**MINE DEVELOPMENT ASSOCIATES**

MINE ENGINEERING SERVICES

# Preliminary Economic Assessment and Updated Technical Report on the Shafter Project, Presidio County, Texas

*Prepared for*

## Aurcana Corporation

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***Cover photo: Shafter Mineral Processing Plant.***

## 1.0 SUMMARY

Mine Development Associates ("MDA") has prepared this technical report on the Shafter silver project, located in Presidio County, Texas, at the request of Aurcana Corporation ("Aurcana"). Aurcana owns 100 percent of the Shafter project through its wholly owned subsidiary, Rio Grande Mining Company ("RGMC").

The purpose of this report is to provide a technical summary of a Preliminary Economic Assessment (PEA) completed on the Shafter project. The current report and associated resource estimate have been prepared in accordance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101 ("NI 43-101"), Companion Policy 43-101CP, and Form 43-101F1, as well as with the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards - For Mineral Resources and Reserves, Definitions and Guidelines" ("CIM Standards") adopted by the CIM Council on May 10, 2014.

The Shafter project is focused on the Shafter silver deposit, which consists of replacement bodies, termed *mantos*, in a gently dipping to horizontal sequence of carbonate sedimentary rocks. The Shafter deposit was exploited by historic underground mining activity from 1881 through 1942, with further exploration and development work being conducted up through 1999. Aurcana commenced recent development in 2011 with underground and limited open-pit production starting in 2012 and ceasing in December 2013. The project has been on care and maintenance since December 2013.

The effective date of this report is August 26, 2016. The purpose of this report is to provide a technical summary of the Shafter project in support of a Preliminary Economic Assessment prepared by MDA. George Burgermeister with Samuel Engineering prepared sections 13, 17, 18 and portions of section 21 dealing with processing. Section 20 was prepared by Stephen Glass with the Gault Group LLC.

### 1.1 Property Description and Ownership

The Shafter project is located in south-central Presidio County in southwestern Texas. The sparsely inhabited town of Shafter is situated at the eastern end of the property, 40 miles south of Marfa and 18 miles north of the border town of Presidio, Texas. The Shafter project area consists of rugged high-desert terrain on the southern side of the Chinati Mountains, on the slopes above the Rio Grande Valley.

The Shafter property consists of a total of approximately 3,960 acres owned or controlled by RGMC. Surface and/or mineral rights may be deeded to or leased by RGMC. RGMC leases mineral rights from the State of Texas on 37 acres, with the remaining portions of Aurcana's Shafter property being privately held.

There are royalties of up to 6.25 percent for some of the parcels that comprise the Shafter property, including some, but not all, of the parcels that overlie the mineral resource described in this report. Most of the mineralization is on lands where the royalty is 2 percent or less.

## 1.2 Exploration and Mining History

The mineralized areas in the Shafter district were first discovered in 1880 or 1881, and the Presidio Mining Company was formed in 1881. Silver was produced from the Presidio mine from 1883 to 1926, when the American Metal Co. acquired the Shafter property and continued production (American Metal Co. subsequently merged with Climax Molybdenum Company to form American Metal Climax, Inc. ("Amax"). From 1883 to 1942, when the Presidio mine was closed, total recorded production was 2.307 million tons of ore containing 35.153 million ounces of silver at an average grade of 15.24oz Ag/ton.

Amax, Gold Fields Mining Corporation ("Gold Fields"), and Rio Grande Mining Company ("RGMC") successively held the Shafter property and conducted extensive exploration programs from 1926 to 1999. Gold Fields identified the northeastern, down-dip extension of the Shafter deposit, extending more than 5,000ft from the deepest development workings in the Presidio mine, through a systematic surface-drilling program. During the 1970s, Gold Fields constructed a 1,052ft deep shaft to access and explore the northeastern extension.

Aurcana purchased RGMC and the Shafter property in July 2008. RGMC is now a wholly owned subsidiary of Aurcana. Aurcana began exploration at Shafter in 2011 and has conducted geophysical surveying, drilling, mapping, and geochemical sampling since that time. Aurcana drilled 65 surface and 101 underground holes from 2011 through October 2013.

