Planning and Zoning many times to discuss future activities at the mine. County officials are supportive of Sunshine's plans for the mine site.

20.6 Mine Closure and Reclamation Costs

The State of Idaho does not require a closure and reclamation plan for underground mining operations and there are no State of Idaho regulations that specifically govern the closure of underground mining operations in Idaho. Furthermore, reclamation requirements to which surface mines are subject are not applicable to the Project. Regardless of the regulatory requirements in Idaho, a Closure and Reclamation Plan (CRP) has been developed for the Project that is consistent with sound scientific and engineering practices and meets or exceeds industry best practices for closure and reclamation. The estimated cost for Reclamation and Closure at the end of mine life is $20 million.

The CRP includes preliminary plans and conceptual designs for the closure and reclamation of the following major Project facilities.

- Sunshine Mine and Mill surface facilities;
- Portals, shafts, and access roads;
- Removal of the seawall along Big Creek, contouring and stabilization;
- Gravel access roads;
- Demolition of the ConSil mill and other buildings at the ConSil claim;
- Sunshine WRSF and haul road;
- ConSil WRSF and Silver Summit portal yard;
- Sunshine TSF;
- Removal of tailings lines;
- Ancillary surface disturbance, and
- The Sunshine Refinery and Antimony Plant.

The reclamation plan for the Project employs reclamation techniques that include:

- Decontamination, demolition, removal of foundations, and disposal of surface facilities and underground equipment;
- Sealing of Project-related portals and shafts to prevent human and wildlife access and mitigate fall hazards, respectively;
- Closure and revegetation of the Sunshine TSF;
- Grading of the WRSFs;
- Grading of the haul and gravel mine roads;
- Management of storm water from reclaimed areas to control runoff and limit channel scour sedimentation to Big Creek and Rosebud Gulch;
- Placement of PGM and seeding;
- Installation of erosion and sediment control best management practices (BMPs) to control wind and water erosion and the offsite transport of sediments and mine waste; and
- Post closure monitoring and maintenance.

The reclamation for the refinery and antimony property was assumed to include decommissioning, decontamination, demolition, waste disposal, contaminated soils removal, soil cover and revegetation, mobilization and demobilization, monitoring well abandonment, permit closeout, and monitoring.

More detailed design and estimated costs for closure and reclamation will be developed as the Project advances.

20.7 Financial Assurance Requirements

Although there are no regulatory requirements regarding the closure and reclamation of underground mines in Idaho, the State, through the Idaho Department of Water Resources (IDWR) does require financial assurance for abandonment and closure of tailings storage embankments. A conceptual abandonment plan for the Sunshine TSF, in its current condition, was prepared and submitted to the State by previous owners of the mine. This existing plan for the Sunshine TSF includes: dewatering the facility, capping the facility, and construction of a spillway to route precipitation around the dam to a detention pond. The cost to implement this closure plan was estimated at approximately $275,000, which is the basis for the current financial assurance requirements for the mine based on State of Idaho regulations. These regulations require that a surety bond, or equivalent, must be on file with the IDWR during the active life of the TSF.

The current financial assurance requirement is distinctly different than the closure cost estimate included in the CRP and presented in the table above. The estimated cost presented in the CRP, is based on the anticipated condition and configuration of the TSF at the end of the proposed mine life, and certain design criteria assumptions that may be more robust than those identified in the existing abandonment plan.

IDWR requires that updates to the surety bond be submitted when an additional, previously approved, stage of the impoundment is constructed. As plans for future expansion of the existing TSF are developed, more detailed closure and reclamation designs should be developed in support of fulfilling the IDWR financial assurance requirements.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimate

21.1.1 Summary

The capital cost estimate prepared for the Sunshine Mine Project assumes a brownfield silver project capable of processing a nominal 397,350 metric dry tonnes per annum of mineralized material.

The key objectives of the capital cost estimate are to:

- Support the preliminary economic evaluation of the project;
- Support the identification and assessment of the processes and facilities that will provide the most favorable return on investment; and
- Provide guidance and direction for project financing and execution.

The total estimated initial cost to design, procure, construct, and commission the facilities described in this Technical Report is $253.7 million. **Table 21-1** summarizes the initial capital costs by major area.

This TR is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that these Inferred Resources will ever be upgraded or that the results described herein will be realized. Mineral Resources that are not mineral Reserves have no demonstrated economic viability.

Table 21-1: Summary of Initial Capital Costs

Description	Cost *USD*	Total *USD*
Mine	46,506,175	
Crushing / Mineralized Material Handling	5,699,876	
Concentrator	13,235,393	
Silver and Copper Refinery Refurbishment	6,000,000	
Antimony Plant	23,841,698	
Tailings	2,502,527	
Tailings Paste Backfill (Surface Facility)	2,488,283	
Reagents	488,656	
Utilities	7,592,505	
General & Infrastructure	6,289,818	
Total Contracted Directs		114,644,931
Process Facilities Contractor Indirects	418,757	
Construction Equipment	684,150	
Freight and Duties	801,256	
EPCM - Process Facilities	5,206,648	

Description	Cost *USD*	Total *USD*
Commissioning Support and Vendor Representatives	608,382	
Third Party Testing Services	240,000	
Spare Parts and Initial Fills	1,204,071	
Total Contracted Indirects		9,163,264
Mining and Ancillary Equipment	8,090,000	
Preproduction Mine Development	47,216,046	
Mobile Equipment & Light Vehicles	770,000	
Other (Equipment, Furniture, Software, etc.)	265,440	
Temporary Facilities	200,000	
Medical, Security, and Safety	100,000	
Total Owner Direct Cost		56,641,486
Client Management	2,377,733	
Preproduction Employment & Training	25,511,873	
Utilities/Site Overhead Expenses	3,129,028	
Insurance	2,025,740	
Outside Services (Legal & Accounting)	400,000	
Corporate Overhead (Travel and Expenses)	2,400,000	
Legal, Permits, and Fees	1,352,000	
Preproduction Mineralized Material Definition Drilling	3,000,000	
Total Owner Indirect Cost		40,196,374
Subtotal Project Cost		*220,646,055*
Contingency	33,096,908	
Total Initial Capital Costs		$ 253,742,963

21.1.2 Exclusions and Clarifications

The following items are not included in the capital estimate:

- Sunk costs that are expected to be incurred prior to completion of a positive PFS or FS;
- All federal and state income taxes (excluding sales/use taxes), which are included in the financial analysis;
- Reclamation costs, which are included in the financial analysis;
- Working capital and sustaining capital, which are included in the financial analysis;
- Interest and financing costs; and
- Risk due to political upheaval, government policy changes, labor disputes, permitting delays, weather delays, or any other force majeure occurrences.

21.1.3 Estimating Methodology

The capital cost estimate addresses the proposed engineering, procurement, construction, and start-up of a process plant and its ancillary facilities. Capital costs have been estimated and built up by area cost centers as defined by the project Work Breakdown Structure (WBS).

The estimate is based on the assumption that new equipment and materials will be purchased on a competitive basis and installation contracts will be awarded in defined packages for lump sum or unit rate contracts. Various sources for pricing were used, including budgetary quotations, in-house historical data, published databases, factors, and estimators' judgment.

21.1.4 Contingency

A contingency of $33.1 million has been included in the initial capital cost. This contingency is based on the level of definition that was used to prepare the estimate.

Contingency is an allowance to cover unforeseeable costs that may arise during the project execution, which reside within the scope-of-work but cannot be explicitly defined or described at the time of the estimate, due to lack of information. However, it does not cover scope changes or project exclusions. For the purposes of the financial analysis, it is assumed that the contingency will be spent.

21.1.5 Accuracy

The capital cost estimate included in this TR has been developed to a level sufficient to assess/evaluate the project concept, various development options, and the potential overall project viability. After inclusion of the recommended contingency, the capital cost estimate is considered to have a level of accuracy in the range of minus 35 percent plus 35 percent.

21.2 Operating Cost Estimate

21.2.1 Summary

Operating costs have been estimated according to the main project areas identified as Resource classification drilling, mining, processing, antimony plant, refining, tailings storage, G&A, and mine reclamation and closure. Methodologies and further details are summarized in the sections that follow. **Table 21-2** shows the LOM operating cost summarized by area. Average annual costs and LOM costs per tonne of mineralized material were calculated using estimated mine life of 27.85 years and 10.1 million tonnes LOM throughput. These same factors were used in calculating area-specific costs in the tables that follow for each area of operation.

Total operating personnel are estimated to include 157 in mining, 92 in processing, and 28 in G&A, for a total initial workforce of 277 employees.

Table 21-2: LOM Operating Cost Summary – All Areas

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Resource Classification Drilling	27,000,000	[1]	2.68
Mining (with paste backfill +20% contingency)	1,225,068,144	43,752,434	121.60
Processing	270,138,432	9,647,801	26.81
Antimony Plant	153,402,965	5,478,677	15.23
Refining	235,933,189	8,426,185	23.42
Tailings Storage	10,515,115	[2]	1.04 [4]
General & Administration	219,758,113	7,848,504	21.81
Mine Reclamation & Closure Cost	20,000,000	[3]	1.99
Total Operating Cost	**$2,161,815,958**	**$75,153,602**	**$214.58**

27.85-year LOM   LOM Tonnes of Mineralized Material: 10,074,594

[1] No Average Annual Cost indicated as cost is considered incurred in Years 1 to 9.
[2] No Average Annual Cost indicated as cost is considered incurred in Years 6 to 28.
[3] No Average Annual Cost indicated as cost is considered incurred after LOM in Year 28 and after.
[4] This is a LOM average unit cost for all mineralized material processed. It does not represent an average cost for tonnes of tailings stored, as it has not considered the 50% of tailings reporting to the paste backfill plant and the 862,000 tonnes in the remaining capacity of the current permitted TSF. An approximate cost per tonne mineralized material for the new dry stack storage is $2.54.

21.2.2 Resource Classification Drilling

Costs of Resource classification drilling were estimated at $3 million per year for the first nine years of production. **Table 21-3** provides a summary of LOM operating costs for Resource classification drilling.

Table 21-3: LOM Operating Costs Summary – Resource Classification Drilling

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Resource Classification Drilling Cost	$27,000,000	**	$2.68

27.85-year LOM   LOM Tonnes of Mineralized Material: 10,074,594

*** No Average Annual Cost indicated as cost is considered incurred in Years 1 to 9.*

21.2.3 Mining

Mine operating costs are based on mining by SSMRC beginning in the first year of production. Contractor mining will be used to develop all the Alimak ventilation raises and for all development and mining during the 2 years of preproduction mine development. **Table 21-4** shows the LOM operating cost summary for mining.

Table 21-4: LOM Operating Costs Summary – Mining

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Mining *(includes 20% contingency)*	1,189,818,310	42,493,511	118.10
Power *(above ground)*	35,249,834	1,258,923	3.50
Paste Backfill Cement *(included in Mining)*		-	-
Total Owner Mining Cost	$1,225,068,144	$43,752,434	$121.60

27.85-year LOM LOM Tonnes of Mineralized Material: 10,074,594

Mine operating costs were estimated using the production schedule tonnages and unit rates developed for each mining method. A 20% contingency allowance, or $198 million has been included in estimated operating costs for mining as shown below in **Table 21-5**.

Table 21-5: LOM Operating Cost – Mining by Method

METHOD:	OVERHAND				UNDERHAND				AVERAGE		CONTINGENCY	
Cost per Tonne *USD:*	Alimak $102.13		Mechanized $61.89		Alimak $113.03		Mechanized $69.61		Per tonne $97.52		@ 20%	Total Cost
Year	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	*USD $ 000's*	*USD $ 000's*
1	103,038	10,523	5,099	316	-	0	-	0	108,136	10,839	2,167.7	**13,006**
2	213,942	21,850	15,514	960	10,692	1,209	4,519	315	244,667	24,333	4,866.6	**29,200**
3	223,000	22,775	80,407	4,977	88,816	10,039	18,986	1,322	411,209	39,112	7,822.4	**46,935**
4	209,425	21,388	102,629	6,352	107,615	12,164	20,302	1,413	439,972	41,318	8,263.5	**49,581**
5	162,930	16,640	82,744	5,121	127,497	14,411	14,475	1,008	387,647	37,180	7,436.0	**44,616**
6	143,151	14,620	76,425	4,730	143,859	16,261	28,450	1,980	391,886	37,591	7,518.2	**45,109**
7	139,013	14,197	59,214	3,665	172,945	19,548	22,743	1,583	393,915	38,994	7,798.7	**46,792**
8	128,673	13,141	55,885	3,459	190,843	21,571	18,412	1,282	393,813	39,453	7,890.6	**47,344**
9	128,602	13,134	51,438	3,184	196,551	22,216	18,382	1,280	394,972	39,814	7,962.7	**47,776**
10	126,696	12,939	50,201	3,107	194,154	21,945	21,489	1,496	392,541	39,488	7,897.6	**47,385**
11	119,319	12,186	52,967	3,278	195,178	22,061	26,436	1,840	393,900	39,366	7,873.1	**47,239**
12	115,557	11,802	54,296	3,361	187,926	21,242	35,375	2,462	393,155	38,866	7,773.3	**46,640**
13	118,751	12,128	57,919	3,585	163,426	18,472	54,515	3,795	394,611	37,980	7,596.0	**45,576**
14	115,965	11,843	61,665	3,817	145,040	16,394	71,208	4,957	393,878	37,011	7,402.2	**44,413**
15	98,308	10,040	81,226	5,027	138,219	15,623	72,126	5,021	389,878	35,711	7,142.3	**42,854**
16	82,712	8,447	68,097	4,215	235,655	26,636	7,401	515	393,865	39,814	7,962.7	**47,776**
17	86,436	8,828	72,853	4,509	219,368	24,795	14,235	991	392,893	39,123	7,824.6	**46,948**
18	70,879	7,239	66,941	4,143	241,181	27,261	14,770	1,028	393,770	39,671	7,934.2	**47,605**
19	69,235	7,071	70,125	4,340	234,898	26,551	10,383	723	384,642	38,685	7,737.0	**46,422**
20	57,292	5,851	55,585	3,440	252,113	28,497	16,958	1,180	381,948	38,969	7,793.7	**46,762**
21	47,174	4,818	54,431	3,369	243,126	27,481	18,144	1,263	362,875	36,931	7,386.1	**44,317**

METHOD:	OVERHAND				UNDERHAND				AVERAGE		CONTINGENCY	
Cost per Tonne *USD:*	Alimak $102.13		Mechanized $61.89		Alimak $113.03		Mechanized $69.61		Per tonne $97.52		@ 20%	Total Cost
Year	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	Mineralized Material *Tonnes*	*USD $ 000's*	*USD $ 000's*	*USD $ 000's*
22	45,753	4,673	54,051	3,345	210,447	23,787	41,695	2,902	351,945	34,708	6,941.5	**41,649**
23	28,432	2,904	66,341	4,106	195,863	22,139	25,273	1,759	315,907	30,908	6,181.5	**37,089**
24	35,772	3,653	55,284	3,422	198,372	22,422	35,772	2,490	325,200	31,987	6,397.5	**38,385**
25	25,728	2,628	61,104	3,782	218,688	24,719	16,080	1,119	321,600	32,247	6,449.5	**38,697**
26	-	0	-	0	224,043	25,324	100,657	7,007	324,700	32,331	6,466.1	**38,797**
27	-	0	-	0	217,616	24,597	107,184	7,461	324,800	32,059	6,411.7	**38,470**
28	-	0	-	0	179,575	20,297	96,694	6,731	276,269	27,028	5,405.7	**32,434**
LOM	**2,695,781**	**$275,318**	**1,512,441**	**$93,612**	**4,933,706**	**$557,662**	**932,665**	**$64,924**	**10,074,594**	**$991,515**	**$198,303**	**$1,189,818**

21.2.4 Processing

Table 21-6 provides a summary of LOM operating costs for processing.

Table 21-6: LOM Operating Cost Summary - Processing

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Hourly Labor	97,354,182	3,476,935	9.66
Salaried Labor	38,003,683	1,357,274	3.77
Power	37,980,248	1,356,437	3.77
Crushing and Grinding Steel	17,435,377	622,692	1.73
Reagent Chemicals	36,203,395	1,292,978	3.59
Water Treatment	18,349,401	655,336	1.82
Maintenance Supplies & Materials	18,960,517	677,161	1.88
Operations Supplies, Oil & Lube, Misc.	2,844,067	101,574	0.28
Mobile Equipment	2,627,090	93,825	0.26
Tailings Line Electrical	380,471	13,588	0.04
Total Processing Cost	$270,138,432	$9,647,801	$26.81

27.85-year LOM LOM Tonnes of Mineralized Material: 10,074,594

Lyntek completed detailed estimates for input to process operating costs. Methodologies for the major criteria are shown below:

- Labor – Burdened U.S. labor costs for hourly and salaried personnel were applied to a detailed staffing schedule. Burdened salary and hourly rates were supplied by SSMRC.
- Power – Annual average power consumption was based on the mechanical equipment outlined in the capital expenditure estimate and the operating time of the different circuits. The annual costs were based on unit rates for two tiers of usage currently being charged to SSMRC.
- Process consumables – Consumables were estimated on an order-of-magnitude anticipated annual consumption rate and unit cost rates per tonne were applied to each consumable commodity amount.

21.2.5 Antimony Plant

Costs of antimony plant operations were originally estimated by Samuel Engineering, Inc. (SE) in September 2013. This estimate was reviewed by Lyntek and incorporated in this TR using its original value. **Table 21-7** provides a summary of LOM operating costs for the antimony plant.

Table 21-7: LOM Operating Cost Summary – Antimony Plant

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Fixed Antimony Plant Costs	74,338,760	2,654,956	**7.38**
Variable Antimony Plant Costs	79,064,205	2,823,721	**7.85**
Total Antimony Plant Cost	**$153,402,965**	**$5,478,677**	**$15.23**

27.85-year LOM LOM Tonnes of Mineralized Material: 10,074,594

21.2.6 Refining

Table 21-8 provides a summary of LOM operating costs for refining. In support of SSMRC's evaluation of constructing a new refinery or purchasing the existing refinery (original Sunshine Refinery) from Formation Metals, SE prepared operating cost estimates for both the new and refurbished refinery options during July 2013. Subsequently, SSMRC purchased the existing refinery. After visiting the refinery, Lyntek reviewed and revised the refinery operating costs, paying particular attention to consolidation of the antimony plant, refinery, and mine/process plant operations.

Table 21-8: LOM Operating Cost Summary – Refining

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Hourly Labor	58,512,536	2,089,733	**5.81**
Salaried Labor	17,001,713	607,204	**1.69**
Subtotal Labor	75,514,248	2,696,937	**7.50**
Maintenance Supplies & Materials	21,173,644	756,202	**2.10**
Subtotal Fixed Costs	82,738,373	3,453,139	**8.21**
Consumables	39,784,370	1,420,870	**3.95**
Reagents	64,097,041	2,289,180	**6.36**
Electricity	35,363,885	1,262,996	**3.51**
Subtotal Variable Costs	139,245,296	4,973,046	**13.82**
Total Refining Cost	**$235,933,189**	**$ 8,426,185**	**$23.42**

27.85-year LOM LOM Tonnes of Mineralized Material: *10,074,594*

21.2.7 Tailings Storage Facility

Approximately 3.9 million tonnes of surface tailings storage is required in support of this TR, of which approximately 861,825 tonnes may be stored conventionally in the remaining volume of the existing permitted TSF. Newfields developed a conceptual design for placing dry stack tailings above lift seven of the existing design, after geotechnical testwork supported this concept. Approximately 3.6 million tonnes of additional storage results. In order to dewater the tailings to an optimum moisture content of approximately 15%, Lyntek developed a conceptual filtration plant design and cost estimate based on recently completed similar projects.

Newfields provided estimated costs to load and haul the dried tailings from the filtration plant to the dry stack tailings area, and to place and compact them. Estimated costs for progressively capping the side slope areas of the dried tailings with mine waste rock were provided by Newfields and included in sustaining capital. **Table 21-9** provides a summary of LOM operating costs for the dry stack portion of the TSF.

Table 21-9: LOM Operating Cost Summary – Tailings Storage Facility (Dry Stack)

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Labor	2,181,608		0.22
Maintenance	1,549,851		0.15
Electricity	641,006		0.06
Subtotal Tailings Dewatering	4,372,465		0.43
Dry Stack Tailings	6,142,651		0.61
Total Tailings Storage Cost	$10,515,115	[1]	1.04 [2]

27.85 LOM LOM Tonnes of Mineralized Material: 10,074,594

[1] *No Average Annual Cost indicated as cost is considered incurred in Years 6 to 28.*

[2] *This is a LOM average unit cost for all mineralized material processed. It does not represent an average cost for tonnes of tailings stored, as it has not considered the 50% of tailings reporting to the paste backfill plant and the 862,000 tonnes in the remaining capacity of the current permitted TSF. An approximate cost per tonne mineralized material for the new dry stack storage is $2.54.*

21.2.8 General and Administration

A staffing organization chart was developed to identify all G&A staff and labor positions. Burdened labor rates were provided by SSMRC.

G&A expenses were provided by SSMRC based on historical actual costs. The G&A operating costs are shown in **Table 21-10**.

Table 21-10: LOM Operating Cost Summary – G&A

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Supervision and Labor	75,978,921	2,713,533	**7.54**
Insurance	56,153,686	2,005,489	**5.57**
Legal, Permits, and Fees	18,742,155	669,363	**1.86**
Corporate Overhead	19,962,058	712,931	**1.98**
Corporate Outside Services (Legal & Accounting)	5,545,016	198,036	**0.55**
Site Overhead (Communications, Power, Supplies)	43,376,277	1,549,153	**4.31**
Total General & Administration Cost	**$219,758,113**	**7,848,504**	**$21.81**

27.85-year LOM *LOM Tonnes of Mineralized Material:* *10,074,594*

21.2.9 Mine Reclamation and Closure Cost

Table 21-11 provides a summary of LOM operating costs for estimated mine reclamation and closure costs. No average annual cost is indicated as cost is considered incurred after LOM in year 28 and after. Any costs associated with concurrent reclamation during LOM operations are included in sustaining capital costs.

Table 21-11: LOM Operating Costs – Mine Reclamation and Closure

Description	Total Life of Mine Cost *USD*	Average Annual Cost *USD*	Avg LOM Cost per Tonne Mineralized Material *USD*
Total Mine Reclamation & Closure Cost	$ 20,000,000	**	$1.99

27.85-year LOM *LOM Tons of Mineralized Material:* *10,074,594*

*** No Average Annual Cost indicated as cost is considered incurred after LOM in Year 28 and after.*

21.2.10 Net Cash Costs

Net cash costs were calculated using LOM totals for the following line items from the Sunshine economic model's cash flow forecast:

- Operating costs
- Freight, treatment and refining charges, and penalties
- Royalties
- Copper revenue (credit)
- Lead revenue (credit)

Total costs net of credits for secondary products were then divided by the estimated volume of payable silver ounces over the LOM. **Table 21-12** shows the result of the calculation of LOM net cash costs to be $10.03 per payable ounce of silver.

Table 21-12: LOM Net Cash Costs Including Byproduct Credits

Description	Life of Mine *USD*		
Operating Costs	2,161,815,958		
Freight, Treatment/Refining Costs,	171,377,472		
Penalties Royalties	370,714,360		
Cash Cost w/o Credits		2,703,907,790	
Copper Revenue (Credit)	(115,630,950)		
Lead Revenue (Credit)	(45,235,884)		
Subtotal of Credits		(160,866,834)	
Sub Total Cash Cost w/ Credits			
Total Payable Silver		**2,543,040,956**	*253,514,338 oz*
LOM Net Cash Cost *USD*	$10.03 per Payable Ounce of Silver		

Annual net cash costs were also estimated by summing the yearly values of the above cost and revenue items before dividing by the payable silver ounces in the corresponding year. **Figure 21-1** is a graphical representation of the annual net cash costs per payable ounce of silver for each year in the life of the mine.

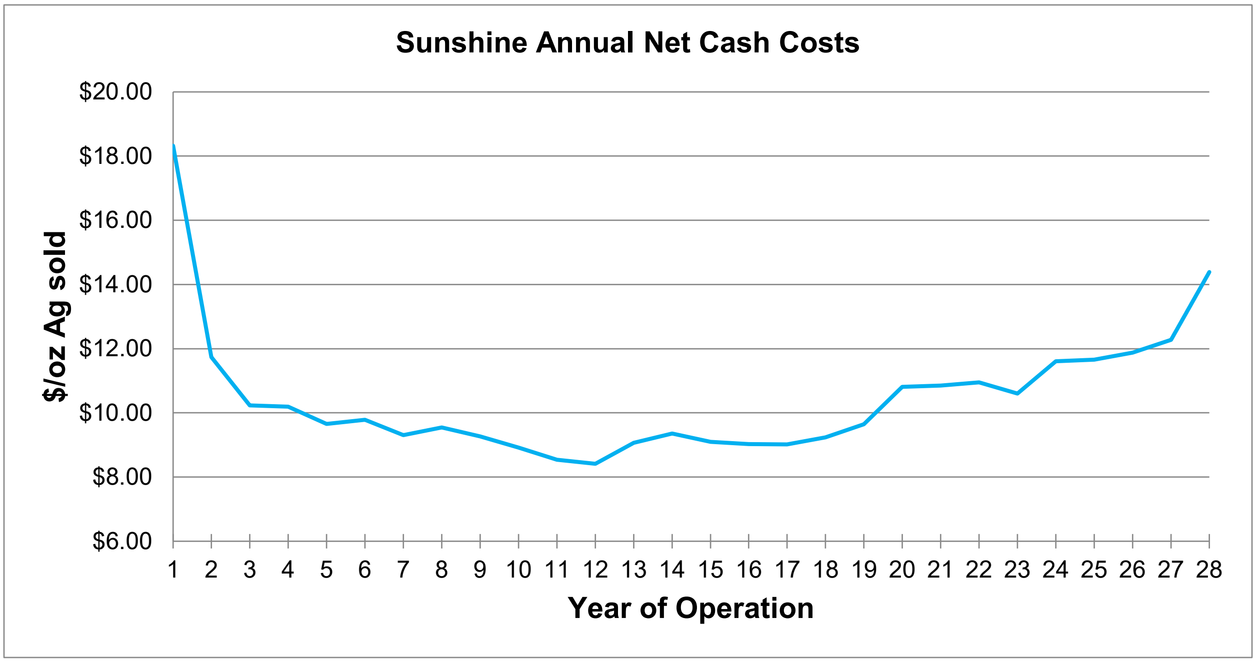


Figure 21-1: Annual Net Cash Costs Including Byproduct Credits

22 ECONOMIC ANALYSIS

22.1 General Criteria

Key objectives of developing the preliminary economic model are to:

- Gather information from various professionals in related disciplines including mine development, engineering, and metallurgy, among others;
- Identify and balance components in the model to determine the most favorable return on investment;
- On a high level, simulate operation over the expected life of the project;
- Allow for assessment of the project's potential economic viability;
- Support management in the financial decision-making process; and
- Provide a foundation for the next phase of project advancement.

Methodology involved in developing the preliminary economic model is explained in the following sections and technical parameters are provided as applicable. Summations of key project data are presented in tables extracted from the model. A listing of select model inputs is given in **Table 22-1**.

This TR is preliminary in nature and it includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the results described herein will be realized. Mineral Resources that are not Mineral Reserves have no demonstrated viability. For the economic analysis, 75% of the Resources considered are Inferred, and 25% are Measured and Indicated. **It should be noted, the removal of Inferred Resources results in a project that does not meet economic viability, and therefore is not included in this report.**

Table 22-1: Economic Model Inputs

Description	Values		
Construction Period	24 months		
Preproduction Period	2.0 years		
Mine Life (after Preproduction)	27.85 years		
LOM Mineralized Material (tonnes)	10,074,594		
LOM Silver Concentrate (tonnes)	138,022		
LOM Lead Concentrate (tonnes)	217,611		
LOM Grade	*g/T Ag*	*Cu %*	*Pb %*
Per Tonne of Mineralized Material	*827*	*0.19*	*0.37*
Per Tonne of Silver Concentrate	*49,808*	*11.69*	*3.24*
Per Tonne of Lead Concentrate	*4,888*	*0.79*	*10.79*
Avg. Annual Process Production Silver (troy ozs)	9,115,155		
Avg. Annual Process Production Copper (lbs)	1,405,608		
Avg. Annual Process Production Lead (lbs)	2,200,566		
Market Price *(USD)*	*/Toz Ag*	*/lb Cu*	*/lb Pb*
Average LOM price	*20.16*	*3.25*	*0.92*

Description	Values	
Cost and Tax Criteria		
Inflation/Currency Fluctuation	None	
Leverage	100% Equity	
Tax - Federal Income 21%, Idaho Income 7.6%, Severance 1%	29.6%	
Depreciation	Straight Line	
Royalties		
Coeur d'Alene Tribe and EPA	7.0%	
Chester Mining Co*	4.0%	
Hecla Mining Co*	4.0%	
Metropolitan Mines Corp*	4.0%	
on select revenue		
Transportation - Road Freight Charges *(USD)*		
Silver Con from Mill to Refinery ($/wT)	6.61	
Copper Cathode to Midwestern U.S. ($/lb)	0.14	
Antimony ($/lb)	0.14	
Lead Con to Trail, British Columbia ($/wT)	59.19	
Payment Terms	*Metals*	*Lead Con*
Provisional upon Bill of Lading	95%	90%
Settlement of Balance after Bill of Lading	1 week	1 month

22.2 Production Summary

At the foundation of the economic model, data was drawn from the mine production and process production schedules, previously produced by MDA and MTB and adjusted by Tetra Tech, are summarized in **Table 22-2**.

Table 22-2: Process Production Schedule

Year	Total Mineralized Material Processed *tonnes*	Ag Con Produced *tonnes*	Pb Con Produced *tonnes*	Silver *oz*	Copper *lb*	Lead *lb*
1	108,136	1,481	2,336	2,454,660	145,856	**204,052**
2	244,667	3,352	5,285	6,010,211	873,571	**353,942**
3	411,209	5,634	8,882	9,704,055	1,334,860	**1,294,297**
4	439,972	6,028	9,503	10,221,614	1,522,495	**1,731,135**
5	387,647	5,311	8,373	10,032,062	1,665,091	**2,262,144**
6	391,886	5,369	8,465	9,901,866	1,766,449	**2,504,200**
7	393,915	5,397	8,509	10,808,881	2,012,600	**1,547,455**
8	393,813	5,395	8,506	10,812,282	1,283,571	**1,986,913**

Year	Total Mineralized Material Processed *tonnes*	Ag Con Produced *tonnes*	Pb Con Produced *tonnes*	Silver *oz*	Copper *lb*	Lead *lb*
9	394,972	5,411	8,531	11,266,173	1,285,816	2,073,461
10	392,541	5,378	8,479	11,285,954	1,371,719	2,361,125
11	393,900	5,396	8,508	11,811,331	1,579,791	2,552,064
12	393,155	5,386	8,492	11,958,738	1,260,329	3,945,316
13	394,611	5,406	8,524	10,756,613	1,258,830	3,658,264
14	393,878	5,396	8,508	10,045,631	1,410,531	4,063,461
15	389,878	5,341	8,421	9,619,674	1,766,768	8,043,426
16	393,865	5,396	8,507	10,446,708	2,580,206	4,571,602
17	392,893	5,383	8,486	10,502,941	2,331,130	4,240,629
18	393,770	5,395	8,505	10,420,742	2,115,312	3,582,034
19	384,642	5,270	8,308	10,185,966	1,026,461	2,199,763
20	381,948	5,233	8,250	8,965,551	777,234	1,824,348
21	362,875	4,971	7,838	8,486,763	1,080,162	1,445,817
22	351,945	4,822	7,602	8,301,867	1,255,375	1,332,543
23	315,907	4,328	6,824	7,569,472	1,672,295	1,024,373
24	325,200	4,455	7,024	7,039,111	1,272,914	872,963
25	321,600	4,406	6,947	6,961,097	1,453,859	819,395
26	324,700	4,448	7,014	6,908,409	1,143,975	803,136
27	324,800	4,450	7,016	6,649,835	1,161,783	178,188
28	276,269	3,785	5,967	6,096,134	948,047	139,791
LOM	10,074,594	138,022	217,611	255,224,341	39,357,029	61,615,838

22.3 Gross Revenue from Mining

For purposes of the economic model, silver, and lead market prices were projected revenues, are based upon long-term market prices $20.16 per ounce of silver and $0.92 per pound of lead. The copper price is the long-term price from BMO. Consensus pricing is accomplished by periodically surveying major commodity forecasters and reporting their results for yearly and long-term forecasts **Table 22-3** shows the pricing values to be used in the model as market prices for silver, copper, and lead..

Table 22-3: Pricing Values for Silver, Copper and Lead

Metal	Unit	LOM USD
Silver	$ / oz Ag	20.16
Copper	$ / lb Cu	3.25
Lead	$ / lb Pb	0.92

Market prices for silver and copper are applied to corresponding recovered silver ounces and copper pounds in the silver-copper concentrate, payable at 100% assuming operation of an onsite refinery. For recovered silver ounces and lead pounds in the lead concentrate, market prices for silver and lead are applied and payable at 95%, based upon preliminary smelter terms.

22.4 Transportation

Transportation charges for trucking silver-copper concentrate from the Sunshine concentrator to the Sunshine Refinery were provided as a written quotation by a local trucking company. The concentrate has been assumed to have a moisture content of approximately 12% by weight, based on preliminary process calculations.

Lead concentrate is expected to be trucked to Teck Metals Ltd.'s facility in Trail, B.C. for processing. A local trucking company provided a written quote for transportation charges based on the estimated quantities and characteristics of the lead concentrate. The lead concentrate has been assumed to have a moisture content of approximately 8% by weight, based on preliminary process calculations.

Transportation charges for transporting copper cathode to a buyer in mid-western U.S. were provided by a trucking company. The same rates were used for transporting antimony metal.

Table 22-4 summarizes the transportation types and costs.

Table 22-4: Transportation Types and Costs

Type	Purpose	Rate *USD*	Unit
Road Freight	Silver Con from Mill to Refinery	6.61	$ / wT
Road Freight	Copper Cathode to Midwestern U.S.	0.14	$ / lb
Road Freight	Antimony.	0.14	$ / lb
Road Freight	Lead Con to Trail, Br Columbia	59.19	$ / wT

22.5 TCs, RCs and Penalties

An independent marketing consultant conducted a marketing study for the Project. Characteristics of the concentrates, as well as expected quantities that would be produced, were provided for use in obtaining early marketing information, including payable metals, treatment charges, refining charges, penalty elements, and freight charges.

Lead concentrates are planned to be shipped to commercial refineries or smelters. Pricing was obtained from Teck Metals Ltd. to process the lead concentrate. The terms and conditions received from these facilities form the basis for the terms used in the economic model and are shown in **Table 19-1** in Section 19.0. The silver-copper concentrate is planned to be processed at an onsite refinery.

22.6 Royalties

Many parts of the Sunshine Mine property are subject to royalties that are payable to parties from whom mineral rights are leased or to others who have a right to royalties on certain areas of the property. Certain of these agreements have royalty payments that are triggered when SSMRC begins producing and selling metal-bearing concentrate. These royalties are based upon proceeds paid by smelters less certain costs, including costs incurred to transport the concentrates to the smelters, or NSR, for mineralized material produced in the property area subject to the royalties.

Royalties have been previously described in greater detail under Section 4.2.

22.7 Operating Costs

Operating costs as previously described in Section 21.2 served as input to the economic model.

22.8 Mine Development Costs

With the exception of rehabilitation work, mine development during preproduction will be performed by a contractor, as will construction of a bypass drift on the 3100 Level and all vertical development during production years. All other development during production will be performed by SSMRC employees. Planned LOM mine development is detailed in **Table 16-5**.

Estimated preproduction mine development costs ($47.2 million) are included within initial capital costs detailed in **Table 21-1** and depreciated accordingly. In addition, a 15% contingency allowance (approximately $7.1 million) has been included in the overall contingency for initial capital costs. Estimated production mine development costs totaling $451.3 million for production years 1-21 are expensed in the year in which the related mineralized material is mined at an average rate of approximately $21.5 million per year. A 10% contingency allowance, or $40.1 million has been included in estimated mine development costs. The total estimated development costs are the product of the development quantities shown in **Table 16-7** and the unit costs shown below in **Table 22-5**. The unit costs shown for contractor responsibilities are based on recent contractor work at site.

Table 22-5: Mine Development Unit Costs

Development Type	Owner - Cost *US $ / m*	Contractor - Cost *US $ / m*
3.7 x 3.7 m Ramp	3,379	4,725
3 x 3 m Drift	2,822	3,937
2.4 x 3 m Attack Ramp	2,428	
3 x 3 m Alimak Vent Raise		4,462

22.9 Depreciation

In calculating depreciation, all initial and sustaining capital costs were assigned asset classes as defined under the Internal Revenue Service (IRS) Modified Accelerated Cost Recovery System (MACRS) using the General Depreciation System (GDS). Asset types are itemized in **Table 22-6** according to asset class. Although MACRS defines nine classifications of property under GDS, with class lives ranging from five to 15 years, only those asset classes pertaining to the Project are shown.

Table 22-6: Depreciation

Property Description	Asset Class	Annual Depreciation
Vehicles, IT Equipment, Copiers	5 year	20%
Office Furniture & Fixtures	7 year	14%
All Other Mining Assets	7 year	14%
Roads and Fences	15 year	7%

22.10 Income Taxes

Income taxes are provided based on the U.S. federal and Idaho state and local statutory rates after allowable deductions including percentage depletion equal to 15% of silver and copper sales and 22% of lead sales.

22.11 Initial Capital Costs

Initial capital cost estimates as previously described in Section 21.0 of this Technical Report served as input to the preliminary economic model.

Of the total, just under $1.4 million is identified as spare parts, consumables, and initial fills. Because the cost of these items is recaptured at the end of mine life in year 28, their value is represented as a separate line item in the cash flow after being deducted from other initial capital costs. The remaining capital costs are then apportioned 40% and 60% to preproduction years (-2) and (-1) respectively.

22.12 Sustaining Capital Costs

Acquiring additional assets, increasing facility capacities, or replacing assets are considered sustaining capital expenses over the life of the project. Such expenditures fall into four main categories for the Sunshine Mine Project: mining, surface facilities, surface equipment, and TSF. Determining each piece of equipment's useful life upon acquisition allows for its replacement capital cost to be scheduled in the last year of its useful life. Additional mining equipment and primary and ancillary equipment will be needed as well as miscellaneous items (e.g. mine software and shop equipment). Sustaining capital costs are estimated to total $162.1 million over the LOM and are summarized in **Table 22-7**.

Table 22-7: Sustaining Capital Cost Summary

Description	Cost *USD*	LOM Total *USD*
Underground Shop - Excavation & Equipment	900,000	
Silver Summit Muck Hoisting Upgrade	4,000,000	
Mine Refrigeration System	6,050,000	
Muck Transfer Infrastructure	3,550,000	
Jewell Shaft Ore Pass System	6,938,368	
Jewell Shaft Pump Column Replacement	2,400,000	
Jewell Shaft Compressors	1,765,228	
Lower Shaft and Hoist Rehab	8,000,000	
New Ventilation System and Upper Country Ventilation	1,337,500	
UG Backfill Distribution	3,250,000	
Substations (UG Power)	1,920,000	
Mine Fans and 100 hp Fans with Runaround	1,670,000	
Explosive Storage	250,000	
Mine Equipment, Communications and General	99,563,000	
Refuge Chamber	810,000	
Mine Spare Parts	871,500	
Mine Dewatering	3,193,200	
Total Mining		146,618,796
Administration Building	2,019,463	
Warehouse Building	2,303,164	
Maintenance Shop Building	2,163,504	
Total Surface Facilities		6,486,131
Pickups	2,160,000	
966 Front-end Loader	1,560,000	
Skid Steer, JLG Manlift, Mini Hoe, and Fork Lift	880,000	
Total Surface Equipment		4,600,000
Stage 6 & 7 Raise - Placement/Engineering/Inspection	300,000	
Dry Stack Tailings Expansion and Dewatering	3,499,572	
Ongoing 3rd Party Inspection	625,000	
Reclaim Water Pumps	20,000	
Total Tailings Storage Facility		4,444,572
Total Sustaining Capital Costs		$162,149,499

22.13 Working Capital

Defined as the highest amount of funding needed during the initial operating period, working capital is used to cover expenses prior to the cumulative revenue exceeding the cumulative expenses, or the point at which the operation becomes self-sustaining in its cash flow. Considering production schedule ramp-up, revenue was calculated on a weekly basis.

Projected revenue receipt was based upon shipments every week, allowing for an initial lag of one week leading up to first shipment. Weekly shipments would occur thereafter. For silver and copper, receipt of 95% of funds one week after issuance of the shipping bill of lading, the 5% balance of funds were considered received one week later, allowing for delivery, assaying, and accounts payable functions. For lead concentrate, 90% of the provisional value was assumed to be paid based on shipping documents, with the remaining 10% at final settlement four weeks later.

Weekly expenditure rates were calculated from the operating and development costs estimated for year 1, after considering the different lags for payment cycles for SSMRC staff/labor, contractors, and other third-party vendors' costs.

The largest deficit of funds is expected to occur in week 49, in the amount of $26.7 million. This working capital investment was reflected in the cash flow model in year 1, with recovery at the end of mine life in year 28.

22.14 Base Case Analysis

The results of this analysis estimate payback to occur early in the seventh year of mine life, approximately 6 years after start of production.

The base case financial model was developed from information described in this section. Based upon this information, the Sunshine Project is estimated to have an after-tax IRR of 15.5%. Assuming a discount rate of five percent over an estimated mine life of 27.85 years, the after-tax NPV is estimated to be approximately $560.0 million. Base-case NPVs at various discount rates are presented in **Table 22-8**.

Table 22-8: NPV at Various Discount Rates

Discount Rate	0%	2.5%	5%	7.5%
NPV in *US $M*	$1,438.0	$899.7	$560.0	$338.1

22.15 Sensitivity Analysis

Table 22-9 reflects the sensitivities for IRR and NPV in 5% increments of negative and positive deviation from the base case for silver and copper prices and operating and capital costs. Metallurgical recovery variances are shown in one percent increments and silver grade per tonne of mineralized material are shown in 78 grams per tonne or approximately 2.5 opt of mineralized material increments of negative and positive deviation from their respective base cases.

Graphical representations follow of the sensitivities of IRR and NPV to the incremental changes in silver and copper prices in **Figure 22-1** and **Figure 22-2** and capital costs versus operating costs in **Figure 22-3** and **Figure 22-4**, respectively. In addition, IRR and NPV sensitivities to varying metallurgical recovery rates and silver grade per tonne of mineralized material are illustrated in **Figure 22-5**, **Figure 22-6**, **Figure 22-7**, and **Figure 22-8**, respectively.

Table 22-9: Sensitivity Analysis of IRR and NPV

Base Case Variance	- 20%	- 15%	- 10%	- 5%	Base	+ 5%	+ 10%	+ 15%	+ 20%	+ 25%	+ 30%
Silver Price (Ag) $/Toz	16.13	17.14	18.14	19.15	20.16	21.17	22.18	23.18	24.19	25.20	**26.21**
IRR	8.2%	10.1%	11.9%	13.7%	15.5%	17.1%	18.7%	20.3%	21.8%	23.3%	**24.7%**
NPV @ 5% ($M)	160.5	261.5	361.6	461.3	560.0	658.0	754.6	850.8	946.2	1,040.6	**1,134.9**
Copper Price (Cu) $/lb	2.60	2.76	2.93	3.09	3.25	3.41	3.58	3.74	3.90	4.06	**4.23**
IRR	15.3%	15.3%	15.4%	15.4%	15.5%	15.5%	15.5%	15.6%	15.6%	15.6%	**15.7%**
NPV @ 5% ($M)	551.4	553.6	555.7	557.9	560.0	562.2	564.3	566.5	568.6	570.8	**572.9**
Unit Operating Cost	171.66	182.39	193.12	203.85	214.58	225.31	236.04	246.77	257.50	268.23	**278.96**
IRR	18.3%	17.6%	16.9%	16.2%	15.5%	14.7%	13.9%	13.2%	12.4%	11.6%	**10.8%**
NPV @ 5% ($M)	727.3	685.9	644.4	602.3	560.0	517.6	474.6	431.5	388.3	345.1	**301.6**
Capital Cost ($M)	203.0	215.7	228.4	241.1	253.7	266.4	279.1	291.8	304.5	317.2	**329.9**
IRR	17.7%	17.1%	16.5%	16.0%	15.5%	15.0%	14.5%	14.1%	13.7%	13.3%	**12.9%**
NPV @ 5% ($M)	609.2	596.9	584.6	572.3	560.0	547.7	535.4	523.1	510.8	498.5	**486.2**
Base Case Variance	**-4%**	**-3%**	**-2%**	**-1%**	**Base**	**1%**	**2%**				
Silver Recovery	91.5%	92.4%	93.4%	94.3%	95.3%	96.3%	97.2%				
IRR	14.1%	14.4%	14.8%	15.1%	15.5%	15.8%	16.1%				
NPV @ 5% ($M)	482.0	501.6	521.2	540.6	560.0	579.4	598.9				
Copper Recovery	90.2%	91.1%	92.0%	93.0%	93.9%	94.8%	95.8%				
IRR	15.4%	15.4%	15.4%	15.4%	15.5%	15.5%	15.5%				
NPV @ 5% ($M)	558.4	558.8	559.2	559.6	560.0	560.4	560.8				
Lead Recovery	71.0%	71.8%	72.5%	73.3%	74.0%	74.7%	75.5%				
IRR	15.4%	15.4%	15.4%	15.4%	15.5%	15.4%	15.5%				
NPV @ 5% ($M)	559.3	559.5	559.7	559.8	560.0	560.2	560.4				
Base Case Variance			**- 156 gpt**	**- 78 gpt**	**Base**	**+ 78 gpt**	**+ 156 gpt**				
Silver Grams/ Mineralized Material Tonne			671	749	827	905	983				
IRR			8.1%	11.9%	15.5%	18.7%	21.9%				
NPV @ 5% ($M)			**158.5**	**360.6**	**560.0**	**755.6**	**948.1**				