A total of 1,694 drill holes are included in the database for the Shafter project, of which 1,048 were drilled by Amax, 403 were drilled by Gold Fields, 88 were drilled by RGMC prior to their acquisition by Aurcana, and 155 holes were drilled by RGMC since their acquisition by Aurcana. These holes include 435 surface core holes, 1,171 underground core holes, and 88 reverse circulation holes. An additional eleven underground core holes were drilled by Aurcana in late 2013 after the database was finalized for use in the resource estimate but before the resource estimate was completed. These holes are included in the 101 Aurcana underground holes as stated in the preceding paragraph.

Aurcana reopened access into the Presidio mine on June 1, 2012, and production commenced on December 14, 2012. In conjunction with its underground operations, Aurcana began open-pit mining of lower-grade mineralization from the Mina Grande pit at the Presidio mine on April 23, 2012. This open-pit mining was discontinued after the plant commissioning and testing phase were complete. Due in part to lower silver prices, the mine was put on care and maintenance in December 2013. Aurcana reported that from October 2012 through December 2013, mine production totaled 149,882 tons, and mill feed from the mine totaled 109,599 tons. A total of 134,557 ounces of doré was poured.

## 1.3 Geology and Mineralization

In this part of southwestern Texas, a thick sequence of Jurassic-Cretaceous sedimentary basin rocks overlies older Paleozoic basement. The sedimentary basin sequence contains carbonate units that extend over 1,000 miles from southeastern Arizona and southern New Mexico, through northern Mexico and southwestern Texas, and were thrust faulted and folded during the Laramide orogeny. Silver-lead-zinc deposits, of which the Shafter deposit is an example, occur in Permian limestone, as well as these basinal, carbonate units. Deposits such as Shafter are referred to as "high-temperature, carbonate-hosted deposits" because of their irregular but sharp contacts with their enclosing carbonate host rocks.

The Shafter mining district is located on the south flank of the Chinati Mountains, adjacent to a Tertiary-age volcanic caldera. Outcrops in the district are predominantly Permian and Cretaceous limestone, dolomite, siltstone, and sandstone, which were tilted by uplift during the Laramide orogeny in late Cretaceous to early Tertiary time and were later cut by Tertiary intrusions.

The mineral deposits in the Shafter district occur mainly as silica-replacement bodies along bedding planes in the upper units of Permian limestone, usually just below the unconformity at the base of the Cretaceous rocks. The deposits, referred to as *manto* deposits, are generally parallel to the bedding which dips gently to the southeast. Manto thickness is generally 8-15 feet though can be highly irregular with increased thickness along localized near-vertical structures which appear to have served as fluid pathways. Veins containing the same minerals as the *mantos* are common in the western part of the Shafter district. Many of these veins are fissure fillings and have brecciated zones.

At the Shafter silver deposit, the massive limestone at the top of the Permian Cibolo Formation was the most favorable to replacement by mineralizing solutions; in the vicinity of the Presidio mine, this unit is called the Mina Grande Formation. The erosional surface of the Mina Grande Formation developed karst topography, which provided large open spaces that served as channels for mineralizing solutions. Silver and base metals were deposited where conditions were favorable.

The entire Shafter deposit is up to 1,500ft wide in a north-south direction and extends at least 2.5 miles on a northeast trend. Silver is present predominately as oxidized acanthite in fine-grained aggregates of quartz, calcite, and goethite, with lesser dolomite, hemimorphite, willemite, anglesite, galena, smithsonite, and sphalerite. Mineralogical studies on tailings suggest that non-recoverable silver occurs as fine grained, encapsulated native silver and as argento-jarosite.

## 1.4 Mineral Resource Estimate

The Shafter resources reported here are based on Aurcana's database as of October 15, 2013. The effective date of the mineral resource estimate is December 11, 2015.

Upon completion of the database validation process, MDA constructed 150 cross sections spaced 50ft to 100ft apart and looking northeast at 70°. One set of sections was made for geology, which included lithology, faults, silica alteration, and clay/rubble areas just below the unconformity, and then another for silver mineralization. High- and low-grade silver mineral domains were modeled, and each represents a distinct style of mineralization. The high-grade domain (>5.0oz Ag/ton) is associated with strongly silicified, fractured and brecciated limestone, generally with one to two percent lead and zinc mineralization, while the low-grade domain is associated with weakly fractured and silicified limestone, characterized by silver grades between 0.8oz Ag/ton and 5.0oz Ag/ton. The low-grade domain occurs outboard of the strongly silicified high-grade domain which occurs primarily as a sub-horizontal manto directly below the Cretaceous/Permian unconformity.