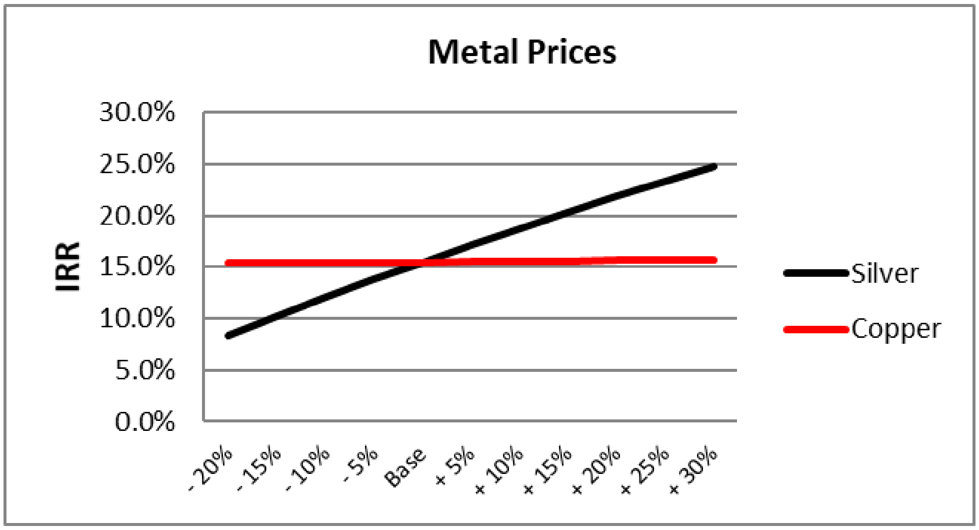


Figure 22-1: IRR Sensitivity Analysis – Metal Prices

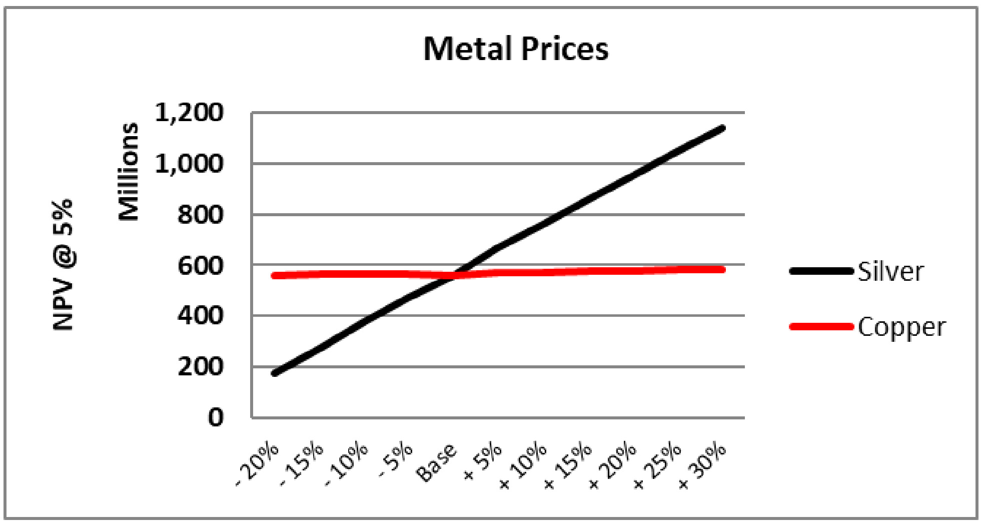


Figure 22-2: NPV Sensitivity Analysis – Metal Prices

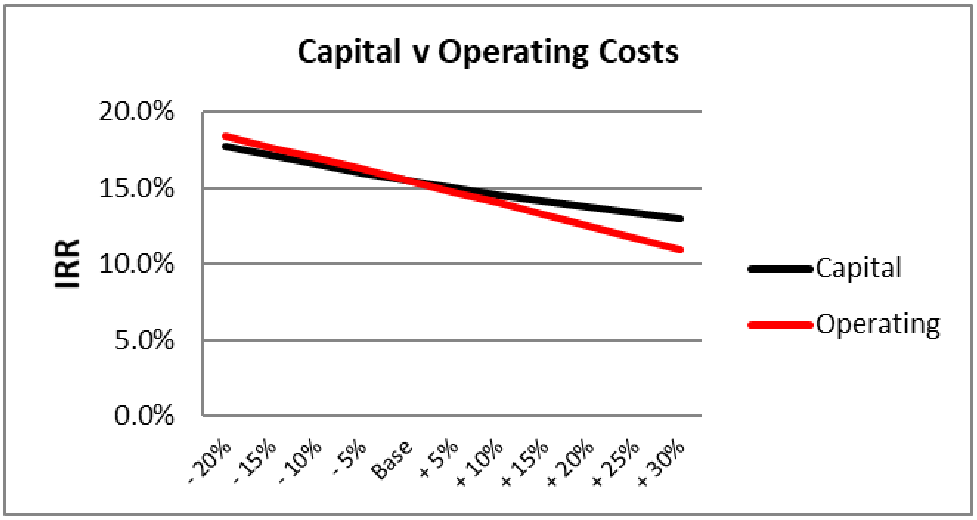


Figure 22-3: IRR Sensitivity Analysis – Capital v Operating Costs

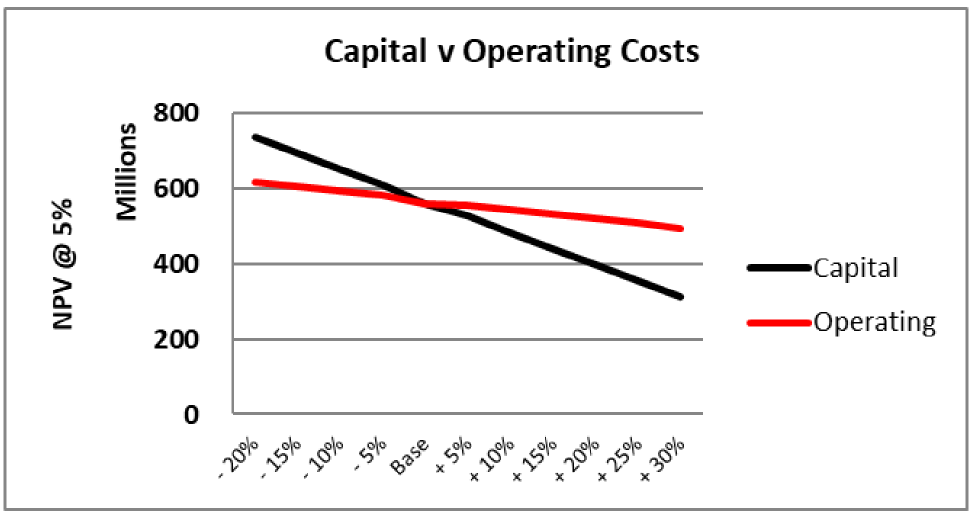


Figure 22-4: NPV Sensitivity Analysis – Capital v Operating Costs

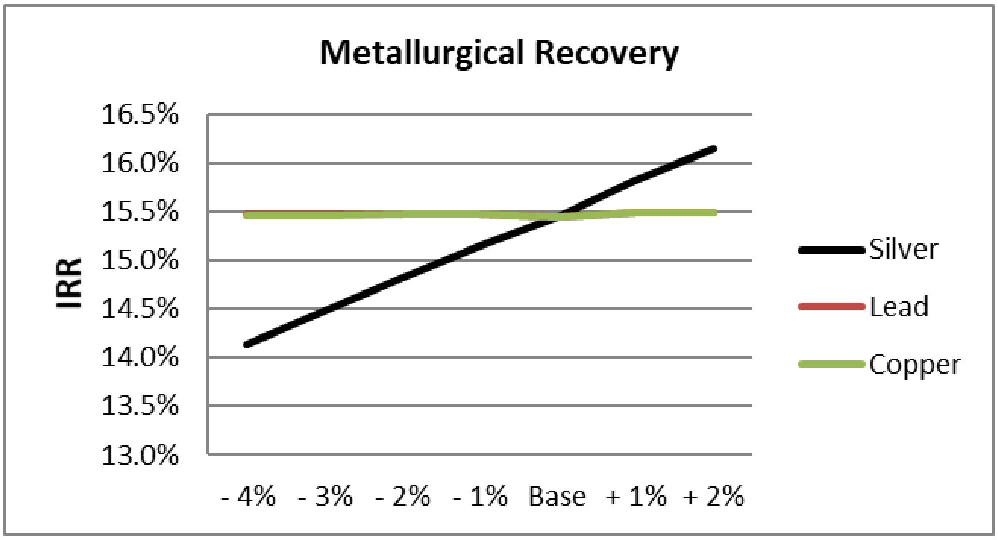


Figure 22-5: IRR Sensitivity Analysis – Recovery

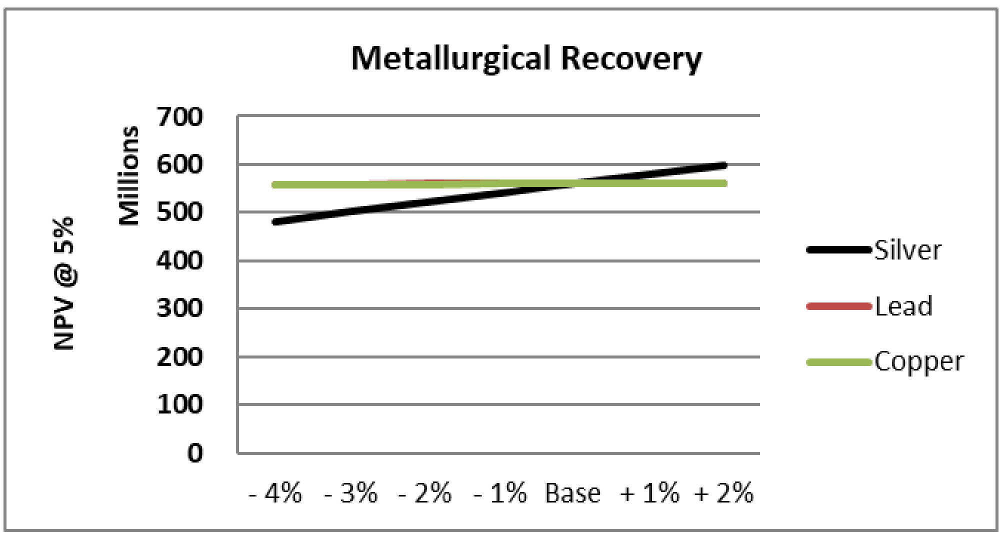


Figure 22-6: NPV Sensitivity Analysis – Recovery

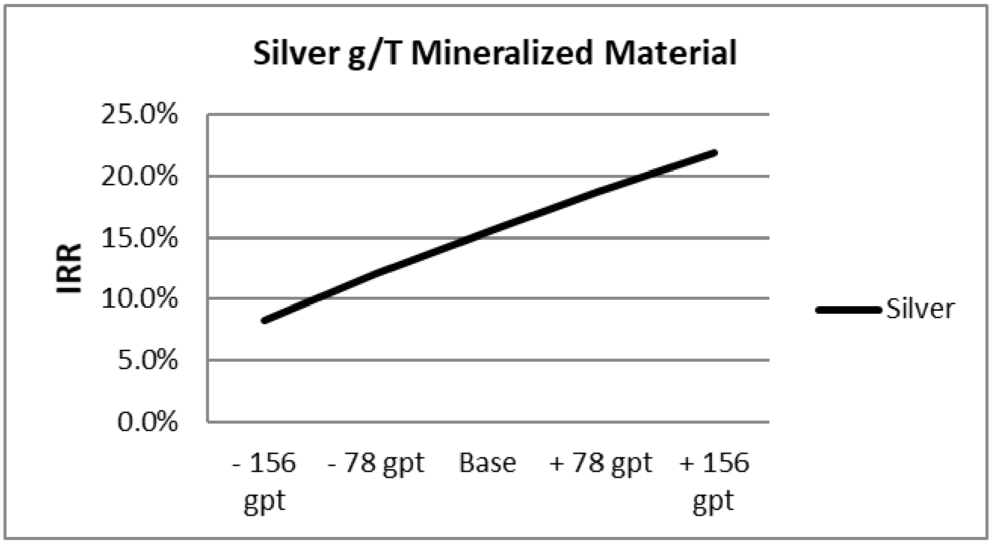


Figure 22-7: IRR Sensitivity Analysis – Silver Grams per Tonne of Mineralized Material

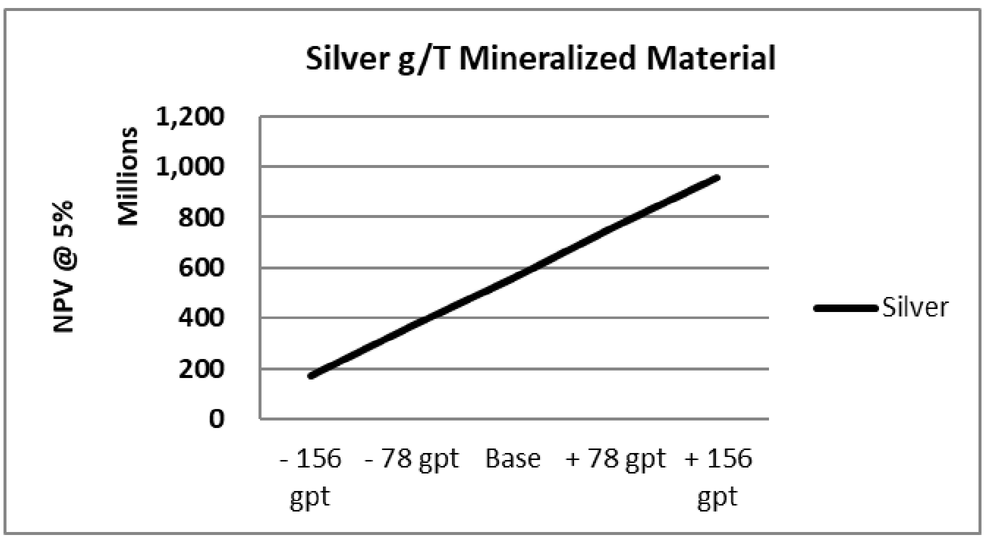


Figure 22-8: NPV Sensitivity Analysis – Silver Grams per Tonne of Mineralized Material

Table 22-10: Financial Outputs

Silver Price USD $/oz	Average Annual Free Cash Flow (after tax) $M	NPV 0.0% $M	NPV 5.0% $M	NPV 7.5% $M	IRR	Payback Period Production Year
15.00	32.4	495.0	43.2	-64.7	5.9%	13.05
17.50	48.7	950.5	297.8	134.9	10.8%	9.16
*** 20.16**	**66.1**	**1,438.4**	**560.1**	**338.2**	**15.5%**	**6.99**
22.50	81.3	1,862.8	785.8	512.1	19.2%	5.79
25.00	97.3	2,312.0	1,022.0	693.3	13.1%	4.80

** Base Case - Consensus Curve Price*

Cumulative free cash flow for varying silver prices is shown below in **Figure 22-9**.

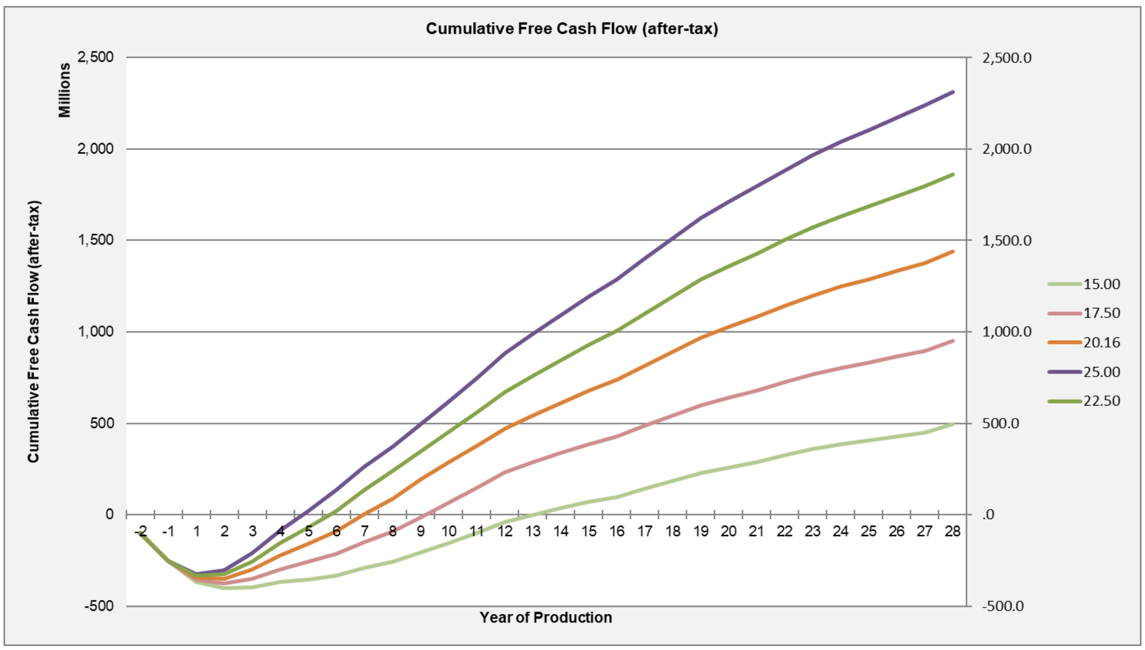


Figure 22-9: Cumulative Free Cash Flow

22.16 Economic Model

Figure 22-10 is a graphical representation of key components of the cash flow model. Immediately following is the complete cash flow model in **Table 22-11**.

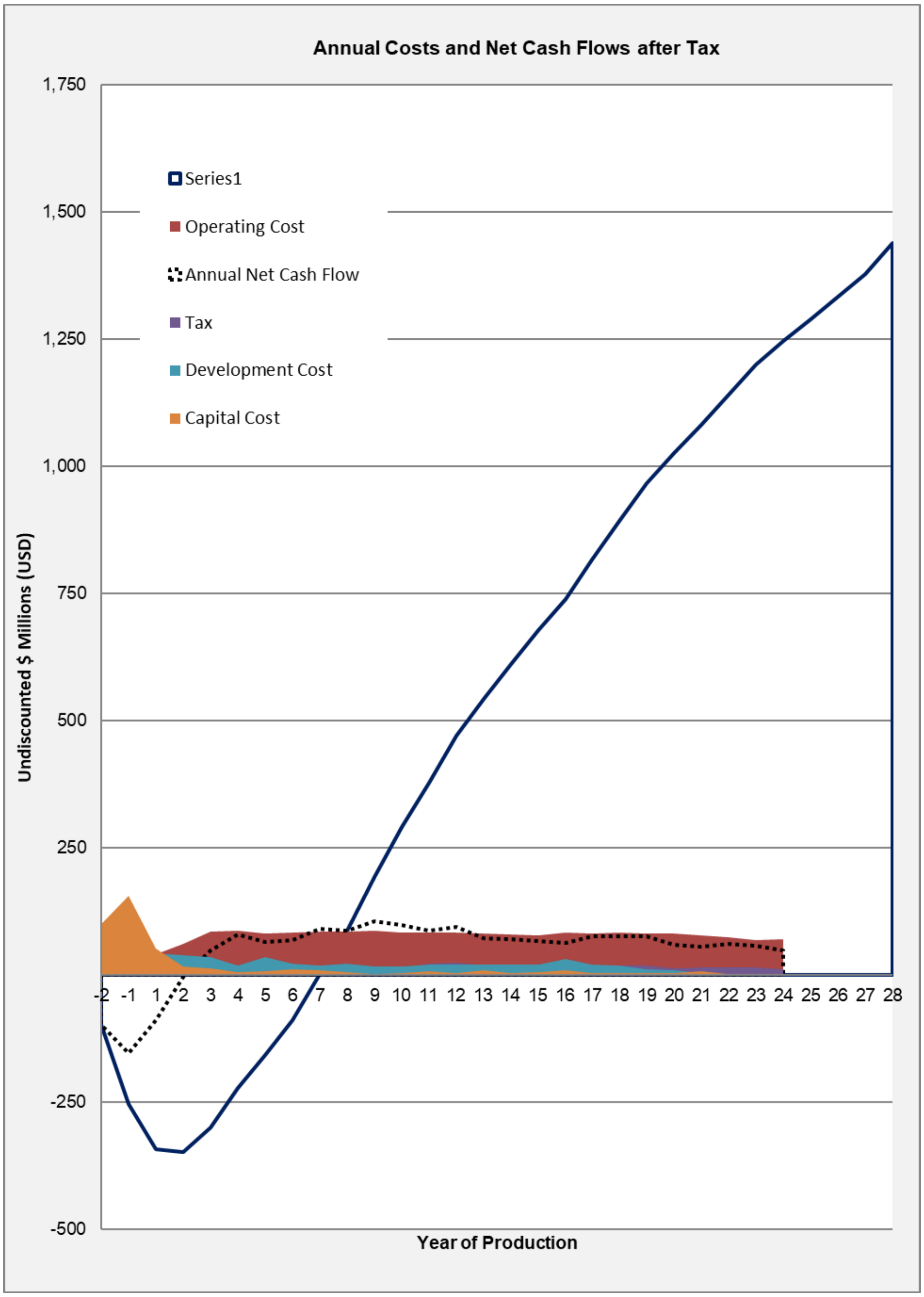


Figure 22-10: Annual Costs and Net Cash Flows after Tax

Table 22-11: Technical Economic Model

Cash Flow Forecast
Sunshine Silver Mining & Refining Corporation
Sunshine Silver Mining & Refining Corporation
10 OPT
2020 Rev AN
Revised 1/15/2020