The silver domains on cross sections were then used to code the drill samples. Quantile plots were made to assess validity of these domains and to determine capping levels. MDA capped 12 silver assays: two in the low-grade domain and 10 in the high-grade domain. Compositing was done to 4ft down-hole lengths (the model block size), honoring all mineral-domain boundaries.

The cross-sectional geology and silver domains were rectified three-dimensionally to long-sections on 10ft intervals that coincide with the mid-width of the model blocks. The long sections of the clay/rubble zones and silver were used to code the block model to percent of block by clay/rubble alteration and silver domain. The clay/rubble zones were specifically modeled on long section due to their general inverse relationship with silver mineralization.

Tonnage factors used for the resource estimate ranged from 12 to 14 cubic feet/ton. The factor of 12.7 cubic feet/ton was used for the low-grade silver domain, and 13.1cubic feet/ton was used for the high-grade silver domain. The underground workings were imported into the block model as a 3D solid, and resource blocks were coded by volume percentage within the underground solid. Those blocks coded at 5 percent or greater of underground workings were considered “mined out” and removed from the classified mineral resource.

The reported resource estimate was made using inverse distance to the third power to estimate the grade of each block. Ordinary-kriging and nearest-neighbor estimates were also made for comparison and validation. MDA classified the Shafter silver resources by a combination of distance to the nearest sample, and the number of samples, while at the same time taking into account reliability of underlying data and understanding and use of the geology. The Shafter reported resources are tabulated in Table 1.1. The stated resources are fully diluted to 10ft by 10ft by 4ft blocks and are tabulated considering a silver cut-off grade of 4.0 oz Ag/ton. About 42 percent of the total resource at the 4 oz Ag/ton cut-off is in the inferred category.

**Table 1.1 Shafter Reported Resources**

**Shafter Reported Resource:**

| Class | Cutoff (oz Ag/ton) | Tons | oz Ag/ton | oz Ag |
|---|---|---|---|---|
| Measured | 4.00 | 100,000 | 8.73 | 888,000 |
| Indicated | 4.00 | 1,110,000 | 9.15 | 10,171,000 |
| Meas. + Ind. | 4.00 | 1,210,000 | 9.14 | 11,059,000 |
| Inferred | 4.00 | 870,000 | 7.47 | 6,511,000 |

1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2. Mineral Resources are reported at a 4 oz Ag/ton cut-off in consideration of potential underground mining and conventional mill processing.
3. Rounding may result in apparent discrepancies between tons, grade and contained metal content.

## 1.5 Metallurgical Testing

At the end of historic operations, in 1942, the average mill head grade was about 8 ounce per ton with an average mill silver recovery of about 81 percent. In April 2012, the Aurcana mill was brought on line utilizing whole-ore cyanide leaching to process 1,500 tpd of ore. However, after the second year in operation, the project was place on care and maintenance in December 2013, when design silver production rates were not met. During the 21 months of operation the mine and mill produced an average head grade of about 6 ounce per ton at less than 1,000 tons per day, and with an average recovery of about 75 percent. Though these values did not meet the design parameters, the extraction performance was consistent with the recovery prediction based on a constant tails grade of 1.5 ounce per ton.

Since historical operations ceased in 1942, the silver mineralization from the mine and the adjacent Shafter deposit has been tested with a number of laboratory programs, during which time various silver recovery processes have been investigated. These include optical sorting, gravity concentration, flotation, and cyanide and alternate leaching procedures.

Companies involved in earlier laboratory investigations include Gold Fields Research Laboratories of South Africa (“Gold Fields”), Colorado School of Mines Research Institute, (“CSMRI”), Hazen Research, (“Hazen”), Kappes, Cassiday & Associates (“KCA”), Kerley Chemical Corporation, and Warren Springs Laboratories. The test results from each organization were similar although more recent work focused on whole cyanidation and abandoned the earlier flowsheets which included initial production of a lead concentrate with cyanidation of the gravity tailings.