			Total LOM or Average	Preproduction Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
	PRODUCTION SUMMARY																		
	Ore Processed	*tonnes*	*10,074,594*			*108,136*	*244,667*	*411,209*	*439,972*	*387,647*	*391,886*	*393,915*	*393,813*	*394,972*	*392,541*	*393,900*	*393,155*	*394,611*	*393,878*
	Silver Concentrate	**tonnes**	**138,022**			**1,481**	**3,352**	**5,634**	**6,028**	**5,311**	**5,369**	**5,397**	**5,395**	**5,411**	**5,378**	**5,396**	**5,386**	**5,406**	**5,396**
1.00	Recovered Ag to Ag Con	troy ozs	221,024,279			2,125,735	5,204,843	8,403,712	8,851,918	8,687,766	8,575,016	9,360,491	9,363,437	9,756,506	9,773,636	10,228,613	10,356,267	9,315,227	8,699,516
1.00	Recovered Cu to Ag Con	lbs	35,578,754			131,854	789,708	1,206,714	1,376,335	1,505,242	1,596,870	1,819,390	1,160,348	1,162,378	1,240,034	1,428,131	1,139,338	1,137,983	1,275,120
1.00	Recovered Pb to Ag Con	lbs	9,858,534			32,648	56,631	207,088	276,982	361,943	400,672	247,593	317,906	331,754	377,780	408,330	631,251	585,322	650,154
	Recovered Sb to Ag Con	lbs	55,859,574			588,167	1,372,919	2,213,004	2,283,267	2,259,125	2,113,341	1,968,574	2,140,259	2,098,581	2,049,259	2,086,799	2,133,209	2,101,891	2,311,095
	Lead Concentrate	***tonnes***	**217,611**			**2,336**	**5,285**	**8,882**	**9,503**	**8,373**	**8,465**	**8,509**	**8,506**	**8,531**	**8,479**	**8,508**	**8,492**	**8,524**	**8,508**
	Recovered Ag to Pb Con	troy ozs	34,200,062			328,924	805,368	1,300,343	1,369,696	1,344,296	1,326,850	1,448,390	1,448,846	1,509,667	1,512,318	1,582,718	1,602,471	1,441,386	1,346,115
	Recovered Cu to Pb Con	lbs	3,778,275			14,002	83,863	128,147	146,159	159,849	169,579	193,210	123,223	123,438	131,685	151,660	120,992	120,848	135,411
	Recovered Pb to Pb Con	lbs	51,757,304			171,404	297,311	1,087,209	1,454,153	1,900,201	2,103,528	1,299,862	1,669,007	1,741,707	1,983,345	2,143,734	3,314,065	3,072,942	3,413,308
	Recovered Sb to Pb Con	lbs	10,520,919			112,927	255,507	429,426	459,463	404,821	409,247	411,367	411,260	412,470	409,931	411,351	410,573	412,093	411,328
	GROSS INCOME FROM MINING																		
	Market Price																		
1.00	Silver	$/oz	20.16			20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16
1.00	Copper	$/lb	3.25			3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
	Lead	$/lb	0.92			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Antimony	$/lb	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Antimonate	$/lb	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Payable Metals																		
	Silver Concentrate																		
	Silver Bullion	100%	$ 4,455,849,473			42,854,823	104,929,625	169,418,828	178,454,659	175,145,364	172,872,317	188,707,504	188,766,880	196,691,161	197,036,508	206,208,832	208,782,340	187,794,967	175,382,250
	Copper Cathode	100%	$ 115,630,950			428,525	2,566,552	3,921,819	4,473,089	4,892,037	5,189,826	5,913,019	3,771,132	3,777,727	4,030,111	4,641,426	3,702,848	3,698,444	4,144,139
	74% Antimony Metal	100%	$ -			-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26% Antimonate	100%	$ -			-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead Concentrate																		
	Silver Payfor	95%	$ 654,999,582			6,299,560	15,424,413	24,904,176	26,232,423	25,745,964	25,411,831	27,739,567	27,748,295	28,913,146	28,963,912	30,312,222	30,690,522	27,605,426	25,780,786
	Lead Payfor	95%	$ 45,235,884			149,807	259,850	950,221	1,270,930	1,660,776	1,838,483	1,136,080	1,458,712	1,522,252	1,733,444	1,873,623	2,896,493	2,685,751	2,983,231
	Total Gross Revenue		**$ 5,271,715,889**			**49,732,716**	**123,180,440**	**199,195,045**	**210,431,101**	**207,444,142**	**205,312,458**	**223,496,169**	**221,745,020**	**230,904,287**	**231,763,974**	**243,036,104**	**246,072,203**	**221,784,589**	**208,290,406**
	NSR CALCULATION																		
	Total Freight, TC/RC, and Penalties		(171,377,472)			(1,746,060)	(4,115,486)	(6,810,335)	(7,257,467)	(6,667,194)	(6,684,739)	(6,905,224)	(6,830,321)	(6,930,087)	(6,913,453)	(7,064,023)	(7,049,946)	(6,820,675)	(6,710,694)
	NSR		**$ 5,100,338,417**			**47,986,655**	**119,064,955**	**192,384,710**	**203,173,633**	**200,776,948**	**198,627,719**	**216,590,945**	**214,914,700**	**223,974,201**	**224,850,521**	**235,972,081**	**239,022,257**	**214,963,913**	**201,579,712**
	ROYALTY																		
	Total Royalties		(370,714,360)			(2,527,320)	(7,331,157)	(12,716,450)	(14,579,510)	(14,629,088)	(14,467,263)	(15,453,789)	(15,661,221)	(16,147,850)	(16,352,740)	(17,002,347)	(17,365,858)	(16,047,451)	(14,876,884)
	Gross Income from Mining		**$ 4,729,624,057**			**45,459,335**	**111,733,798**	**179,668,259**	**188,594,124**	**186,147,860**	**184,160,456**	**201,137,156**	**199,253,479**	**207,826,351**	**208,497,781**	**218,969,734**	**221,656,400**	**198,916,463**	**186,702,828**
	OPERATING MARGIN																		
	Unit Operating Costs																		
	Resource Classification Drilling	$ / T ore	2.68																
	Mining *(with paste backfill +20% contingency)*	$ / T ore	118.10			120.28	119.34	114.14	112.69	115.09	115.11	118.79	120.22	120.96	120.71	119.93	118.63	115.50	112.76
	Power *(above ground)*	$ / T ore	3.50			11.76	5.20	3.09	2.89	3.28	3.24	3.23	3.23	3.22	3.24	3.23	3.23	3.22	3.23
	Processing	$ / T ore	26.81			68.64	35.41	24.75	23.73	25.70	25.52	25.44	25.44	25.40	25.50	25.44	25.47	25.41	25.44
	Antimony Plant for Ag con	*$ / t Ag con*	*1,111.44*			*2,382.72*	*1,372.76*	*1,048.79*	*1,017.67*	*1,077.71*	*1,072.25*	*1,069.68*	*1,069.81*	*1,068.35*	*1,071.42*	*1,069.70*	*1,070.64*	*1,068.81*	*1,069.73*
	Antimony Plant for Ag con	$ / T ore	15.23			7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85
	Refining for Ag con	*$ / Toz Ag*	*1.07*			*2.27*	*1.30*	*1.04*	*1.02*	*1.03*	*1.04*	*1.00*	*1.00*	*0.99*	*0.99*	*0.97*	*0.97*	*1.00*	*1.03*
	Refining for Ag con	$ / T ore	23.42			44.63	27.66	21.36	20.60	23.12	22.68	23.82	23.83	24.39	24.57	25.21	25.47	23.71	22.77
	Tailings Storage	$ / T ore	1.04			-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General & Administration	$ / T ore	21.81			73.30	32.40	19.28	18.02	20.45	20.23	20.12	20.13	20.07	20.19	20.12	20.16	20.09	20.12
	Mine Reclamation & Closure Cost	$ / T ore	1.99																
	Total Unit Operating Cost per Ton Mined	**$ / T ore**	**$ 214.58**			**378.99**	**251.07**	**204.28**	**198.69**	**210.15**	**209.62**	**214.92**	**216.37**	**217.51**	**210.14**	**209.83**	**208.87**	**203.81**	**200.22**
	Total Unit Operating Cost per Payable Oz	**$ / Toz Ag**	**$ 8.53**			**16.81**	**10.29**	**8.71**	**8.61**	**8.17**	**8.35**	**7.89**	**7.93**	**7.68**	**7.36**	**7.04**	**6.91**	**7.53**	**7.90**
	Total UOC with By-product Credit and Royalties per Payable Ounce	$ / Toz Ag	$ 9.36			17.61	11.04	9.53	9.48	8.99	9.11	8.67	8.91	8.65	8.30	7.94	7.82	8.43	8.68
	Net Cash Cost per Payable Ounce	$ / Toz Ag	$ 10.03			18.32	11.73	10.24	10.19	9.65	9.79	9.31	9.54	9.27	8.92	8.54	8.41	9.07	9.35
	Operating Costs																		
	Resource Classification Drilling		(27,000,000)			(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	-	-	-	-	-
	Mining *(with paste backfill +20% contingency)*		(1,189,818,310)			(13,006,479)	(29,199,680)	(46,934,566)	(49,581,243)	(44,616,165)	(45,109,460)	(46,792,369)	(47,343,715)	(47,776,282)	(47,385,472)	(47,238,870)	(46,639,710)	(45,575,780)	(44,413,226)
	Power *(above ground)*		(35,249,834)			(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)
	Processing		(270,138,432)			(7,422,314)	(8,663,935)	(10,178,473)	(10,440,044)	(9,964,203)	(10,002,750)	(10,021,206)	(10,020,278)	(10,030,811)	(10,008,707)	(10,021,067)	(10,014,293)	(10,027,528)	(10,020,868)
	Antimony Plant		(153,402,965)			(3,529,924)	(4,601,402)	(5,908,399)	(6,134,126)	(5,723,490)	(5,756,755)	(5,772,683)	(5,771,881)	(5,780,972)	(5,761,896)	(5,772,563)	(5,766,716)	(5,778,138)	(5,772,391)
	Refining		(235,933,189)			(4,826,593)	(6,766,431)	(8,781,718)	(9,064,088)	(8,960,673)	(8,889,640)	(9,384,489)	(9,386,345)	(9,633,979)	(9,644,771)	(9,931,406)	(10,011,828)	(9,355,973)	(8,968,075)
	Tailings Storage		(10,515,115)			-	-	-	-	-	(192,407)	(490,006)	(489,937)	(490,836)	(488,969)	(489,303)	(488,169)	(489,271)	(488,720)
	General & Administration		(219,758,113)			(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)
	Mine Reclamation & Closure Cost		(20,000,000)																
1.00	**Total Operating Costs**		**$ (2,161,815,958)**			**(40,983,045)**	**(61,429,183)**	**(84,000,892)**	**(87,417,237)**	**(81,462,266)**	**(82,148,746)**	**(84,658,488)**	**(85,209,891)**	**(85,910,615)**	**(82,487,550)**	**(82,650,944)**	**(82,118,451)**	**(80,424,425)**	**(78,861,015)**
	Mine Development Costs *(+10% contingency)*		(451,254,067)			(42,889,063)	(38,818,536)	(34,733,196)	(17,119,135)	(34,483,339)	(22,375,786)	(17,814,009)	(22,033,287)	(15,838,320)	(16,526,077)	(20,747,716)	(19,852,113)	(19,849,428)	(19,305,192)
	Pre-Tax Income		**$ 2,116,554,031**			**(38,412,773)**	**11,486,079**	**60,934,171**	**84,057,752**	**70,202,256**	**79,635,924**	**98,664,659**	**92,010,301**	**106,077,416**	**109,484,155**	**115,571,074**	**119,685,836**	**98,642,610**	**88,536,621**
	Depreciation		(413,636,280)			(39,874,917)	(42,148,648)	(44,014,161)	(44,853,174)	(45,736,259)	(45,302,469)	(46,421,612)	(9,458,230)	(7,349,642)	(5,999,843)	(6,155,116)	(5,699,102)	(5,399,320)	(4,817,463)
	Net Income Before Depletion and Taxes		**1,702,917,751**			**(78,287,690)**	**(30,662,569)**	**16,920,010**	**39,204,578**	**24,465,997**	**34,333,455**	**52,243,047**	**82,552,071**	**98,727,774**	**103,484,312**	**109,415,958**	**113,986,734**	**93,243,290**	**83,719,158**
	Depletion		(628,372,451)			(192,120)	(434,688)	(12,850,864)	(24,134,333)	(16,713,335)	(21,611,547)	(28,993,388)	(28,720,351)	(29,973,061)	(30,086,300)	(31,628,276)	(32,080,672)	(28,753,483)	(27,004,597)
	Net Income Before Taxes		**1,074,545,300**			**(78,479,811)**	**(31,097,256)**	**4,069,146**	**15,070,245**	**7,752,662**	**12,721,907**	**23,249,659**	**53,831,720**	**68,754,713**	**73,398,012**	**77,787,682**	**81,906,062**	**64,489,807**	**56,714,561**
	State and Federal Income Taxes *		(264,871,881)			-	-	-	-	-	-	-	-	-	(8,256,677)	(21,573,605)	(22,715,795)	(17,885,577)	(15,729,194)
	Net Income After Taxes		**$ 809,673,418**			**(78,479,811)**	**(31,097,256)**	**4,069,146**	**15,070,245**	**7,752,662**	**12,721,907**	**23,249,659**	**53,831,720**	**68,754,713**	**65,141,335**	**56,214,078**	**59,190,268**	**46,604,229**	**40,985,368**
	Add-Back Depreciation		413,636,280			39,874,917	42,148,648	44,014,161	44,853,174	45,736,259	45,302,469	46,421,612	9,458,230	7,349,642	5,999,843	6,155,116	5,699,102	5,399,320	4,817,463
	Add-Back Depletion		628,372,451			192,120	434,688	12,850,864	24,134,333	16,713,335	21,611,547	28,993,388	28,720,351	29,973,061	30,086,300	31,628,276	32,080,672	28,753,483	27,004,597
	Net Income from Operations		**$ 1,851,682,150**			**(38,412,773)**	**11,486,079**	**60,934,171**	**84,057,752**	**70,202,256**	**79,635,924**	**98,664,659**	**92,010,301**	**106,077,416**	**101,227,478**	**93,997,469**	**96,970,041**	**80,757,033**	**72,807,427**
	Capital *(Including Contingency)*																		
	Total Capital Costs *(less Spare Parts/Initial Fills)*		(198,059,829)	(79,223,931)	(118,835,897)														
	Preproduction Mine Development *(+15% contingency)*		(54,298,453)	(19,578,494)	(34,719,958)														
	Spare Parts/Initial Fills *(+15% contingency)*		(1,384,682)		(1,384,682)														
1.00	**Total Initial Capital Costs**		**$ (253,742,963)**	**(98,802,426)**	**(154,940,537)**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sustaining Capital *(less Spare Parts)*		(161,277,999)			(22,891,845)	(15,916,114)	(13,026,592)	(5,841,092)	(6,149,592)	(11,340,074)	(7,802,000)	(5,880,000)	(1,236,000)	(3,610,000)	(6,816,000)	(2,957,497)	(9,321,600)	(3,761,000)
	Spare Parts/Initial Fills		(871,500)			(367,950)	(503,550)	-	-	-	-	-	-	-	-	-	-	-	-
	Total Sustaining Capital Costs		**$ (162,149,499)**	**-**	**-**	**(23,259,795)**	**(16,419,664)**	**(13,026,592)**	**(5,841,092)**	**(6,149,592)**	**(11,340,074)**	**(7,802,000)**	**(5,880,000)**	**(1,236,000)**	**(3,610,000)**	**(6,816,000)**	**(2,957,497)**	**(9,321,600)**	**(3,761,000)**
	Recapture of Spare Parts/Initial Fills		2,256,182																
	Working Capital		(28,034,403)			(28,034,403)													
	Working Capital Recapture		28,034,403																
	ANNUAL CASH FLOW		**$ 1,438,045,870**	**(98,802,426)**	**(154,940,537)**	**(89,706,971)**	**(4,933,585)**	**47,907,579**	**78,216,660**	**64,052,664**	**68,295,850**	**90,862,659**	**86,130,301**	**104,841,416**	**97,617,478**	**87,181,469**	**94,012,545**	**71,435,433**	**69,046,427**
	CUMULATIVE CASH FLOW			**(98,802,426)**	**(253,742,963)**	**(343,449,934)**	**(348,383,519)**	**(300,475,940)**	**(222,259,280)**	**(158,206,617)**	**(89,910,766)**	**951,893**	**87,082,193**	**191,923,609**	**289,541,087**	**376,722,556**	**470,735,101**	**542,170,534**	**611,216,961**

* Tax Rates:		15.5% NPV	IRR Disc
1.0%	*Severance*	**$1,438,045,870**	0.0%
7.6%	*State*	**$899,700,854**	2.5%
21.0%	*Federal*	**$560,013,718**	5.0%
		$338,072,374	7.5%

Table 22-11: Technical Economic Model

Cash Flow Forecast
Sunshine Silver Mining & Refining Corporation
Sunshine Silver Mining & Refining Corporation
10 OPT
2020 Rev AN
Revised 1/15/2020

		Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
	PRODUCTION SUMMARY														
	Ore Processed	***389,878***	***393,865***	***392,893***	***393,770***	***384,642***	***381,948***	***362,875***	***351,945***	***315,907***	***325,200***	***321,600***	***324,700***	***324,800***	***276,269***
	Silver Concentrate	**5,341**	**5,396**	**5,383**	**5,395**	**5,270**	**5,233**	**4,971**	**4,822**	**4,328**	**4,455**	**4,406**	**4,448**	**4,450**	**3,785**
1.00	Recovered Ag to Ag Con	8,330,638	9,046,849	9,095,547	9,024,362	8,821,046	7,764,167	7,349,536	7,189,417	6,555,163	6,095,870	6,028,310	5,982,682	5,758,758	5,279,252
1.00	Recovered Cu to Ag Con	1,597,158	2,332,506	2,107,341	1,912,242	927,921	702,619	976,466	1,134,859	1,511,754	1,150,714	1,314,288	1,034,154	1,050,252	857,035
1.00	Recovered Pb to Ag Con	1,286,948	731,456	678,501	573,125	351,962	291,896	231,331	213,207	163,900	139,674	131,103	128,502	28,510	22,367
	Recovered Sb to Ag Con	2,294,512	2,237,085	2,231,563	2,236,546	2,184,699	2,169,400	2,061,068	1,998,990	1,794,301	1,847,080	1,826,633	1,844,240	1,844,808	1,569,159
	Lead Concentrate	**8,421**	**8,507**	**8,486**	**8,505**	**8,308**	**8,250**	**7,838**	**7,602**	**6,824**	**7,024**	**6,947**	**7,014**	**7,016**	**5,967**
	Recovered Ag to Pb Con	1,289,036	1,399,859	1,407,394	1,396,379	1,364,919	1,201,384	1,137,226	1,112,450	1,014,309	943,241	932,787	925,727	891,078	816,882
	Recovered Cu to Pb Con	169,610	247,700	223,788	203,070	98,540	74,614	103,696	120,516	160,540	122,200	139,570	109,822	111,531	91,013
	Recovered Pb to Pb Con	6,756,478	3,840,146	3,562,128	3,008,909	1,847,801	1,532,452	1,214,486	1,119,336	860,473	733,289	688,291	674,634	149,678	117,424
	Recovered Sb to Pb Con	407,150	411,314	410,299	411,215	401,682	398,869	378,951	367,537	329,903	339,607	335,848	339,085	339,189	288,508
	GROSS INCOME FROM MINING														
	Market Price														
1.00	Silver	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.16
1.00	Copper	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
	Lead	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Antimonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Payable Metals														
	Silver Concentrate														
	Silver Bullion	167,945,657	182,384,486	183,366,225	181,931,141	177,832,295	156,525,608	148,166,655	144,938,650	132,152,081	122,892,740	121,530,724	120,610,878	116,096,551	106,429,722
	Copper Cathode	5,190,763	7,580,645	6,848,859	6,214,788	3,015,742	2,283,513	3,173,515	3,688,292	4,913,202	3,739,820	4,271,437	3,360,999	3,413,318	2,785,362
	74% Antimony Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26% Antimonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead Concentrate														
	Silver Payfor	24,687,624	26,810,098	26,954,412	26,743,458	26,140,937	23,008,903	21,780,156	21,305,647	19,426,051	18,064,949	17,864,736	17,729,520	17,065,925	15,644,923
	Lead Payfor	5,905,161	3,356,288	3,113,300	2,629,786	1,614,978	1,339,363	1,061,461	978,300	752,054	640,895	601,567	589,630	130,818	102,629
	Total Gross Revenue	**203,729,206**	**220,131,517**	**220,282,796**	**217,519,173**	**208,603,952**	**183,157,387**	**174,181,787**	**170,910,889**	**157,243,387**	**145,338,404**	**144,268,463**	**142,291,028**	**136,706,613**	**124,962,636**
	NSR CALCULATION														
	Total Freight, TC/RC, and Penalties	(6,625,044)	(6,931,534)	(6,900,193)	(6,866,391)	(6,576,983)	(6,269,327)	(5,993,264)	(5,853,257)	(5,346,594)	(5,295,737)	(5,261,779)	(5,247,429)	(5,198,853)	(4,505,387)
	NSR	**197,104,162**	**213,199,983**	**213,382,602**	**210,652,783**	**202,026,969**	**176,888,060**	**168,188,524**	**165,057,632**	**151,896,793**	**140,042,667**	**139,006,685**	**137,043,599**	**131,507,760**	**120,457,249**
	ROYALTY														
	Total Royalties	(14,400,982)	(15,242,827)	(15,525,505)	(15,370,940)	(14,826,352)	(13,244,574)	(12,322,173)	(14,745,290)	(11,196,789)	(10,296,269)	(10,035,714)	(9,905,061)	(9,555,309)	(8,887,647)
	Gross Income from Mining	**182,703,180**	**197,957,156**	**197,857,098**	**195,281,843**	**187,200,616**	**163,643,486**	**155,866,350**	**150,312,342**	**140,700,004**	**129,746,397**	**128,970,970**	**127,138,539**	**121,952,451**	**111,569,602**
	OPERATING MARGIN														
	Unit Operating Costs														
	Resource Classification Drilling														
	Mining *(with paste backfill +20% contingency)*	109.92	121.30	119.49	120.90	120.69	122.43	122.13	118.34	117.41	118.03	120.33	119.48	118.44	117.40
	Power *(above ground)*	3.26	3.23	3.24	3.23	3.31	3.33	3.50	3.61	4.02	3.91	3.95	3.92	3.91	3.34
	Processing	25.61	25.44	25.48	25.45	25.83	25.95	26.84	27.39	29.48	28.89	29.12	28.92	28.92	25.99
	Antimony Plant for Ag con	*1,074.83*	*1,069.74*	*1,070.97*	*1,069.86*	*1,081.66*	*1,085.25*	*1,112.18*	*1,128.93*	*1,192.37*	*1,174.66*	*1,181.40*	*1,175.59*	*1,175.41*	*1,086.50*
	Antimony Plant for Ag con	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85
	Refining for Ag con	*1.05*	*1.02*	*1.01*	*1.02*	*1.03*	*1.08*	*1.10*	*1.12*	*1.16*	*1.20*	*1.21*	*1.21*	*1.24*	*1.11*
	Refining for Ag con	22.41	23.32	23.46	23.29	23.51	21.94	22.37	22.78	24.11	22.53	22.65	22.35	21.91	21.19
	Tailings Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General & Administration	20.33	20.12	20.17	20.13	20.61	20.75	21.84	22.52	25.09	24.37	24.65	24.41	24.40	20.80
	Mine Reclamation & Closure Cost														
	Total Unit Operating Cost per Ton Mined	**197.50**	**209.32**	**207.77**	**208.90**	**210.03**	**210.53**	**213.17**	**211.38**	**217.85**	**215.20**	**218.26**	**216.55**	**215.05**	**277.32**
	Total Unit Operating Cost per Payable Oz	**8.06**	**7.95**	**7.82**	**7.95**	**7.98**	**9.03**	**9.18**	**9.02**	**9.15**	**10.01**	**10.15**	**10.25**	**10.57**	**12.65**
	Total UOC with By-product Credit and Royalties per Payable Ounce	8.40	8.36	8.36	8.58	8.99	10.11	10.14	10.24	9.89	10.86	10.90	11.11	11.48	13.64
	Net Cash Cost per Payable Ounce	9.10	9.03	9.02	9.24	9.64	10.81	10.85	10.95	10.60	11.61	11.66	11.88	12.27	14.39
	Operating Costs														
	Resource Classification Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mining *(with paste backfill +20% contingency)*	(42,853,529)	(47,776,379)	(46,947,837)	(47,605,289)	(46,421,846)	(46,762,358)	(44,316,747)	(41,649,127)	(37,089,156)	(38,384,946)	(38,696,947)	(38,796,751)	(38,470,232)	(32,434,150)
	Power *(above ground)*	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(1,271,406)	(921,872)
	Processing	(9,984,491)	(10,020,747)	(10,011,906)	(10,019,883)	(9,936,871)	(9,912,375)	(9,738,923)	(9,639,529)	(9,311,798)	(9,396,304)	(9,363,566)	(9,391,757)	(9,392,667)	(7,181,139)
	Antimony Plant	(5,740,998)	(5,772,286)	(5,764,657)	(5,771,541)	(5,699,904)	(5,678,764)	(5,529,082)	(5,443,307)	(5,160,486)	(5,233,413)	(5,205,160)	(5,229,489)	(5,230,273)	(4,112,270)
	Refining	(8,735,682)	(9,186,895)	(9,217,575)	(9,172,728)	(9,044,639)	(8,378,805)	(8,117,588)	(8,016,713)	(7,617,133)	(7,327,778)	(7,285,215)	(7,256,470)	(7,115,397)	(5,854,562)
	Tailings Storage	(488,059)	(491,128)	(490,433)	(491,206)	(484,268)	(480,591)	(455,599)	(447,557)	(443,177)	(443,177)	(443,177)	(443,177)	(443,177)	(362,772)
	General & Administration	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(7,926,329)	(5,747,230)
	Mine Reclamation & Closure Cost							-	-	-	-	-	-	-	(20,000,000)
1.00	**Total Operating Costs**	**(77,000,493)**	**(82,445,170)**	**(81,630,143)**	**(82,258,382)**	**(80,785,263)**	**(80,410,628)**	**(77,355,674)**	**(74,393,967)**	**(68,819,484)**	**(69,983,352)**	**(70,191,800)**	**(70,315,378)**	**(69,849,480)**	**(76,613,995)**
	Mine Development Costs *(+10% contingency)*	(19,506,276)	(30,865,273)	(18,926,576)	(17,153,004)	(10,946,156)	(8,805,950)	(2,665,636)	-	-	-	-	-	-	-
	Pre-Tax Income	**86,196,411**	**84,646,713**	**97,300,379**	**95,870,456**	**95,469,198**	**74,426,908**	**75,845,041**	**75,918,375**	**71,880,520**	**59,763,045**	**58,779,171**	**56,823,160**	**52,102,971**	**34,955,607**
	Depreciation	(4,659,891)	(5,712,658)	(5,716,230)	(5,110,087)	(5,220,385)	(4,219,442)	(4,635,869)	(4,156,330)	(3,002,399)	(2,571,848)	(3,107,706)	(2,927,336)	(2,670,479)	(6,695,665)
	Net Income Before Depletion and Taxes	**81,536,519**	**78,934,055**	**91,584,150**	**90,760,369**	**90,248,812**	**70,207,465**	**71,209,171**	**71,762,045**	**68,878,120**	**57,191,197**	**55,671,465**	**53,895,824**	**49,432,492**	**28,259,942**
	Depletion	(26,635,316)	(28,705,820)	(28,665,305)	(28,250,265)	(26,967,445)	(23,509,810)	(22,364,198)	(21,540,777)	(20,140,898)	(18,529,195)	(18,419,054)	(18,142,770)	(17,356,890)	(15,967,696)
	Net Income Before Taxes	**54,901,203**	**50,228,235**	**62,918,845**	**62,510,105**	**63,281,368**	**46,697,655**	**48,844,973**	**50,221,268**	**48,737,222**	**38,662,002**	**37,252,411**	**35,753,054**	**32,075,602**	**12,292,246**
	State and Federal Income Taxes *	(15,226,278)	(13,930,278)	(17,449,887)	(17,336,527)	(17,550,429)	(12,951,109)	(13,546,645)	(13,928,346)	(13,516,762)	(10,722,504)	(10,331,569)	(9,915,738)	(8,895,835)	(3,409,127)
	Net Income After Taxes	**39,674,925**	**36,297,956**	**45,468,958**	**45,173,577**	**45,730,939**	**33,746,546**	**35,298,328**	**36,292,922**	**35,220,461**	**27,939,498**	**26,920,842**	**25,837,317**	**23,179,767**	**8,883,119**
	Add-Back Depreciation	4,659,891	5,712,658	5,716,230	5,110,087	5,220,385	4,219,442	4,635,869	4,156,330	3,002,399	2,571,848	3,107,706	2,927,336	2,670,479	6,695,665
	Add-Back Depletion	26,635,316	28,705,820	28,665,305	28,250,265	26,967,445	23,509,810	22,364,198	21,540,777	20,140,898	18,529,195	18,419,054	18,142,770	17,356,890	15,967,696
	Net Income from Operations	**70,970,133**	**70,716,435**	**79,850,492**	**78,533,929**	**77,918,768**	**61,475,799**	**62,298,395**	**61,990,028**	**58,363,758**	**49,040,541**	**48,447,602**	**46,907,423**	**43,207,136**	**31,546,480**
	Capital *(Including Contingency)*														
	Total Capital Costs *(less Spare Parts/Initial Fills)*														
	Preproduction Mine Development *(+15% contingency)*														
	Spare Parts/Initial Fills *(+15% contingency)*														
1.00	**Total Initial Capital Costs**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sustaining Capital *(less Spare Parts)*	(4,665,000)	(8,809,512)	(3,715,000)	(2,605,000)	(3,425,585)	(2,315,000)	(6,755,989)	(1,340,222)	(620,000)	(1,373,143)	(6,436,000)	(1,715,000)	(405,000)	(548,143)
	Spare Parts/Initial Fills	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Sustaining Capital Costs	**(4,665,000)**	**(8,809,512)**	**(3,715,000)**	**(2,605,000)**	**(3,425,585)**	**(2,315,000)**	**(6,755,989)**	**(1,340,222)**	**(620,000)**	**(1,373,143)**	**(6,436,000)**	**(1,715,000)**	**(405,000)**	**(548,143)**
	Recapture of Spare Parts/Initial Fills														2,256,182
	Working Capital														
	Working Capital Recapture														28,034,403
	ANNUAL CASH FLOW	**66,305,133**	**61,906,923**	**76,135,492**	**75,928,929**	**74,493,184**	**59,160,799**	**55,542,406**	**60,649,806**	**57,743,758**	**47,667,398**	**42,011,602**	**45,192,423**	**42,802,136**	**61,288,922**
	CUMULATIVE CASH FLOW	**677,522,094**	**739,429,017**	**815,564,509**	**891,493,438**	**965,986,621**	**1,025,147,420**	**1,080,689,826**	**1,141,339,632**	**1,199,083,390**	**1,246,750,788**	**1,288,762,390**	**1,333,954,812**	**1,376,756,948**	**1,438,045,870**

*** Tax Rates:**
1.0% Severance
7.6% State
21.0% Federal

15.5%
NPV
$1,438,045,870
$899,700,854
$560,013,718
$338,072,374

23 ADJACENT PROPERTIES

The Sunshine Mine property is joined on the west side by United Silver Corp.'s Crescent Mine and to the east by U.S. Silver & Gold Inc.'s properties, which include the Coeur Mine, Galena Mine, and the Caladay Mine. In 2013, SSMRC acquired certain mineral properties from U.S. Silver and Gold. The Lucky Friday mine, owned by Hecla Mining Company, is located 27.4 km east of the Sunshine Mine property.

The Crescent Mine property covers 365 ha and was temporarily redeveloped with a new surface decline, reopening of the No. 4 Level, and reopening of the Hooper Tunnel. Mineralization lies along two parallel systems, the South Vein and the Alhambra Fault. The South Vein is the western extension of the Yankee Girl Vein and the Alhambra Fault is the western extension of the West Chance Vein at the Sunshine Mine. Estimated Resources for the Crescent Mine are shown below in **Table 23-1** and have been sourced from United Silver Corp.'s September, 2013 NI 43-101 Preliminary Economic Assessment Crescent Silver Project Kellogg, ID SRK Consulting.

U.S. Silver & Gold Inc.'s Galena Mine property covers 5,666 ha. U.S. Silver & Gold Inc. is currently mining the Galena Mine and is working on reopening the Coeur Mine. The Coeur d'Alene Mine has been shut down for many years and the Caladay Mine is used only for exhaust for the Galena Mine at this time. The Galena Mine currently produces about 2.1 million ounces of silver per year. Estimated Resources for the Galena Mine are shown below in **Table 23-1** and have been sourced from U.S. Silver & Gold Inc.'s March, 2013 Technical Report (Technical Report Galena Project Shoshone County, Idaho, Chlumsky, Armbrust & Meyer, LLC,2013) by Chlumsky, Armburst, and Meyer. All mining has occurred in either the hanging wall or footwall of the major geological structure known as the Polaris Fault. The Polaris Fault intersects the Chester Fault on the eastern side of the Consolidated Silver Mine and traverses the Sunshine Mine property as well.

Estimated Resources for Hecla Mining Company's Lucky Friday Mine are also included in **Table 23-1** below and have been sourced from a public news release issued by Hecla Mining Company in February 2012.

This information is reproduced from public records for United Silver Corp., U.S. Silver & Gold Inc., and Hecla Mining Company, respectively, and the author has been unable to verify the information. Assay results, Mineral Resources, and Reserves from adjacent properties are not necessarily indicative of assay results, Mineral Resources, and Reserves of the subject property.

Table 23-1: Adjacent Properties Estimated Resources

Classification	Cutoff (gpt)	Short Tonnes	Silver Grade (gpt)	Silver Ounces
Crescent Mine - United Silver Corp.				
Measured and Indicated	274	471,736	494	7,488,000
Inferred	274	480,808	555	8,586,000
Galena - U.S. Silver Corporation				
Measured and Indicated1	240	1,196,485	339	13,043,800
Inferred	240	1,213,903	369	14,392,300
Lucky Friday - Hecla Mining Company				
Measured and Indicated1	Not Provided	21,016,641	243	164,159,350
Inferred	Not Provided	6,279,437	312	62,651,500

24 OTHER RELEVANT DATA AND INFORMATION

All relevant data and information have been included in the above sections.

25 INTERPRETATION AND CONCLUSIONS

This section presents the conclusions of the authors and Qualified Persons for the Sunshine Mine Project, as addressed in this Technical Report.

25.1 Interpretations and Conclusions

- Overall, the results of the TR indicate that the Sunshine Mine Project is a robust silver project at this stage of development and warrants further work toward the next stage of development. The exploration program continues to demonstrate the potential for future growth of the Resource. Risks, as well as significant opportunities (identified below in Section 25.2), can be evaluated in the PFS or FS stage of the project.
- All sources of historic data are internally consistent, have supported several decades of mining, and are suitable for use in Resource estimation.
- The Sunshine Mine is complying with International Standards best practice requirements for sample handling QA/QC.
- The sample preparation, assaying, security, and procedures followed by SSMRC are adequate to support a mineral Resource estimate.
- Assay data provided by SSMRC were represented accurately and are adequate and suitable for use in Resource estimation.
- Based on over 100 years of production history, there are no known factors, which should have a negative economic effect on metallurgical recoveries.
- As the operation progresses and reclamation or environmental legislation/regulation requirements evolve, SSMRC will be required to maintain, renew existing, or possibly acquire new approvals and permits. However, at the time of writing this report, all environmental permits, agreements, and approvals necessary to commence surface and subsurface operations are in place.
- There are no environmental issues existing or anticipated that could materially impact the ability to reopen the Sunshine Mine.
- There are no known factors related to metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues, which could materially affect the mineral Resource estimates.
- The existing TSF and WRSF are expandable design configurations to handle additional tailings and waste rock. The TSF can be expanded beyond its permitted configuration by converting the facility to a dry stack deposition to safely add an estimated 3.6 million tonnes of tailings storage capacity. This expansion can be accomplished without changing the ultimate footprint of the permitted TSF.
- This TR is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral Reserves. There is no certainty that these Inferred Resources will ever be upgraded or that the results described herein will be realized. Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.

25.2 Risks and Opportunities

A number of risks and opportunities have been identified for the Sunshine Mine Project. Potential risks that could affect the performance of the project include:

- Long term depressed metals pricing, particularly for silver.
- Political changes affecting regulatory requirements or the general business climate.
- Shortage of skilled labor due to competing demands from the mining industry in general, and other mines in the Silver Valley in particular.
- Increased inflation and substantial escalation of project equipment, bulk materials, and consumables costs.
- Failure to obtain or maintain necessary agreements, permits and approvals of government authorities.
- Bench scale testwork of proposed waste water treatment systems could result in a more robust treatment system, including increased capital and operating costs. Similarly, active discharge limits could vary from those assumed with associated changes in design and costs.
- Conditions of the conventionally deposited tailings may differ from those defined in the geotechnical analysis provided by Wood, formerly AMEC. If less favorable conditions exist at the close of conventional tailings deposition, special provisions may be required to convert the facility to dry stacked deposition. These provisions could include special drainage elements and/or construction of special access over and beyond that defined in the current transition plan from conventional tailings deposition to dry stack deposition.

Substantial opportunities for improving the Project's performance exist. They include:

- Higher metals pricing, particularly for silver, than used as long term forecast in the financial model.
- Continued expansion of the Mineral Resources.
- Improved performance in the new mineral processing plant, resulting in reduction of concentrate penalty elements and more economic distribution of payable metals between concentrates.
- Significantly improved copper and lead grades than currently modeled. Model is limited by lack of available data.
- More cost-effective development with more detailed information.
- More cost-effective assignment of mining methods with more detailed information.
- Construction of the Project in smaller phases to reduce initial capital investment, but still generate a profit for later expansion.
- Sorting of screened ROM mineralized material to reject barren rock prior to crushing and grinding of the mined material. Mechanical sorting may reduce the amount of lower grade material sent to the flotation plant with a resulting decrease in the size of the process building and crushing circuit.
- Additional metallurgical testing to simplify the current reagent scheme with potential savings in reagent costs and improved metals recoveries.

- In the future, it may be more cost effective to pump the silver-copper concentrate to the antimony plant rather than truck the material to the facility.

During the next phase of project development, PFS or FS, a number of risks will be investigated further and possibly reduced or eliminated. Similarly, further investigation and determination of some opportunities may allow them to be incorporated in the project.

26 RECOMMENDATIONS

Based on results of this TR, the authors recommend that SSMRC conduct a definition drilling program in order to upgrade the classification of Inferred Mineral Resources into Measured or Indicated, to advance the project to a PFS or FS level. Due to the new discoveries in the upper portions of the mine, it is recommended to focus on upgrading the Resources in the newly discovered South Yankee Boy Split vein, the West Chance Link vein, the "10" vein and the vertical extension of the Sunshine vein. These vein zones are in the proximity of the accessible Sterling tunnel ramp system and Jewell Shaft 1900 level. Drilling can be conducted with a minimum of repair and additional development work. Based on successful results from definition drilling, it is recommended to complete a PFS or FS at the Sunshine Mine in order to: more accurately assess its economic viability; support permitting activities; and, ultimately, support project financing should the PFS or FS results be positive.

An estimate of the costs to complete the PFS or FS is summarized below in **Table 26-1**.

Table 26-1: Recommended Future Work

Task	Estimated Cost US $000's
1) Upgrade Mineral Resource Classification	
a) Definition drilling, including sample preparation, assaying, and site support activities	10,200
b) Repair and development activities to facilitate drilling access between levels 1700 and 2300	9,100
c) Update Resource model/estimate with updated drilling results and additional historical data	100
Subtotal Resource Estimate	19,400
2) Complete PFS or FS:	
a) Mine design, including geotechnical investigation, ventilation study, backfill design, and preparation of cost estimates	680
b) Ore sorting testing and additional metallurgical testing, including peer review	450
c) Hydrological, hydrogeological, and geotechnical field investigations	165
d) Process, geotechnical and infrastructure design, including preparation of cost estimates	720
e) Environmental and permitting activities	170
f) Marketing study	15
g) Study management and coordination, execution planning and scheduling, owner's cost estimating, and economic evaluation	285
Subtotal PFS or FS	2,485
Total Estimated Cost for Recommended Future Work	$21,885

Regarding item 2b, the following items should be further analyzed for opportunities to increase silver recovery and reduced operating costs. New methods to increase silver recovery through additional metallurgical studies include:

- Additional select ore sorting testing of screened Run of Mine (ROM) mineralized material to reject barren rock prior to final mill process crushing and grinding. Recent modern sorting tests conducted by Steinert Global using x-ray transmission and 3D laser technologies on a 5,000 kg sample from Sunshine Mine mineralized material resulted in removal 63% of material while retaining 93% of the contained silver mineralization. A higher-grade feed to the flotation plant may reduce plant capital costs, reduce processing costs, and generate increased silver recovery.

- Continue additional metallurgical analysis related to crushing, flotation and reagents with ROM material from the new vein discoveries, and deeper sunshine mine ROM mineralized material. Develop improved process analytics, system designs, and system controls as related to processing two separate concentrate products.
- Expand metallurgical analysis regarding silver recoveries as related to the new vein discoveries, and deeper sunshine mine ROM mineralized material. Identify variabilities and confirm historical metallurgical silver recoveries. Confirmation of historical silver recoveries may improve project economics.

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28 DATE AND SIGNATURE PAGE

CERTIFICATE OF AUTHOR

Guillermo Dante Ramírez-Rodríguez, PhD, MMSAQP
Principal Mining Engineer of Tetra Tech
350 Indiana Street, Suite 500
Golden, Colorado 80401
Telephone: (303) 217-5700

I, **Guillermo Dante Ramírez-Rodríguez, PhD, MMSAQP**, of Golden, Colorado do hereby certify:

a) I am a Principle Mining Engineer with Tetra Tech, Inc. with a business address of 350 Indiana St., Suite 500, Golden, CO 80401.

b) This certificate applies to the Technical Report titled "Initial Assessment (Preliminary Economic Assessment NI 43-101) Technical Report on the Sunshine Silver Mine Project", effective and issued on January 17, 2020.

c) I have a bachelor's degree in Mining and Metallurgical Engineering from the University of Zacatecas School of Mines in Mexico, and a Master and Doctorate degrees in Mining and Earth Systems Engineering from the Colorado School of Mines, in the United States of America. I am a QP member for the Mining and Metallurgical Society of America (Member No. 01372QP). I have over 32 years of professional experience since my graduation in 1987 working for the mining industry in underground and opencast operations, and as a consultant. During these years I have worked for major and mid-tier mining companies in different positions as supervisor, mine planning chief, and manager in hard rock mining operations. As a consultant I have also provided consulting services to all varieties of mining operations including hard rock mining, ferrous and non-ferrous operations, precious metals, base metals and industrial minerals. I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").

d) I visited the property September 10th, 2019. I have not had any prior involvement with this property.

e) I am responsible for Sections 16, 19, and 22, as well as portions of Sections 1, 2, 21, 25, 26, and 27.

f) I satisfy all the requirements of independence according to NI 43-101.

g) I have read NI 43-101, Form 43-101 F1, and the Companion Policy to NI 43-101 (43-101 CP) and this Technical Report has been prepared in compliance with NI 43-101, Form 43-101 F1, and 43-101 CP.

h) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

i) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated January 17, 2020

"Guillermo Dante Ramírez-Rodríguez PhD, MMSAQP" -

Signature of Qualified Person

Guillermo Dante Ramírez-Rodríguez PhD, MMSAQP

Print name of Qualified Person

CERTIFICATE OF AUTHOR

Leonel López C.P.G., Associate Principal Geologist of Tetra Tech
Principal Mining Consultant of Tetra Tech
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I, **Leonel López, CPG, SME-RM**, of Golden, Colorado do hereby certify:

a) I am currently employed as an Associate of Tetra Tech located at 350 Indiana Street, Suite 500, Golden, Colorado 80401.

b) This certificate applies to the Technical Report titled "Initial Assessment (Preliminary Economic Assessment NI 43-101) Technical Report on the Sunshine Silver Mine Project", effective and issued on January 17, 2020.

c) I am a Professional Geologist (PG-2407) in the State of Wyoming, USA, a Certified Professional Geologist (CPG-08359) in the American Institute of Professional Geologists, an SME Founding Registered Member (#1943910), a registered Geological Engineer (Cédula Professional #1191) in the Universidad Nacional Autónoma de México, a member of the Society of Economic Geologists, and a member of the Geological Society of America. I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").

d) I graduated from the Universidad Nacional Autónoma de México with the title of Ingeniero Geólogo in 1966 and have taken numerous short courses in Economic Evaluation and Investment Decision Methods at Colorado School of Mines, and other technical subjects in related professional seminars. I have practiced my profession continuously for over 50 years. My related experience includes: Georges Ordoñez Consultants, (1965-72) re-discovery of historical Silver/Gold mining districts, including Hostotipaquillo, Jalisco: Mololoa, Monte del Favor and La Trini) and Meztli, Sonora; explorations for Frisco Mining, Co. in the San Francisco del Oro and Parral mining districts, and Piedras Verdes, Chihuahua; as Division Manager N Zone Exploration for Peñoles (1972-85) including explorations and technical support in operations such as Fresnillo (largest silver mine in the World), La Encantada, La Ciénega, Topia, Naica, La Negra; as Independent, Minera Staleón (1986-1988) Soyopa, Sonora, Tahuehueto, Durango, Guadalupe Los Reyes, Sinaloa and San Pedro Corralitos, Chihuahua; in Pincock, Allen & Holt (PAH), consultant (1988-1993) COMIBOL, evaluated all Bolivia mining properties and projects including the Potosí silver mine for the World Bank; INMINE – Nicaragua evaluated La Libertad, El Limón, Bonanza and other silver/gold properties; Luismin – Tayoltita-San Dimas mining district; Western Silver, El Peñasquito, Zacatecas; for First Majestic Silver, Managed and prepared NI 43-101 Technical Reports for all operations during a period of 5 years including: La Parrilla, La Encantada, Del Toro, Minera El Pilón, Jalisco; and acted as Expert Witness and Project Manager in Vancouver Court for Legal suit regarding the Bolaños mine, Jalisco which was ruled in favor of First Majestic Silver; and I have participated in numerous other TR for most commodities around the World, including Fe, Cu, Mo, Mn, Co, Ni, Li, Mineral Sand Deposit in India and Africa; Geoambiente Mining, co-founder (1993 – 2003) consulting and developing properties, Oro Uno, Venezuela, other properties in Perú, Lucma, Río Chicama; PAH-Runge (2003 – 2014), participated in technical evaluations around the World including major deposits in Perú (Minera Poderosa, Cobriza), Argentina (Bajo de la Alumbrera, Pirquitas and other mines), Brazil (Most Vale's Fe, Ni, Co, Mn deposits), Canada Arcellor Mittal Fe deposits), USA (Arcellor Mittal Fe deposits), Australia (Novo Resources, etc.; Cardno, consulting (2015-2016) and Tetra Tech (2016 to date) has participated in TR NI 43-101 preparation including: Bacís, Durango; Lluvia de Oro, Durango; Novo Resources, Australia; Los Reyes, Sinaloa, and others.

e) I visited the property September 10th, 2019. I have not had any prior involvement with this property.

f) I am responsible for Sections 20 and 23, as well as portions of Sections 1-12, 25, 26, and 27.

g) I satisfy all the requirements of independence according to NI 43-101.

h) I have read NI 43-101, Form 43-101 F1, and the Companion Policy to NI 43-101 (43-101 CP) and this Technical Report has been prepared in compliance with NI 43-101, Form 43-101 F1, and 43-101 CP.

i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

j) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated January 17, 2020

"Leonel López, CPG, SME-RM" - Signed

Signature of Qualified Person

Leonel López, CPG, SME-RM

Print name of Qualified Person

CERTIFICATE OF AUTHOR

Kira Lyn Johnson, MMSAQP
Senior Geological Engineer of Tetra Tech
350 Indiana Street, Suite 500
Golden, Colorado 80401
Telephone: (303) 217-5700

I, **Kira Lyn Johnson, MMSAQP**, of Golden, Colorado do hereby certify:

a) I am a Senior Geological Engineer with Tetra Tech, Inc. with a business address of 350 Indiana St., Suite 500, Golden, CO 80401.

b) This certificate applies to the Technical Report titled “Initial Assessment (Preliminary Economic Assessment NI 43-101) Technical Report on the Sunshine Silver Mine Project”, effective and issued on January 17, 2020.

c) I have a bachelor’s degree in Geological Engineering from South Dakota School of Mines and Technology. I am a QP member for the Mining and Metallurgical Society of America (Member No. 01539). I have worked on Resource Estimations since my graduation from the South Dakota School of Mines in 2007. This includes a variety of commodities, including gold, silver, nickel, taconite, oil sands, coal, potash, phosphates, aggregates, and other industrial minerals. I have over 12 years of professional experience, including nearly 8 years of consulting in the mining industry for Tetra Tech. I am a “Qualified Person” for purposes of National Instrument 43-101 (the “Instrument”).

d) I have inspected the property on September 10th, 2019. I have not had any prior involvement with this property.

e) I am responsible for Sections 14, as well as portions of Sections 1-12, 25, 26, and 27.

f) I satisfy all the requirements of independence according to NI 43-101.

g) I have read NI 43-101, Form 43-101 F1, and the Companion Policy to NI 43-101 (43-101 CP) and this Technical Report has been prepared in compliance with NI 43-101, Form 43-101 F1, and 43-101 CP.

h) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

i) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated January 17, 2020

“Kira Lyn Johnson, MMSAQP” - Signed
Signature of Qualified Person

Kira Lyn Johnson, MMSAQP
Print name of Qualified Person

CERTIFICATE OF AUTHOR

Kenneth E. Smith, RMQP
Mineral Processing Engineer/Consultant of Tetra Tech
350 Indiana Street, Suite 500
Golden, Colorado 80401
Telephone: (303) 217-5700

I**, Kenneth E. Smith, RMQP.**, of Golden, Colorado., do hereby certify:

a) I am a Mineral Processing Engineer / consultant with Tetra Tech with a business address of 350 Indiana Street, Suite 500, Golden, CO.80401.

b) This certificate applies to the Technical Report titled "Initial Assessment (Preliminary Economic Assessment NI 43-101) Technical Report on the Sunshine Silver Mine Project", effective and issued on January 17, 2020.

c) I graduated with a degree of Bachelor of Science in Environmental Engineering / with a Chemistry minor from Colorado State University in 1980. I have worked as a metallurgical engineer for a total of 40 years since my graduation. My work experience includes Goldstrike Mine, Western States Minerals for 8 years, Nevada Goldfields for 3 years, Canyon Resources for 4 years, while concurrently working on various International and North American consulting projects. After 20 years of field experience, I began working for EPCM companies for an additional 20+ years, for all phases of project infrastructure, design, commissioning, and startup. Including polymetallics, leaching operations, uranium projects and operations, as well as waste water treatment plants. I am a certified MSHA/Hazmat instructor for 30+ years.

d) I am a registered member (Q.P) of the Society of Mining, Metallurgy, and Exploration, Inc. (SME #3004100). I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").

e) I visited the property on January 8-9, 2014. I was involved in the preparation of the 2014 PEA (Initial Assessment).

f) I have read the Instrument, and the parts of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.

g) I am responsible for Sections 11, 13, 17, 18, and portions of 1, 21, 25, 26, and 27 of the Technical Report and I am the Qualified Person for matters relating to ore crushing, process plant design, infrastructure requirements and the capital and operating costs associated with these project components.

h) I satisfy all the requirements of independence according to NI 43-101.

i) As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

j) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites assessable by the public.