More recently, laboratory studies have been completed for Aurcana by Inspectorate Mining and Mineral Services Ltd., to evaluate various proposed process procedures, and Pocock Industrial Inc., to establish settling and filtration parameters for the process design. In 2013 when the Aurcana mine was still in operation, SGS Metcom (“SGS”) carried out mineralogical studies on the Shafter deposit using four composite samples selected from core and a fifth underground grab sample, called the “galena composite”, selected by the mine geologists. The sample selection was based on the mine plan for the deposit and was an attempt to consider mineralization-type variations in a series of upgrades and optimizations in the mill.

Given the current mine plan and the consistency of the leach residue grade from both early and most recent operations, as well as previous and recent labwork, the following general design criteria was used in this economic evaluation.

| | |
|---|---|
| Plant Throughput: | 600 short tons per day |
| Mine Plan Average Silver Head Grad: | 8.56 troy ounces per ton |
| Target Grind: | P80 = 74 micron |
| Leach Residency: | 72 hours |
| Leach Extraction: | 82.5 percent |
| Overall Recovery | 81.7 percent (99.1 of Leach Extraction) |
| NaCN Consumption: | 1.58 lb/ton |
| Lime Consumption: | 5.0 lb/ton |

Note that percent extraction was calculated for the average grade for each period (first 3 years by months, and years after that) for the PEA based on the head grade and a constant 1.5 ounce tail.

Recovery predictions are dependent on the head grade due to a relatively constant tails grade. The consistency of the tails grade is due to occluded silver and silver mineral, locked in quartz or jarosite minerals at or below 10 micron range. This renders it inaccessible to cyanide leach without extensive and expensive grinding. Practically all the non-encapsulated Ag appears to be recoverable, making the recovery prediction highly dependent on the mill feed head grade: (Recovery = (Head grade-Tails grade)/Head grade).

## 1.6 Mine Design

The mine design is based on using a 5 ounce per ton cutoff grade. The mine production rate is 600 tons of material in excess of 5 ounces of silver per ton, or 210,000 tons annually. Surpac mining software was used to outline and designs the mining locations. A minimum mining height of 8 feet was used to define minable areas. The grade model used blocks that were 10 ft x 10 ft x 4 ft high. The outlines were done in plan views at 8 feet mid-block elevation intervals of the block-diluted resource model. The minimum mining height of 8 feet was used to allow mechanized mining. The outlines include all internal dilution material (i.e. material less than 5 ounces silver/ton). Areas with significant amount of internal dilution were excluded to minimize dilution. Dilution can be further minimized by mining more selectively in multiple passes or mining with conventional jackleg drills. Mining is planned by room and pillar or cut and fill methods. A 95 percent extraction rate was assumed on planned stopes.

Production is planned to commence in the Presidio mine area that can be accessed by a decline that was established during the Aurcana mining between 2011 and 2013. Mining will proceed toward the Shafter area when access to the mine will be by either the decline or through a rehabilitated shaft. Table 1.2 shows the development schedule, while Table 1.3 shows the production schedule for mining the deposit.