Dated January 17, 2020

"Kenneth E. Smith, RMQP" - Signed

Signature of Qualified Person

Kenneth E. Smith, RMQP

Print name of Qualified Person

APPENDIX A: Mining Claims

United States Department of the Interior
Bureau of Land Management
IDSO PAYMENT CENTER
1387 S. VINNELL WAY
BOISE, ID 83709 -1657
Phone: 888 246-7523

Receipt

No: 4527178

Transaction #: 4647927
Date of Transaction: 08/08/2019

CUSTOMER:	
	SILVER OPPORTUNITY PARNER, LLC 2209 BIG CREEK RD KELLOGG,ID 83837-5011 US

LINE #	QTY	DESCRIPTION	REMARKS	UNIT PRICE	TOTAL
1	1.00	LOCATABLE MINERALS / MINING CLAIMS-NOT NEW-UNADJUD,ONE AUTH NO. ONLY / MINING CLAIM MONEY RECEIVED **CASES:** IMC227248/$165495.00	1,003 LODE CLAIMS	- n/a -	165495.00
				TOTAL:	**$165,495.00**

PAYMENT INFORMATION					
1	AMOUNT:	165495.00	POSTMARKED:	N/A
	TYPE:	CHECK	RECEIVED:	08/08/2019
	CHECK NO:	10386		
	NAME:	SILVER OPPORTUNITY PARNER, LLC 2209 BIG CREEK RD KELLOGG ID 83837-5011 US		

REMARKS

This receipt was generated by the automated BLM Collections and Billing System and is a paper representation of a portion of the official electronic record contained therein.

SUNSHINE SILVER
MINING & REFINING

2209 Big Creek Rd.
Kellogg, ID 83837
P: 208-783-2892
F: 208-783-2897

August 7, 2019

U.S. Department of the Interior
Bureau of Land Management
Idaho State Office – Lands & Minerals
1387 South Vinnell Way
Boise, Idaho 83709

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Attention: Branch of Records and Data Management

To Whom It May Concern:

As required by the Federal Land Policy and Management Act of 1976, please accept the **1,003** lode mining claims listed on the attached sheets located in Shoshone and Bonner Counties, Idaho. These claims are submitted for filing with the Bureau of Land Management in accordance with the Omnibus Budget Reconciliation Act of 1993. Enclosed is a check in the sum of One Hundred Sixty Five Thousand, Four Hundred and Ninety Five Dollars (**$165,495.00**), $165.00 maintenance fee for each of the mining claims listed in lieu of assessment work, to hold these claims for the assessment year ending September 1st, 2020.

Silver Opportunity Partners, LLC
Sunshine Mine
2209 Big Creek Road
Kellogg, ID 83837

Regards,

Greg Nickel
Chief Geologist
Sunshine Mine ◦ Idaho
(208) 783-1685

SOP Sunshine Mine Summary Rollup:

Group	*No. Claims*	Cross Check TTL $ @ $165.00 per claim
Sunshine - Mine Holdings	140	$ 23,100.00
Sunshine - Metropolitan Lease	67	$ 11,055.00
Sunshine - Silver Hill	28	$ 4,620.00
Sunshine - Pine Creek	148	$ 24,420.00
Sunshine - Snowstorm	24	$ 3,960.00
Sunshine - East Silver Belt - Rock Creek Lease	113	$ 18,645.00
Sunshine - Sun South	158	$ 26,070.00
Sunshine - East Silver Belt	155	$ 25,575.00
Sunshine - Central Silver Belt	80	$ 13,200.00
Sunshine - Falls Creek	90	$ 14,850.00
		$ 165,495.00
Total Claims	**1003**	

2019-2020 Total Claim Maintenance Cost $ 165,495.00

Sunshine - Mine Holdings

No.	Name	IMC No.
1	Merger 1	227248
2	Merger 2	227249
3	Merger 3	227250
4	Merger 4	227251
5	Merger 5	227252
6	Merger 6	227253
7	Merger 7	227254
8	Merger 8	227255
9	Merger 9	227256
10	Merger 10	227257
11	Merger 11	227258
12	Merger 12	227259
13	Merger 13	227260
14	Merger 14	227261
15	Merger 15	227262
16	Merger 16	227263
17	Merger 17	227264
18	Merger 18	227265
19	Merger 19	227266
20	Merger 20	227267
21	CAD 1	227226
22	CAD 2	227227
23	CAD 3	227228
24	CAD 4	227229
25	CAD 5	227230
26	CAD 6	227231
27	CAD 7	227232
28	CAD 8	227233
29	CAD 9	227234
30	CAD 10	227235
31	CAD 11	227236
32	CAD 12	227237
33	CAD 13	227238
34	CAD 14	227239
35	CAD 15	227240
36	CAD 16	227241
37	CAD 17	227242
38	CAD 18	227243
39	CAD 19	227244
40	CAD 20	227245
41	CAD 21	227246
42	CAD 22	227247
43	BLUE GOOSE 2	227325
44	BLUE GOOSE 1	227328
45	SNOWSLIDE	227327
46	SNOWSTORM	227326
47	MAY DAY	227329
48	RD 6	226989
49	RD 7	226990
50	RD 12 FR	226991
51	RD 13 FR	226992
52	RD 14 FR	226993
53	RD 15 FR	226994
54	RD 16 FR	226995
55	RD 17	226996
56	RD 18 FR	226997
57	RD 19	226998
58	RD 20 FR	226999
59	RD 1	226988
60	FAHEY	227001
61	MOXEY	227000
62	SILVER CLIFF	227006
63	LYNN	227005
64	LEONARD	227004
65	RYAN	227003
66	Edna #2	227002
67	FRANCES	226986
68	RD 2	226987
69	SA 1	226976
70	SA 2	226977
71	SA 3	226978
72	SA 4	226979
73	SA 5	226980
74	SA 6	226981
75	SA 7	226982
76	SA 8	226983
77	SA 9	226984
78	SA 10	226985
79	ELK 1	227280
80	ELK 2	227281
81	ELK 3	227282
82	ELK 4	227283
83	ELK 5	227284
84	ELK 6	227285
85	ELK 7	227286
86	ELK 8	227287
87	ELK 9	227288
88	ELK 10	227289
89	ELK 11	227290
90	ELK 12	227291
91	ELK 13	227292
92	ELK 14	227293
93	ELK 15	227294
94	ELK 16	227295
95	ELK 17	227296
96	BARBAROSA	175831
97	WESTERN STAR	175832
98	Crescent No. 1	227314
99	Crescent No. 2	227315
100	Crescent No. 3	227316
101	Crescent No. 4	227317
102	Crescent No. 5	227318
103	Crescent No. 6	227319
104	Crescent No. 7	227320
105	Crescent No. 8	227321
106	Crescent No. 9	227322
107	Crescent No. 10	227323
108	Crescent No. 11	227324
109	GIANT NO 1	227305
110	GIANT NO 7	227306
111	GIANT NO 8	227307
112	GIANT NO 10	227308
113	GIANT NO 11	227309
114	GIANT NO 12	227310
115	LONE PINE	227304
116	S C I NO 7	227311
117	S C I NO 8	227312
118	S C I NO 9	227313
119	Lone Pine #1	227730
120	Lone Pine #2	227731
121	Hillside	227732
122	Hillside #1	227733
123	Hillside #2	227734
124	Hillside #3	227735
125	Humbolt	227736
126	Humbolt #1	227737
127	Humbolt #2	227738
128	Humbolt #3	227739
129	Crescent	227740
130	Crescent #1	227741
131	Crescent #8	227742
132	S.C.I. #11	227743
133	S.C.I. #12	227744
134	S.C.I. #13	227745
135	S.C.I. #14	227746
136	S.C.I. #15	227747
137	S.C.I. #16	227748
138	S.C.I. #17	227749
139	S.C.I. #18	227750
140	S.C.I. #19	227751

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Total Group Claims Held:	140

Sunshine - Metropolitan Lease

No.	Name	IMC No.
1	JOHN G	226934
2	LAUREL	226935
3	GRANT	226941
4	HUDSON	226930
5	KING	226943
6	LORA NO 1	226942
7	LORA NO 2	226929
8	MADALENE	226936
9	SAXON	226932
10	STUDEBAKER	226931
11	TOUGH GOING	226939
12	UTICA	226928
13	WAYNE	226933
14	NI WOT	226938
15	BOSTON FRACTION	226940
16	MET #4	226950
17	MET #3	226949
18	IZARD	226973
19	IZARD FR.	226974
20	COMNER	226975
21	BURNS	226971
22	BELL	226972
23	PEARL	226937
24	WADLEIGH FR.	226967
25	NEWSOME	226970
26	STEVENS	226969
27	MALLIGAN	226968
28	MET #1 FR.	226946
29	MET #12	226957
30	MET #13	226958
31	MET #13 FR.	226959
32	MET #14	226960
33	MET #15	226961
34	MET #16	226962
35	MET #17	226963
36	MET #18	226964
37	COLBERT 2	226965
38	METROPOLITAN 2 FR	226948
39	METROPOLITAN	226944
40	MET #1	226945
41	MET #2	226947
42	MET #5	226951
43	MET #6	226952
44	MET #7	226953
45	MET #8	226954
46	MET #10	226955
47	MET #11	226956
48	WADLEIGH	226966
49	MET #21	227807
50	MET #22	227808
51	MET #23	227809
52	MET #24	227810
53	Colbert 1	227811
54	RDMET #1 FR	227812
55	RDMET #4 FR	227813
56	RDMET #3 FR	227814
57	Mary Lode	227815
58	Linda	227816
59	Ann	227817
60	Joanna	227818
61	Nancy	227819
62	Edna	227820
63	Star	227821
64	Sydney	227822
65	Steve	227823
66	Colbert	227824
67	MET #9	227825

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Total Group Claims Held:	67

Sunshine - Silver Hill

No.	Name	IMC No.
1	Silver Hill 1	226792
2	Silver Hill 2	226793
3	Silver Hill 3	226794
4	Silver Hill 4	226795
5	Silver Hill 5	226796
6	Silver Hill 6	226797
7	Silver Hill 7	226798
8	Silver Hill 8	226799
9	Silver Hill 9	226800
10	Silver Hill 10	226801
11	Silver Hill 11	226802
12	Silver Hill 12	226803
13	Silver Hill 13	226804
14	Silver Hill 14	226805
15	Silver Hill 15	226806
16	Silver Hill 16	226807
17	Silver Hill 17	226808
18	Silver Hill 18	226809
19	Silver Hill 19	226810
20	Silver Hill 20	226811
21	Silver Hill 21	226812
22	Silver Hill 22	226813
23	Silver Hill 23	226814
24	Silver Hill 24	226815
25	Silver Hill 25	226816
26	Silver Hill 26	226817
27	Silver Hill 27	226818
28	Silver Hill 28	226819

Total Group Claims Held:	28

Sunshine - Pine Creek

No.	Name	IMC No.
1	LIBERAL KING	227297
2	SUNSET #3	227298
3	SUNSET #4	227299
4	SUNSET #5	227300
5	SUNSET #6	227301
6	SUNSET #7	227302
7	SUNSET #8	227303
8	Denver #2	227826
9	Denver #3	227827
10	Denver #4	227828
11	Denver #5	227829
12	Denver #6	227830
13	Denver #7	227831
14	Denver #8	227832
15	Denver #9	227833
16	Denver #10	227834
17	Denver #11	227835
18	Denver #15	227836
19	Denver #16	227837
20	Denver #17	227838
21	Denver #18	227839
22	Denver #19	227840
23	Denver #20	227841
24	Denver #21	227842
25	Denver #22	227843
26	Denver #23	227844
27	Denver #24	227845
28	Denver #25	227846
29	Denver #26	227847
30	Denver #27	227848
31	Denver #28	227849
32	Denver #29	227850
33	Denver #30	227851
34	Denver #31	227852
35	Denver #32	227853
36	Denver #33	227854
37	Denver #34	227855
38	Denver #35	227856
39	Denver #36	227857
40	Denver #37	227858
41	Denver #38	227859
42	Denver #39	227860
43	Denver #40	227861
44	Denver #41	227862
45	Denver #42	227863
46	Denver #43	227864
47	Denver #44	227865
48	H 1	226892
49	H 2	226893
50	H 3	226894
51	H 4	226895
52	HI #10	226896
53	HI #11	226897
54	HI #12	226898
55	W 1	226867
56	W 2	226868
57	W 3	226869
58	W 4	226870
59	W 5	226871
60	W 6	226872
61	W 7	226873
62	W 8	226874
63	W 9	226875
64	W 10	226876
65	SIDNEY #1	226877
66	SIDNEY #2	226878
67	SIDNEY #3	226879
68	SIDNEY #4	226880
69	SIDNEY #5	226881
70	SIDNEY #6	226882
71	SIDNEY #7	226883
72	SIDNEY #8	226884
73	SIDNEY #9	226885
74	SIDNEY #10	226886
75	SIDNEY #11	226887
76	SIDNEY #12	226888
77	SIDNEY #13	226889
78	SIDNEY #14	226890
79	SIDNEY #15	226891

No.	Name	IMC No.
80	Lookout #1	227866
81	Lookout #2	227867
82	Lookout #3	227868
83	Lookout #4	227869
84	Lookout #5	227870
85	Lookout #6	227871
86	Lookout #7	227872
87	Lookout #8	227873
88	Lookout #9	227874
89	Lookout #10	227875
90	Lookout #11	227876
91	Lookout #12	227877
92	Lookout #13	227878
93	Lookout #14	227879
94	Lookout #15	227880
95	Lookout #16	227881
96	Lookout #17	227882
97	Lookout #18	227883
98	Lookout #19	227884
99	Lookout #20	227885
100	Lookout #21	227886
101	Lookout #22	227887
102	Lookout #23	227888
103	Lookout #24	227889
104	Lookout #25	227890
105	Lookout #26	227891
106	Lookout #28	227892
107	Lookout #29	227893
108	Lookout #30	227894
109	Lookout #31	227895
110	Lookout #32	227896
111	Lookout #33	227897
112	Lookout #34	227898
113	Lookout #35	227899
114	Lookout #36	227900
115	Lookout #37	227901
116	Lookout #38	227902
117	Lookout #39	227903
118	Lookout 21	227904
119	Lookout 25	227905
120	EAGLE #1	226899
121	EAGLE #2	226900
122	EAGLE #3	226901
123	EAGLE #4	226902
124	EAGLE #5	226903
125	EAGLE #6	226904
126	EAGLE #7	226905
127	EAGLE #8	226906
128	EAGLE #9	226907
129	EAGLE #10	226908
130	EAGLE #11	226909
131	EAGLE #12	226910
132	EAGLE #13	226911
133	EAGLE #14	226912
134	EAGLE #15	226913
135	EAGLE #16	226914
136	EAGLE #17	226915
137	EAGLE #18	226916
138	EAGLE #19	226917
139	EAGLE #20	226918
140	EAGLE #21	226919
141	EAGLE #22	226920
142	EAGLE #23	226921
143	EAGLE #24	226922
144	EAGLE #25	226923
145	EAGLE #26	226924
146	EAGLE #27	226925
147	EAGLE #28	226926
148	EAGLE #29	226927

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Total Group Claims Held: 148

Sunshine - Snowstorm

No.	Name	IMC No.
1	SNOW 1	226849
2	SNOW 2	226850
3	SNOW 3	226851
4	SNOW 4	226852
5	SNOW 5	226853
6	SNOW 6	226854
7	SNOW 7	226855
8	SNOW 8	226856
9	S 4951	226833
10	S 4952	226834
11	S 4953	226835
12	S 4954	226836
13	S 4955	226837
14	S 4956	226838
15	S 4957	226839
16	S 4958	226840
17	S 4959	226841
18	S 5049	226842
19	S 5059	226843
20	S 5060	226844
21	S 5148	226845
22	S 5149	226846
23	S 5151	226847
24	S 5159	226848

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Total Group Claims Held:	24

Sunshine - East Silver Belt - Rock Creek Lease

No.	Name	IMC No.	No.	Name	IMC No.
1	G12	227019	81	RC 1	227149
2	C.R.	227010	82	RC 2	227150
3	EDNA MAE	227016	83	RC 6	227154
4	SILVER COIN	227030	84	RC 7	227155
5	NOOK	227021	85	RC 8	227156
6	BLUE JAY	227009	86	RC 12	227160
7	WOODCUTTER	227032	87	RC 18	227166
8	FLORA	227018	88	RC 19	227167
9	F-1	227017	89	RC 20	227168
10	BJF	227008	90	RC 21	227169
11	BJ EXTENSION	227007	91	RC 26	227174
12	SILVER DOLLAR	227031	92	RC 27	227175
13	ROCK CREEK EXT #3	227029	93	RC 28	227176
14	R.C.E. NO. 2	227027	94	RC 29	227177
15	R.C.E. NO. 5	227028			
16	E-7	227015	95	GH 1	227082
17	GREY COPPER #1	227020	96	GH 2	227083
18	D-1	227011	97	GH 3	227084
19	D-7	227012	98	GH 4	227085
20	D-8	227013	99	GH 5	227086
21	D-9	227014	100	GH 6	227087
22	R.C.-79	227022	101	GH 7	227088
23	R.C.-80	227023	102	GH 8	227089
24	R.C.-81	227024	103	GH 12	227093
25	R.C.-81B	227025	104	GH 13	227094
26	R.C.-92B	227026	105	GH 14	227095
			106	GH 15	227096
27	R 9	227122	107	GH 16	227097
28	P 1	227123	108	GH 17	227098
29	P 2	227124	109	GH 18	227099
30	P 3	227125	110	GH 19	227100
31	P 4	227126	111	GH 23	227104
32	P 5	227127	112	GH 24	227105
33	P 6	227128	113	GH 25	227106
34	P 7	227129			
35	P 8	227130			
36	P 9	227131			
37	P 10	227132			
38	P 11	227133			
39	P 12	227134			
40	P 13	227135			
41	P 14	227136			
42	P 15	227137			
43	P 16	227138			
44	P 17	227139			
45	P 18	227140			
46	P 19	227141			
47	P 20	227142			
48	P 21	227143			
49	P 22	227144			
50	P 23	227145			
51	P 24	227146			
52	P 25	227147			
53	P 26	227148			
54	RCM 1	227199			
55	RCM 2	227200			
56	RCM 3	227201			
57	RCM 4	227202			
58	RCM 5	227203			
59	RCM 6	227204			
60	RCM 7	227205			
61	RCM 8	227206			
62	RCM 9	227207			
63	RCM 10	227208			
64	RCM 11	227209			
65	RCM 12	227210			
66	RCM 13	227211			
67	RCM 14	227212			
68	RCM 15	227213			
69	RCM 16	227214			
70	RCM 17	227215			
71	RCM 18	227216			
72	RCM 19	227217			
73	RCM 20	227218			
74	RCM 21	227219			
75	RCM 22	227220			
76	RCM 23	227221			
77	RCM 24	227222			
78	RCM 25	227223			
79	RCM 26	227224	**Total Group Claims Held:**		113
80	RCM 27	227225			

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Sunshine - Sun South

No.	Name	IMC No.	No.	Name	IMC No.
1	Sun South #1	227945	81	Sun South #81	228025
2	Sun South #2	227946	82	Sun South #82	228026
3	Sun South #3	227947	83	Sun South #83	228027
4	Sun South #4	227948	84	Sun South #84	228028
5	Sun South #5	227949	85	Sun South #85	228029
6	Sun South #6	227950	86	Sun South #86	228030
7	Sun South #7	227951	87	Sun South #87	228031
8	Sun South #8	227952	88	Sun South #88	228032
9	Sun South #9	227953	89	Sun South #89	228033
10	Sun South #10	227954	90	Sun South #90	228034
11	Sun South #11	227955	91	Sun South #91	228035
12	Sun South #12	227956	92	Sun South #92	228036
13	Sun South #13	227957	93	Sun South #93	228037
14	Sun South #14	227958	94	Sun South #94	228038
15	Sun South #15	227959	95	Sun South #95	228039
16	Sun South #16	227960	96	Sun South #96	228040
17	Sun South #17	227961	97	Sun South #97	228041
18	Sun South #18	227962	98	Sun South #98	228042
19	Sun South #19	227963	99	Sun South #99	228043
20	Sun South #20	227964	100	Sun South #100	228044
21	Sun South #21	227965	101	Sun South #101	228045
22	Sun South #22	227966	102	Sun South #102	228046
23	Sun South #23	227967	103	Sun South #103	228047
24	Sun South #24	227968	104	Sun South #104	228048
25	Sun South #25	227969	105	Sun South #105	228049
26	Sun South #26	227970	106	Sun South #106	228050
27	Sun South #27	227971	107	Sun South #107	228051
28	Sun South #28	227972	108	Sun South #108	228052
29	Sun South #29	227973	109	Sun South #109	228053
30	Sun South #30	227974	110	Sun South #112	228054
31	Sun South #31	227975	111	Sun South #113	228055
32	Sun South #32	227976	112	Sun South #114	228056
33	Sun South #33	227977	113	Sun South #115	228057
34	Sun South #34	227978	114	Sun South #116	228058
35	Sun South #35	227979	115	Sun South #117	228059
36	Sun South #36	227980	116	Sun South #118	228060
37	Sun South #37	227981	117	Sun South #119	228061
38	Sun South #38	227982	118	Sun South #120	228062
39	Sun South #39	227983	119	Sun South #121	228063
40	Sun South #40	227984	120	Sun South #122	228064
41	Sun South #41	227985	121	Sun South #123	228065
42	Sun South #42	227986	122	Sun South #124	228066
43	Sun South #43	227987	123	Sun South #125	228067
44	Sun South #44	227988	124	Sun South #126	228068
45	Sun South #45	227989	125	Sun South #127	228069
46	Sun South #46	227990	126	Sun South #128	228070
47	Sun South #47	227991	127	Sun South #129	228071
48	Sun South #48	227992	128	Sun South #130	228072
49	Sun South #49	227993	129	Sun South #131	228073
50	Sun South #50	227994	130	Sun South #132	228074
51	Sun South #51	227995	131	Sun South #133	228075
52	Sun South #52	227996	132	Sun South #134	228076
53	Sun South #53	227997	133	Sun South #135	228077
54	Sun South #54	227998	134	Sun South #136	228078
55	Sun South #55	227999	135	Sun South #137	228079
56	Sun South #56	228000	136	Sun South #138	228080
57	Sun South #57	228001	137	Sun South #139	228081
58	Sun South #58	228002	138	Sun South #140	228082
59	Sun South #59	228003	139	Sun South #141	228083
60	Sun South #60	228004	140	Sun South #142	228084
61	Sun South #61	228005	141	Sun South #143	228085
62	Sun South #62	228006	142	Sun South #144	228086
63	Sun South #63	228007	143	Sun South #145	228087
64	Sun South #64	228008	144	Sun South #146	228088
65	Sun South #65	228009	145	Sun South #147	228089
66	Sun South #66	228010	146	Sun South #148	228090
67	Sun South #67	228011	147	Sun South #149	228091
68	Sun South #68	228012	148	Sun South #150	228092
69	Sun South #69	228013	149	Sun South #151	228093
70	Sun South #70	228014	150	Sun South #152	228094
71	Sun South #71	228015	151	Sun South #153	228095
72	Sun South #72	228016	152	Sun South #154	228096
73	Sun South #73	228017	153	Sun South #155	228097
74	Sun South #74	228018	154	Sun South #156	228098
75	Sun South #75	228019	155	Sun South #157	228099
76	Sun South #76	228020	156	Sun South #158	228100
77	Sun South #77	228021	157	Sun South #159	228101
78	Sun South #78	228022	158	Sun South #160	228102
79	Sun South #79	228023			
80	Sun South #80	228024			
				Total Group Claims Held:	**158**

Sunshine - East Silver Belt

No.	Name	IMC No.	No.	Name	IMC No.
1	RQ 1	227906	81	A 1	227057
2	RQ 2	227907	82	A 3	227058
3	RQ 3	227908	83	A 4	227059
4	RQ 4	227909	84	A 6	227060
5	RQ 5	227910	85	A 7	227061
6	RQ 6	227911	86	A 8	227062
7	RQ 7	227912	87	A 9	227063
8	RQ 8	227913	88	A 10	227064
9	RQ 9	227914	89	A 11	227065
10	RQ 10	227915	90	A 12	227066
11	RQ 11	227916	91	A 13	227067
12	RQ 12	227917	92	A 14	227068
13	RQ 13	227918	93	A 15	227069
14	RQ 14	227919	94	A 16	227070
15	RQ 15	227920	95	A 17	227071
16	RQ 16	227921	96	A 18	227072
17	RQ 17	227922	97	A 19	227073
18	RQ 18	227923	98	A 20	227074
19	RQ 19	227924	99	A 21	227075
20	RQ 20	227925	100	A 22	227076
21	RQ 21	227926	101	A 23	227077
22	RQ 22	227927	102	A 24	227078
23	RQ 23	227928	103	A 25	227079
24	RQ 24	227929	104	A 28	227080
25	RQ 25	227930	105	A 29	227081
26	RQ 26	227931			
27	RQ 27	227932	106	RC 3	227151
28	RQ 28	227933	107	RC 4	227152
29	RQ 29	227934	108	RC 5	227153
30	RQ 30	227935	109	RC 9	227157
31	RQ 31	227936	110	RC 10	227158
32	RQ 32	227937	111	RC 11	227159
33	RQ 33	227938	112	RC 13	227161
34	RQ 34	227939	113	RC 14	227162
35	RQ 35	227940	114	RC 15	227163
36	RQ 36	227941	115	RC 16	227164
37	RQ 37	227942	116	RC 17	227165
38	RQ 38	227943	117	RC 22	227170
39	RQ 39	227944	118	RC 23	227171
			119	RC 24	227172
40	WA 1	227033	120	RC 25	227173
41	WA 2	227034	121	RC 30	227178
42	WA 3	227035	122	RC 31	227179
43	WA 4	227036	123	RC 32	227180
44	WA 5	227037	124	RC 33	227181
45	WA 6	227038			
46	WA 7	227039	125	GH 9	227090
47	WA 8	227040	126	GH 10	227091
48	WA 9	227041	127	GH 11	227092
49	WA 10	227042	128	GH 20	227101
50	WA 11	227043	129	GH 21	227102
51	WA 12	227044	130	GH 22	227103
52	WA 13	227045	131	GH 26	227107
53	WA 14	227046	132	GH 27	227108
54	WA 15	227047	133	GH 28	227109
55	WA 16	227048	134	GH 29	227110
56	WA 17	227049	135	GH 30	227111
57	WA 18	227050	136	GH 31	227112
58	WA 19	227051	137	GH 32	227113
59	WA 20	227052	138	GH 33	227114
60	WA 21	227053	139	GH 34	227115
61	WA 22	227054	140	GH 35	227116
62	WA 23	227055	141	GH 36	227117
63	WA 24	227056	142	GH 37	227118
			143	GH 38	227119
64	AE 1	227186	144	GH 39	227120
65	AE 2	227187	145	GH 40	227121
66	AE 3	227188			
67	AE 4	227189	146	BL 1	226857
68	AE 5	227190	147	BL 2	226858
69	AE 6	227191	148	BL 3	226859
70	AE 7	227192	149	BL 4	226860
71	AE 8	227193	150	BL 5	226861
72	AE 9	227194	151	BL 6	226862
73	AE 10	227195	152	BL 7	226863
74	AE 11	227196	153	BL 8	226864
75	AE 12	227197	154	BL 9	226865
76	AE 13	227198	155	BL 10	226866
77	MU 1	227182			
78	MU 2	227183		Total Group Claims Held:	155
79	MU 3	227184			
80	MU 4	227185			

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Sunshine - Central Silver Belt

No.	Name	IMC No.	No.	Name	IMC No.
1	Idaho Leadville #1	227780	65	STERLING 1	227268
2	Idaho Leadville #2	227781	66	STERLING 2	227269
3	Idaho Leadville #3	227782	67	STERLING 3	227270
4	Idaho Leadville #4	227783	68	STERLING 4	227271
5	Idaho Leadville #5	227784	69	STERLING 5	227272
6	Idaho Leadville #6	227785	70	STERLING 6	227273
7	Idaho Leadville #7	227786	71	STERLING 7	227274
8	Idaho Leadville #8	227787	72	STERLING 8	227275
9	Idaho Leadville #9	227788	73	STERLING 9	227276
10	Idaho Leadville #11	227789	74	STERLING 10	227277
11	Idaho Leadville #13	227790	75	STERLING 11	227278
12	Idaho Leadville #14	227791	76	STERLING 12	227279
13	Idaho Leadville #15	227792			
14	Idaho Leadville #16	227793	77	SILVER APEX 3	226829
15	Idaho Leadville #18	227794	78	SILVER APEX 4	226830
16	Idaho Leadville #19	227795	79	SILVER APEX 5	226831
17	Idaho Leadville #20	227796	80	SILVER APEX 6	226832
18	Idaho Leadville #21	227797			
19	Idaho Leadville #22	227798			
20	Idaho Leadville #23	227799			
21	Idaho Leadville #24	227800			
22	Idaho Leadville #25	227801			
23	Idaho Leadville #26	227802			
24	Idaho Leadville #28	227803			
25	Idaho Leadville #30	227804			
26	Idaho Leadville #31	227805			
27	Idaho Leadville #32	227806			
28	LC #15	227752			
29	LC #16	227753			
30	LC #19	227754			
31	LC #20	227755			
32	LC #21	227756			
33	LC #24	227757			
34	LC #25	227758			
35	LC #26	227759			
36	LC #29	227760			
37	LC #30	227761			
38	LC #31	227762			
39	LC #32	227763			
40	LC #35	227764			
41	LC #36	227765			
42	LC #37	227766			
43	LC #38	227767			
44	LC #39	227768			
45	LC #46	227769			
46	LC #47	227770			
47	LC #48	227771			
48	LC #49	227772			
49	LC #50	227773			
50	LC #53	227774			
51	LC #54	227775			
52	LC #55	227776			
53	LC #56	227777			
54	LC #59	227778			
55	LC #60	227779			
56	JD #1	226820			
57	JD #2	226821			
58	JD #3	226822			
59	JD #4	226823			
60	JD #5	226824			
61	JD #6	226825			
62	JD #7	226826			
63	JD #8	226827			
64	JD #9	226828			

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Total Group Claims Held:	80

Sunshine - Falls Creek

No.	Name	IMC No.
1	NEW FALLS #1	227345
2	NEW FALLS #2	227346
3	NEW FALLS #3	227347
4	NEW FALLS #4	227348
5	NEW FALLS #5	227349
6	NEW FALLS #6	227350
7	NEW FALLS #7	227351
8	NEW FALLS #8	227352
9	NEW FALLS #9	227353
10	NEW FALLS #10	227354
11	NEW FALLS #11	227355
12	NEW FALLS #12	227356
13	NEW FALLS #13	227357
14	NEW FALLS #14	227358
15	NEW FALLS #15	227359
16	NEW FALLS #16	227360
17	NEW FALLS #17	227361
18	NEW FALLS #18	227362
19	NEW FALLS #19	227363
20	NORTH FALLS #20	227364
21	NEW FALLS #21	227365
22	NEW FALLS #22	227366
23	NEW FALLS #23	227367
24	NEW FALLS #24	227368
25	NEW FALLS #25	227369
26	NEW FALLS #26	227370
27	NEW FALLS #27	227371
28	NEW FALLS #28	227372
29	NEW FALLS #29	227373
30	NEW FALLS #30	227374
31	NEW FALLS #31	227375
32	NEW FALLS #32	227376
33	NEW FALLS #33	227377
34	NEW FALLS #34	227378
35	NEW FALLS #35	227379
36	NEW FALLS #36	227380
37	NEW FALLS #37	227381
38	NEW FALLS #38	227382
39	NEW FALLS #39	227383
40	NEW FALLS #40	227384
41	NEW FALLS #41	227385
42	NEW FALLS #42	227386
43	NEW FALLS #43	227387
44	NEW FALLS #44	227388
45	NEW FALLS #45	227389
46	NEW FALLS #46	227390
47	NEW FALLS #47	227391
48	NEW FALLS #48	227392
49	NEW FALLS #49	227393
50	NEW FALLS #50	227394
51	NEW FALLS #51	227395
52	NEW FALLS #52	227396
53	NEW FALLS #53	227397
54	NEW FALLS #54	227398
55	NEW FALLS #55	227399
56	NEW FALLS #56	227400
57	NEW FALLS #57	227401
58	NEW FALLS #58	227402
59	NEW FALLS #59	227403
60	NEW FALLS #60	227404
61	NEW FALLS #61	227405
62	NEW FALLS #62	227406
63	NEW FALLS #63	227407
64	NEW FALLS #64	227408
65	NEW FALLS #65	227409
66	NEW FALLS #66	227410
67	NEW FALLS #67	227411
68	NEW FALLS #68	227412
69	NEW FALLS #69	227413
70	NEW FALLS #70	227414
71	NEW FALLS #71	227415
72	NEW FALLS #72	227416
73	NEW FALLS #73	227417
74	NEW FALLS #74	227418
75	NEW FALLS #75	227419
76	FALLS CREEK #1	227330
77	FALLS CREEK #2	227331
78	FALLS CREEK #3	227332
79	FALLS CREEK #4	227333
80	FALLS CREEK #5	227334
81	FALLS CREEK #6	227335
82	FALLS CREEK #7	227336
83	FALLS CREEK #8	227337
84	FALLS CREEK #9	227338
85	FALLS CREEK #10	227339
86	FALLS CREEK #11	227340
87	FALLS CREEK #12	227341
88	FALLS CREEK #13	227342
89	FALLS CREEK #14	227343
90	FALLS CREEK #15	227344

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Total Group Claims Held:	90

Instrument # 500359
WALLACE,SHOSHONE COUNTY, IDAHO
8-13-2019 10:09:44 AM No. of Pages: 10
Recorded for : SILVER OPPORTUNITY PARTNERS
TAMIE EBERHARD Fee: 37.00
Ex-Officio Recorder Deputy
Index to: ANN MAINT FEE & NOT INT HO

AFFIDAVITT OF PAYMENT OF ANNUAL: MAINTENANCE FEES &
NOTICE OF INTENT TO HOLD UNPATENETED MINING CLAIMS

SILVER OPPORTUNITY PARTNERS LLC– SUNSHINE MINE
(913 Unpatented Lode Claims)

STATE OF IDAHO)
)ss.
County of Shoshone)

Before me the undersigned, personally appeared Gregory P. Nickel, Authorized Agent of Silver Opportunity Partners LLC -Sunshine Mine who being first duly sworn, deposed, certified and said that the annual maintenance fees in the amount of **One Hundred Fifty Thousand, Six Hundred and Forty Five Dollars ($150,645.00)**, in lieu of annual assessment work for the 2019-2020 Assessment Year have been paid to the U.S. Department of the Interior, State of Idaho Office of the Bureau of Land Management, pursuant to the Interior Department and Related Agencies Appropriations Act of 1993, Public Law 103-66 of August 10, 1993, 107 Stat. 405; continued by public law 105-277, 112 Stat. 2681-232, 2681-235, of October 21, 1998; continued by Public Law 107-63, 115 Stat. 414, of November 5, 2001; for each of the **913** unpatented lode mining claims located in Shoshone County, Idaho, as further described in subsequent Exhibit A attached hereto and by this reference made a part hereof.

That such fees were paid by, for, or at the expense of Silver Opportunity Partners-Sunshine Mine, 2209 Big Creek Road, Kellogg, Idaho 83837, the owner of said claims, for the purpose of holding said claims; all stakes, monuments or trees marking boundaries of said claims are in proper place and position.

Silver Opportunity Partners LLC-Sunshine Mine

By: Gregory P. Nickel
Gregory P. Nickel, Authorized Agent

Subscribed and sworn to before me this 12th day of August, 2019.

Sarah E Frohlich
Notary Public for the State of Idaho
Residing at Kellogg Idaho
My Commission Expires: October 30, 2024

SARAH E FROHLICH
Notary Public - State of Idaho
Commission Number 58960
My Commission Expires 10-30-2024

500359

Sunshine - Mine Holdings

No.	*Name*	*IMC No.*	*No.*	*Name*	*IMC No.*
1	Merger 1	227248	79	ELK 1	227280
2	Merger 2	227249	80	ELK 2	227281
3	Merger 3	227250	81	ELK 3	227282
4	Merger 4	227251	82	ELK 4	227283
5	Merger 5	227252	83	ELK 5	227284
6	Merger 6	227253	84	ELK 6	227285
7	Merger 7	227254	85	ELK 7	227286
8	Merger 8	227255	86	ELK 8	227287
9	Merger 9	227256	87	ELK 9	227288
10	Merger 10	227257	88	ELK 10	227289
11	Merger 11	227258	89	ELK 11	227290
12	Merger 12	227259	90	ELK 12	227291
13	Merger 13	227260	91	ELK 13	227292
14	Merger 14	227261	92	ELK 14	227293
15	Merger 15	227262	93	ELK 15	227294
16	Merger 16	227263	94	ELK 16	227295
17	Merger 17	227264	95	ELK 17	227296
18	Merger 18	227265			
19	Merger 19	227266	96	BARBAROSA	175831
20	Merger 20	227267	97	WESTERN STAR	175832
21	CAD 1	227226	98	Crescent No. 1	227314
22	CAD 2	227227	99	Crescent No. 2	227315
23	CAD 3	227228	100	Crescent No. 3	227316
24	CAD 4	227229	101	Crescent No. 4	227317
25	CAD 5	227230	102	Crescent No. 5	227318
26	CAD 6	227231	103	Crescent No. 6	227319
27	CAD 7	227232	104	Crescent No. 7	227320
28	CAD 8	227233	105	Crescent No. 8	227321
29	CAD 9	227234	106	Crescent No. 9	227322
30	CAD 10	227235	107	Crescent No. 10	227323
31	CAD 11	227236	108	Crescent No. 11	227324
32	CAD 12	227237	109	GIANT NO 1	227305
33	CAD 13	227238	110	GIANT NO 7	227306
34	CAD 14	227239	111	GIANT NO 8	227307
35	CAD 15	227240	112	GIANT NO 10	227308
36	CAD 16	227241	113	GIANT NO 11	227309
37	CAD 17	227242	114	GIANT NO 12	227310
38	CAD 18	227243	115	LONE PINE	227304
39	CAD 19	227244	116	S C I NO 7	227311
40	CAD 20	227245	117	S C I NO 8	227312
41	CAD 21	227246	118	S C I NO 9	227313
42	CAD 22	227247			
			119	Lone Pine #1	227730
43	BLUE GOOSE 2	227325	120	Lone Pine #2	227731
44	BLUE GOOSE 1	227328	121	Hillside	227732
45	SNOWSLIDE	227327	122	Hillside #1	227733
46	SNOWSTORM	227326	123	Hillside #2	227734
47	MAY DAY	227329	124	Hillside #3	227735
			125	Humbolt	227736
48	RD 6	226989	126	Humbolt #1	227737
49	RD 7	226990	127	Humbolt #2	227738
50	RD 12 FR	226991	128	Humbolt #3	227739
51	RD 13 FR	226992	129	Crescent	227740
52	RD 14 FR	226993	130	Crescent #1	227741
53	RD 15 FR	226994	131	Crescent #8	227742
54	RD 16 FR	226995	132	S.C.I. #11	227743
55	RD 17	226996	133	S.C.I. #12	227744
56	RD 18 FR	226997	134	S.C.I. #13	227745
57	RD 19	226998	135	S.C.I. #14	227746
58	RD 20 FR	226999	136	S.C.I. #15	227747
59	RD 1	226988	137	S.C.I. #16	227748
60	FAHEY	227001	138	S.C.I. #17	227749
61	MOXEY	227000	139	S.C.I. #18	227750
62	SILVER CLIFF	227006	140	S.C.I. #19	227751
63	LYNN	227005			
64	LEONARD	227004			
65	RYAN	227003			
66	Edna #2	227002			
67	FRANCES	226986			
68	RD 2	226987			
69	SA 1	226976			
70	SA 2	226977			
71	SA 3	226978			
72	SA 4	226979			
73	SA 5	226980			
74	SA 6	226981			
75	SA 7	226982			
76	SA 8	226983			
77	SA 9	226984	**Total Group Claims Held:**		**140**
78	SA 10	226985			

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Sunshine - Metropolitan Lease

No.	Name	IMC No.
1	JOHN G	226934
2	LAUREL	226935
3	GRANT	226941
4	HUDSON	226930
5	KING	226943
6	LORA NO 1	226942
7	LORA NO 2	226929
8	MADALENE	226936
9	SAXON	226932
10	STUDEBAKER	226931
11	TOUGH GOING	226939
12	UTICA	226928
13	WAYNE	226933
14	NI WOT	226938
15	BOSTON FRACTION	226940
16	MET #4	226950
17	MET #3	226949
18	IZARD	226973
19	IZARD FR.	226974
20	COMNER	226975
21	BURNS	226971
22	BELL	226972
23	PEARL	226937
24	WADLEIGH FR.	226967
25	NEWSOME	226970
26	STEVENS	226969
27	MALLIGAN	226968
28	MET #1 FR.	226946
29	MET #12	226957
30	MET #13	226958
31	MET #13 FR.	226959
32	MET #14	226960
33	MET #15	226961
34	MET #16	226962
35	MET #17	226963
36	MET #18	226964
37	COLBERT 2	226965
38	METROPOLITAN 2 FR	226948
39	METROPOLITAN	226944
40	MET #1	226945
41	MET #2	226947
42	MET #5	226951
43	MET #6	226952
44	MET #7	226953
45	MET #8	226954
46	MET #10	226955
47	MET #11	226956
48	WADLEIGH	226966
49	MET #21	227807
50	MET #22	227808
51	MET #23	227809
52	MET #24	227810
53	Colbert 1	227811
54	RDMET #1 FR	227812
55	RDMET #4 FR	227813
56	RDMET #3 FR	227814
57	Mary Lode	227815
58	Linda	227816
59	Ann	227817
60	Joanna	227818
61	Nancy	227819
62	Edna	227820
63	Star	227821
64	Sydney	227822
65	Steve	227823
66	Colbert	227824
67	MET #9	227825

Total Group Claims Held: 67

Sunshine - Silver Hill

No.	Name	IMC No.
1	Silver Hill 1	226792
2	Silver Hill 2	226793
3	Silver Hill 3	226794
4	Silver Hill 4	226795
5	Silver Hill 5	226796
6	Silver Hill 6	226797
7	Silver Hill 7	226798
8	Silver Hill 8	226799
9	Silver Hill 9	226800
10	Silver Hill 10	226801
11	Silver Hill 11	226802
12	Silver Hill 12	226803
13	Silver Hill 13	226804
14	Silver Hill 14	226805
15	Silver Hill 15	226806
16	Silver Hill 16	226807
17	Silver Hill 17	226808
18	Silver Hill 18	226809
19	Silver Hill 19	226810
20	Silver Hill 20	226811
21	Silver Hill 21	226812
22	Silver Hill 22	226813
23	Silver Hill 23	226814
24	Silver Hill 24	226815
25	Silver Hill 25	226816
26	Silver Hill 26	226817
27	Silver Hill 27	226818
28	Silver Hill 28	226819

Total Group Claims Held: 28

Sunshine - Pine Creek

No.	Name	IMC No.
1	LIBERAL KING	227297
2	SUNSET #3	227298
3	SUNSET #4	227299
4	SUNSET #5	227300
5	SUNSET #6	227301
6	SUNSET #7	227302
7	SUNSET #8	227303
8	Denver #2	227826
9	Denver #3	227827
10	Denver #4	227828
11	Denver #5	227829
12	Denver #6	227830
13	Denver #7	227831
14	Denver #8	227832
15	Denver #9	227833
16	Denver #10	227834
17	Denver #11	227835
18	Denver #15	227836
19	Denver #16	227837
20	Denver #17	227838
21	Denver #18	227839
22	Denver #19	227840
23	Denver #20	227841
24	Denver #21	227842
25	Denver #22	227843
26	Denver #23	227844
27	Denver #24	227845
28	Denver #25	227846
29	Denver #26	227847
30	Denver #27	227848
31	Denver #28	227849
32	Denver #29	227850
33	Denver #30	227851
34	Denver #31	227852
35	Denver #32	227853
36	Denver #33	227854
37	Denver #34	227855
38	Denver #35	227856
39	Denver #36	227857
40	Denver #37	227858
41	Denver #38	227859
42	Denver #39	227860
43	Denver #40	227861
44	Denver #41	227862
45	Denver #42	227863
46	Denver #43	227864
47	Denver #44	227865
48	H 1	226892
49	H 2	226893
50	H 3	226894
51	H 4	226895
52	HI #10	226896
53	HI #11	226897
54	HI #12	226898
55	W 1	226867
56	W 2	226868
57	W 3	226869
58	W 4	226870
59	W 5	226871
60	W 6	226872
61	W 7	226873
62	W 8	226874
63	W 9	226875
64	W 10	226876
65	SIDNEY #1	226877
66	SIDNEY #2	226878
67	SIDNEY #3	226879
68	SIDNEY #4	226880
69	SIDNEY #5	226881
70	SIDNEY #6	226882
71	SIDNEY #7	226883
72	SIDNEY #8	226884
73	SIDNEY #9	226885
74	SIDNEY #10	226886
75	SIDNEY #11	226887
76	SIDNEY #12	226888
77	SIDNEY #13	226889
78	SIDNEY #14	226890
79	SIDNEY #15	226891

No.	Name	IMC No.
80	Lookout #1	227866
81	Lookout #2	227867
82	Lookout #3	227868
83	Lookout #4	227869
84	Lookout #5	227870
85	Lookout #6	227871
86	Lookout #7	227872
87	Lookout #8	227873
88	Lookout #9	227874
89	Lookout #10	227875
90	Lookout #11	227876
91	Lookout #12	227877
92	Lookout #13	227878
93	Lookout #14	227879
94	Lookout #15	227880
95	Lookout #16	227881
96	Lookout #17	227882
97	Lookout #18	227883
98	Lookout #19	227884
99	Lookout #20	227885
100	Lookout #21	227886
101	Lookout #22	227887
102	Lookout #23	227888
103	Lookout #24	227889
104	Lookout #25	227890
105	Lookout #26	227891
106	Lookout #28	227892
107	Lookout #29	227893
108	Lookout #30	227894
109	Lookout #31	227895
110	Lookout #32	227896
111	Lookout #33	227897
112	Lookout #34	227898
113	Lookout #35	227899
114	Lookout #36	227900
115	Lookout #37	227901
116	Lookout #38	227902
117	Lookout #39	227903
118	Lookout 21	227904
119	Lookout 25	227905
120	EAGLE #1	226899
121	EAGLE #2	226900
122	EAGLE #3	226901
123	EAGLE #4	226902
124	EAGLE #5	226903
125	EAGLE #6	226904
126	EAGLE #7	226905
127	EAGLE #8	226906
128	EAGLE #9	226907
129	EAGLE #10	226908
130	EAGLE #11	226909
131	EAGLE #12	226910
132	EAGLE #13	226911
133	EAGLE #14	226912
134	EAGLE #15	226913
135	EAGLE #16	226914
136	EAGLE #17	226915
137	EAGLE #18	226916
138	EAGLE #19	226917
139	EAGLE #20	226918
140	EAGLE #21	226919
141	EAGLE #22	226920
142	EAGLE #23	226921
143	EAGLE #24	226922
144	EAGLE #25	226923
145	EAGLE #26	226924
146	EAGLE #27	226925
147	EAGLE #28	226926
148	EAGLE #29	226927

Total Group Claims Held: 148

Sunshine - Snowstorm

No.	Name	IMC No.
1	SNOW 1	226849
2	SNOW 2	226850
3	SNOW 3	226851
4	SNOW 4	226852
5	SNOW 5	226853
6	SNOW 6	226854
7	SNOW 7	226855
8	SNOW 8	226856
9	S 4951	226833
10	S 4952	226834
11	S 4953	226835
12	S 4954	226836
13	S 4955	226837
14	S 4956	226838
15	S 4957	226839
16	S 4958	226840
17	S 4959	226841
18	S 5049	226842
19	S 5059	226843
20	S 5060	226844
21	S 5148	226845
22	S 5149	226846
23	S 5151	226847
24	S 5159	226848

Total Group Claims Held: 24

Sunshine - East Silver Belt - Rock Creek Lease

No.	Name	IMC No.	No.	Name	IMC No.
1	G12	227019	81	RC 1	227149
2	C.R.	227010	82	RC 2	227150
3	EDNA MAE	227016	83	RC 6	227154
4	SILVER COIN	227030	84	RC 7	227155
5	NOOK	227021	85	RC 8	227156
6	BLUE JAY	227009	86	RC 12	227160
7	WOODCUTTER	227032	87	RC 18	227166
8	FLORA	227018	88	RC 19	227167
9	F-1	227017	89	RC 20	227168
10	BJF	227008	90	RC 21	227169
11	BJ EXTENSION	227007	91	RC 26	227174
12	SILVER DOLLAR	227031	92	RC 27	227175
13	ROCK CREEK EXT #3	227029	93	RC 28	227176
14	R.C.E. NO. 2	227027	94	RC 29	227177
15	R.C.E. NO. 5	227028			
16	E-7	227015	95	GH 1	227082
17	GREY COPPER #1	227020	96	GH 2	227083
18	D-1	227011	97	GH 3	227084
19	D-7	227012	98	GH 4	227085
20	D-8	227013	99	GH 5	227086
21	D-9	227014	100	GH 6	227087
22	R.C.-79	227022	101	GH 7	227088
23	R.C.-80	227023	102	GH 8	227089
24	R.C.-81	227024	103	GH 12	227093
25	R.C.-81B	227025	104	GH 13	227094
26	R.C.-92B	227026	105	GH 14	227095
			106	GH 15	227096
27	R 9	227122	107	GH 16	227097
28	P 1	227123	108	GH 17	227098
29	P 2	227124	109	GH 18	227099
30	P 3	227125	110	GH 19	227100
31	P 4	227126	111	GH 23	227104
32	P 5	227127	112	GH 24	227105
33	P 6	227128	113	GH 25	227106
34	P 7	227129			
35	P 8	227130			
36	P 9	227131			
37	P 10	227132			
38	P 11	227133			
39	P 12	227134			
40	P 13	227135			
41	P 14	227136			
42	P 15	227137			
43	P 16	227138			
44	P 17	227139			
45	P 18	227140			
46	P 19	227141			
47	P 20	227142			
48	P 21	227143			
49	P 22	227144			
50	P 23	227145			
51	P 24	227146			
52	P 25	227147			
53	P 26	227148			
54	RCM 1	227199			
55	RCM 2	227200			
56	RCM 3	227201			
57	RCM 4	227202			
58	RCM 5	227203			
59	RCM 6	227204			
60	RCM 7	227205			
61	RCM 8	227206			
62	RCM 9	227207			
63	RCM 10	227208			
64	RCM 11	227209			
65	RCM 12	227210			
66	RCM 13	227211			
67	RCM 14	227212			
68	RCM 15	227213			
69	RCM 16	227214			
70	RCM 17	227215			
71	RCM 18	227216			
72	RCM 19	227217			
73	RCM 20	227218			
74	RCM 21	227219			
75	RCM 22	227220			
76	RCM 23	227221			
77	RCM 24	227222			
78	RCM 25	227223			
79	RCM 26	227224	Total Group Claims Held:		113
80	RCM 27	227225			

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Sunshine - Sun South

No.	*Name*	*IMC No.*	*No.*	*Name*	*IMC No.*
1	Sun South #1	227945	81	Sun South #81	228025
2	Sun South #2	227946	82	Sun South #82	228026
3	Sun South #3	227947	83	Sun South #83	228027
4	Sun South #4	227948	84	Sun South #84	228028
5	Sun South #5	227949	85	Sun South #85	228029
6	Sun South #6	227950	86	Sun South #86	228030
7	Sun South #7	227951	87	Sun South #87	228031
8	Sun South #8	227952	88	Sun South #88	228032
9	Sun South #9	227953	89	Sun South #89	228033
10	Sun South #10	227954	90	Sun South #90	228034
11	Sun South #11	227955	91	Sun South #91	228035
12	Sun South #12	227956	92	Sun South #92	228036
13	Sun South #13	227957	93	Sun South #93	228037
14	Sun South #14	227958	94	Sun South #94	228038
15	Sun South #15	227959	95	Sun South #95	228039
16	Sun South #16	227960	96	Sun South #96	228040
17	Sun South #17	227961	97	Sun South #97	228041
18	Sun South #18	227962	98	Sun South #98	228042
19	Sun South #19	227963	99	Sun South #99	228043
20	Sun South #20	227964	100	Sun South #100	228044
21	Sun South #21	227965	101	Sun South #101	228045
22	Sun South #22	227966	102	Sun South #102	228046
23	Sun South #23	227967	103	Sun South #103	228047
24	Sun South #24	227968	104	Sun South #104	228048
25	Sun South #25	227969	105	Sun South #105	228049
26	Sun South #26	227970	106	Sun South #106	228050
27	Sun South #27	227971	107	Sun South #107	228051
28	Sun South #28	227972	108	Sun South #108	228052
29	Sun South #29	227973	109	Sun South #109	228053
30	Sun South #30	227974	110	Sun South #112	228054
31	Sun South #31	227975	111	Sun South #113	228055
32	Sun South #32	227976	112	Sun South #114	228056
33	Sun South #33	227977	113	Sun South #115	228057
34	Sun South #34	227978	114	Sun South #116	228058
35	Sun South #35	227979	115	Sun South #117	228059
36	Sun South #36	227980	116	Sun South #118	228060
37	Sun South #37	227981	117	Sun South #119	228061
38	Sun South #38	227982	118	Sun South #120	228062
39	Sun South #39	227983	119	Sun South #121	228063
40	Sun South #40	227984	120	Sun South #122	228064
41	Sun South #41	227985	121	Sun South #123	228065
42	Sun South #42	227986	122	Sun South #124	228066
43	Sun South #43	227987	123	Sun South #125	228067
44	Sun South #44	227988	124	Sun South #126	228068
45	Sun South #45	227989	125	Sun South #127	228069
46	Sun South #46	227990	126	Sun South #128	228070
47	Sun South #47	227991	127	Sun South #129	228071
48	Sun South #48	227992	128	Sun South #130	228072
49	Sun South #49	227993	129	Sun South #131	228073
50	Sun South #50	227994	130	Sun South #132	228074
51	Sun South #51	227995	131	Sun South #133	228075
52	Sun South #52	227996	132	Sun South #134	228076
53	Sun South #53	227997	133	Sun South #135	228077
54	Sun South #54	227998	134	Sun South #136	228078
55	Sun South #55	227999	135	Sun South #137	228079
56	Sun South #56	228000	136	Sun South #138	228080
57	Sun South #57	228001	137	Sun South #139	228081
58	Sun South #58	228002	138	Sun South #140	228082
59	Sun South #59	228003	139	Sun South #141	228083
60	Sun South #60	228004	140	Sun South #142	228084
61	Sun South #61	228005	141	Sun South #143	228085
62	Sun South #62	228006	142	Sun South #144	228086
63	Sun South #63	228007	143	Sun South #145	228087
64	Sun South #64	228008	144	Sun South #146	228088
65	Sun South #65	228009	145	Sun South #147	228089
66	Sun South #66	228010	146	Sun South #148	228090
67	Sun South #67	228011	147	Sun South #149	228091
68	Sun South #68	228012	148	Sun South #150	228092
69	Sun South #69	228013	149	Sun South #151	228093
70	Sun South #70	228014	150	Sun South #152	228094
71	Sun South #71	228015	151	Sun South #153	228095
72	Sun South #72	228016	152	Sun South #154	228096
73	Sun South #73	228017	153	Sun South #155	228097
74	Sun South #74	228018	154	Sun South #156	228098
75	Sun South #75	228019	155	Sun South #157	228099
76	Sun South #76	228020	156	Sun South #158	228100
77	Sun South #77	228021	157	Sun South #159	228101
78	Sun South #78	228022	158	Sun South #160	228102
79	Sun South #79	228023			
80	Sun South #80	228024			

Total Group Claims Held: 158

Sunshine - East Silver Belt

No.	Name	IMC No.	No.	Name	IMC No.
1	RQ 1	227906	81	A 1	227057
2	RQ 2	227907	82	A 3	227058
3	RQ 3	227908	83	A 4	227059
4	RQ 4	227909	84	A 6	227060
5	RQ 5	227910	85	A 7	227061
6	RQ 6	227911	86	A 8	227062
7	RQ 7	227912	87	A 9	227063
8	RQ 8	227913	88	A 10	227064
9	RQ 9	227914	89	A 11	227065
10	RQ 10	227915	90	A 12	227066
11	RQ 11	227916	91	A 13	227067
12	RQ 12	227917	92	A 14	227068
13	RQ 13	227918	93	A 15	227069
14	RQ 14	227919	94	A 16	227070
15	RQ 15	227920	95	A 17	227071
16	RQ 16	227921	96	A 18	227072
17	RQ 17	227922	97	A 19	227073
18	RQ 18	227923	98	A 20	227074
19	RQ 19	227924	99	A 21	227075
20	RQ 20	227925	100	A 22	227076
21	RQ 21	227926	101	A 23	227077
22	RQ 22	227927	102	A 24	227078
23	RQ 23	227928	103	A 25	227079
24	RQ 24	227929	104	A 28	227080
25	RQ 25	227930	105	A 29	227081
26	RQ 26	227931			
27	RQ 27	227932	106	RC 3	227151
28	RQ 28	227933	107	RC 4	227152
29	RQ 29	227934	108	RC 5	227153
30	RQ 30	227935	109	RC 9	227157
31	RQ 31	227936	110	RC 10	227158
32	RQ 32	227937	111	RC 11	227159
33	RQ 33	227938	112	RC 13	227161
34	RQ 34	227939	113	RC 14	227162
35	RQ 35	227940	114	RC 15	227163
36	RQ 36	227941	115	RC 16	227164
37	RQ 37	227942	116	RC 17	227165
38	RQ 38	227943	117	RC 22	227170
39	RQ 39	227944	118	RC 23	227171
			119	RC 24	227172
40	WA 1	227033	120	RC 25	227173
41	WA 2	227034	121	RC 30	227178
42	WA 3	227035	122	RC 31	227179
43	WA 4	227036	123	RC 32	227180
44	WA 5	227037	124	RC 33	227181
45	WA 6	227038			
46	WA 7	227039	125	GH 9	227090
47	WA 8	227040	126	GH 10	227091
48	WA 9	227041	127	GH 11	227092
49	WA 10	227042	128	GH 20	227101
50	WA 11	227043	129	GH 21	227102
51	WA 12	227044	130	GH 22	227103
52	WA 13	227045	131	GH 26	227107
53	WA 14	227046	132	GH 27	227108
54	WA 15	227047	133	GH 28	227109
55	WA 16	227048	134	GH 29	227110
56	WA 17	227049	135	GH 30	227111
57	WA 18	227050	136	GH 31	227112
58	WA 19	227051	137	GH 32	227113
59	WA 20	227052	138	GH 33	227114
60	WA 21	227053	139	GH 34	227115
61	WA 22	227054	140	GH 35	227116
62	WA 23	227055	141	GH 36	227117
63	WA 24	227056	142	GH 37	227118
			143	GH 38	227119
64	AE 1	227186	144	GH 39	227120
65	AE 2	227187	145	GH 40	227121
66	AE 3	227188			
67	AE 4	227189	146	BL 1	226857
68	AE 5	227190	147	BL 2	226858
69	AE 6	227191	148	BL 3	226859
70	AE 7	227192	149	BL 4	226860
71	AE 8	227193	150	BL 5	226861
72	AE 9	227194	151	BL 6	226862
73	AE 10	227195	152	BL 7	226863
74	AE 11	227196	153	BL 8	226864
75	AE 12	227197	154	BL 9	226865
76	AE 13	227198	155	BL 10	226866
77	MU 1	227182			
78	MU 2	227183		**Total Group Claims Held:**	155
79	MU 3	227184			
80	MU 4	227185			

Sunshine - Central Silver Belt

No.	Name	IMC No.	No.	Name	IMC No.
1	Idaho Leadville #1	227780	65	STERLING 1	227268
2	Idaho Leadville #2	227781	66	STERLING 2	227269
3	Idaho Leadville #3	227782	67	STERLING 3	227270
4	Idaho Leadville #4	227783	68	STERLING 4	227271
5	Idaho Leadville #5	227784	69	STERLING 5	227272
6	Idaho Leadville #6	227785	70	STERLING 6	227273
7	Idaho Leadville #7	227786	71	STERLING 7	227274
8	Idaho Leadville #8	227787	72	STERLING 8	227275
9	Idaho Leadville #9	227788	73	STERLING 9	227276
10	Idaho Leadville #11	227789	74	STERLING 10	227277
11	Idaho Leadville #13	227790	75	STERLING 11	227278
12	Idaho Leadville #14	227791	76	STERLING 12	227279
13	Idaho Leadville #15	227792			
14	Idaho Leadville #16	227793	77	SILVER APEX 3	226829
15	Idaho Leadville #18	227794	78	SILVER APEX 4	226830
16	Idaho Leadville #19	227795	79	SILVER APEX 5	226831
17	Idaho Leadville #20	227796	80	SILVER APEX 6	226832
18	Idaho Leadville #21	227797			
19	Idaho Leadville #22	227798			
20	Idaho Leadville #23	227799			
21	Idaho Leadville #24	227800			
22	Idaho Leadville #25	227801			
23	Idaho Leadville #26	227802			
24	Idaho Leadville #28	227803			
25	Idaho Leadville #30	227804			
26	Idaho Leadville #31	227805			
27	Idaho Leadville #32	227806			
28	LC #15	227752			
29	LC #16	227753			
30	LC #19	227754			
31	LC #20	227755			
32	LC #21	227756			
33	LC #24	227757			
34	LC #25	227758			
35	LC #26	227759			
36	LC #29	227760			
37	LC #30	227761			
38	LC #31	227762			
39	LC #32	227763			
40	LC #35	227764			
41	LC #36	227765			
42	LC #37	227766			
43	LC #38	227767			
44	LC #39	227768			
45	LC #46	227769			
46	LC #47	227770			
47	LC #48	227771			
48	LC #49	227772			
49	LC #50	227773			
50	LC #53	227774			
51	LC #54	227775			
52	LC #55	227776			
53	LC #56	227777			
54	LC #59	227778			
55	LC #60	227779			
56	JD #1	226820			
57	JD #2	226821			
58	JD #3	226822			
59	JD #4	226823			
60	JD #5	226824			
61	JD #6	226825			
62	JD #7	226826			
63	JD #8	226827			
64	JD #9	226828			

Total Group Claims Held: 80

Instrument # 943662
Bonner County, Sandpoint, Idaho
08/20/2019 08:44:41 AM No. of Pages: 2
Recorded for: GREG NICKEL
Michael W. Rosedale Fee: $13.00
Ex-Officio Recorder Deputy CB
Index to: NOTICE OF INTENT TO HOLD

AFFIDAVITT OF PAYMENT OF ANNUAL: MAINTENANCE FEES &
<u>NOTICE OF INTENT TO HOLD UNPATENETED MINING CLAIMS</u>
SILVER OPPORTUNITY PARTNERS LLC– SUNSHINE MINE
(90 Unpatented Lode Claims)

STATE OF IDAHO)
)ss.
County of Bonner)

Before me the undersigned, personally appeared Gregory P. Nickel, Authorized Agent of Silver Opportunity Partners LLC -Sunshine Mine who being first duly sworn, deposed, certified and said that the annual maintenance fees in the amount of **Fourteen Thousand, Eight Hundred and Fifty Dollars ($14,850.00)**, in lieu of annual assessment work for the 2019-2020 Assessment Year have been paid to the U.S. Department of the Interior, State of Idaho Office of the Bureau of Land Management, pursuant to the Interior Department and Related Agencies Appropriations Act of 1993, Public Law 103-66 of August 10, 1993, 107 Stat. 405; continued by public law 105-277, 112 Stat. 2681-232, 2681-235, of October 21, 1998; continued by Public Law 107-63, 115 Stat. 414, of November 5, 2001; for each of the **<u>90</u>** unpatented lode mining claims located in Bonner County, Idaho, as further described in subsequent <u>Exhibit A</u> attached hereto and by this reference made a part hereof.

That such fees were paid by, for, or at the expense of Silver Opportunity Partners-Sunshine Mine, 2209 Big Creek Road, Kellogg, Idaho 83837, the owner of said claims, for the purpose of holding said claims; all stakes, monuments or trees marking boundaries of said claims are in proper place and position.

Silver Opportunity Partners LLC-Sunshine Mine

By: Greg P. Nickel
Gregory P. Nickel, Authorized Agent

Subscribed and sworn to before me this 12th day of August, 2019.

SARAH E FROHLICH
Notary Public - State of Idaho
Commission Number 58960
My Commission Expires 10-30-2024

[signature]
Notary Public for the State of Idaho
Residing at Kellogg Idaho
My Commission Expires: October 30, 2024

Sunshine - Falls Creek

No.	Name	IMC No.	No.	Name	IMC No.
1	NEW FALLS #1	227345	76	FALLS CREEK #1	227330
2	NEW FALLS #2	227346	77	FALLS CREEK #2	227331
3	NEW FALLS #3	227347	78	FALLS CREEK #3	227332
4	NEW FALLS #4	227348	79	FALLS CREEK #4	227333
5	NEW FALLS #5	227349	80	FALLS CREEK #5	227334
6	NEW FALLS #6	227350	81	FALLS CREEK #6	227335
7	NEW FALLS #7	227351	82	FALLS CREEK #7	227336
8	NEW FALLS #8	227352	83	FALLS CREEK #8	227337
9	NEW FALLS #9	227353	84	FALLS CREEK #9	227338
10	NEW FALLS #10	227354	85	FALLS CREEK #10	227339
11	NEW FALLS #11	227355	86	FALLS CREEK #11	227340
12	NEW FALLS #12	227356	87	FALLS CREEK #12	227341
13	NEW FALLS #13	227357	88	FALLS CREEK #13	227342
14	NEW FALLS #14	227358	89	FALLS CREEK #14	227343
15	NEW FALLS #15	227359	90	FALLS CREEK #15	227344
16	NEW FALLS #16	227360			
17	NEW FALLS #17	227361			
18	NEW FALLS #18	227362			
19	NEW FALLS #19	227363			
20	NORTH FALLS #20	227364			
21	NEW FALLS #21	227365			
22	NEW FALLS #22	227366			
23	NEW FALLS #23	227367			
24	NEW FALLS #24	227368			
25	NEW FALLS #25	227369			
26	NEW FALLS #26	227370			
27	NEW FALLS #27	227371			
28	NEW FALLS #28	227372			
29	NEW FALLS #29	227373			
30	NEW FALLS #30	227374			
31	NEW FALLS #31	227375			
32	NEW FALLS #32	227376			
33	NEW FALLS #33	227377			
34	NEW FALLS #34	227378			
35	NEW FALLS #35	227379			
36	NEW FALLS #36	227380			
37	NEW FALLS #37	227381			
38	NEW FALLS #38	227382			
39	NEW FALLS #39	227383			
40	NEW FALLS #40	227384			
41	NEW FALLS #41	227385			
42	NEW FALLS #42	227386			
43	NEW FALLS #43	227387			
44	NEW FALLS #44	227388			
45	NEW FALLS #45	227389			
46	NEW FALLS #46	227390			
47	NEW FALLS #47	227391			
48	NEW FALLS #48	227392			
49	NEW FALLS #49	227393			
50	NEW FALLS #50	227394			
51	NEW FALLS #51	227395			
52	NEW FALLS #52	227396			
53	NEW FALLS #53	227397			
54	NEW FALLS #54	227398			
55	NEW FALLS #55	227399			
56	NEW FALLS #56	227400			
57	NEW FALLS #57	227401			
58	NEW FALLS #58	227402			
59	NEW FALLS #59	227403			
60	NEW FALLS #60	227404			
61	NEW FALLS #61	227405			
62	NEW FALLS #62	227406			
63	NEW FALLS #63	227407			
64	NEW FALLS #64	227408			
65	NEW FALLS #65	227409			
66	NEW FALLS #66	227410			
67	NEW FALLS #67	227411			
68	NEW FALLS #68	227412			
69	NEW FALLS #69	227413			
70	NEW FALLS #70	227414			
71	NEW FALLS #71	227415			
72	NEW FALLS #72	227416			
73	NEW FALLS #73	227417			
74	NEW FALLS #74	227418			
75	NEW FALLS #75	227419			

Total Group Claims Held: 90