**Table 1.2 Mine Development Schedule**

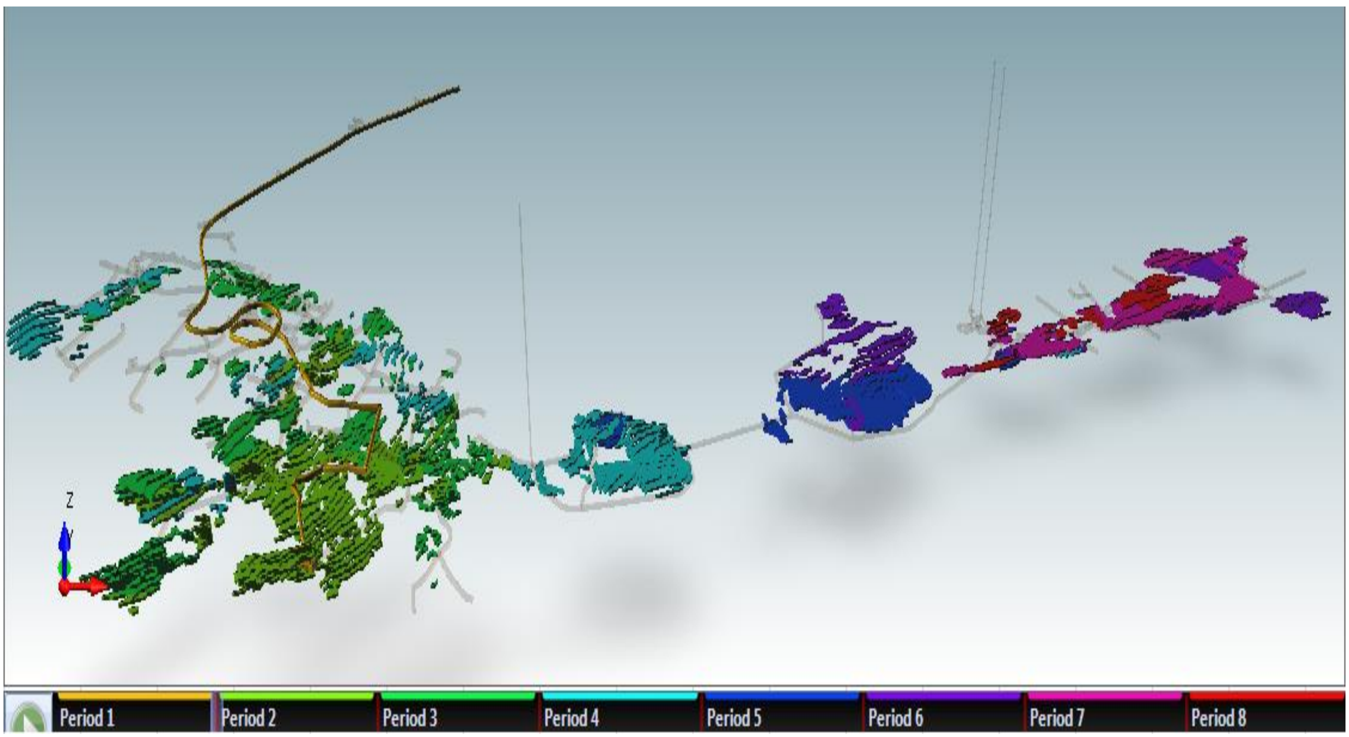
| Heading Type | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | | Total ft |
|---|---|---|---|---|---|---|---|---|
| Presidio Rehab. | 3,876 | 4,596 | 4,059 | 922 | 0 | 0 | | **13,453** |
| Shafter Shaft Rehab. | 0 | 0 | 1,913 | 0 | 0 | 0 | | **1,913** |
| Shafer Mine Rehab. | 0 | 0 | 246 | 2,124 | 1,604 | 0 | | **3,974** |
| | | | | | | | | |
| Total Rehab | 3,876 | 4,596 | 6,218 | 3,046 | 1,604 | 0 | | **19,340** |
| Presidio Development | 0 | 1,338 | 1,059 | 1,773 | 2,118 | 1,186 | | **7,475** |
| Shafter Development | 0 | 0 | 0 | 0 | 1,065 | 3,087 | | **4,152** |
| Vent Raise | 0 | 744 | 0 | 0 | 0 | 0 | | **744** |
| Stope Access | 0 | 320 | 305 | 145 | 10 | 55 | | **835** |
| Other | | 500 | 500 | 500 | 500 | 500 | | **2,500** |
| | | | | | | | | |
| Total Development | 0 | 2,902 | 1,864 | 2,418 | 3,693 | 4,828 | | **15,705** |
| Total Rehab + Development | 3,876 | 7,498 | 8,082 | 5,464 | 5,298 | 4,828 | | **35,045** |

**Table 1.3 Mine Production Schedule**

| Item | Year -1 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| **PRODUCTION** | | | | | | | | | | |
| 000's Tons | | 210.0 | 210.0 | 210.5 | 210.0 | 210.0 | 210.0 | 66.8 | | 1,327.1 |
| oz Ag/ton | | 9.93 | 9.73 | 8.26 | 6.66 | 7.86 | 8.92 | 8.47 | | 8.56 |
| 000's Oz Ag | | 2,085.4 | 2,043.6 | 1,739.4 | 1,399.2 | 1,649.7 | 1,872.8 | 565.9 | | 11,356.0 |
| 000's Tons Waste | 11.6 | 38.7 | 42.1 | 63.4 | 72.0 | 64.9 | 0.0 | 0.0 | | 292.6 |
| 000's Tons Total * | | 248.6 | 252.0 | 273.9 | 281.9 | 274.9 | 210.0 | 66.8 | | 1,608.1 |
| | | | | | | | | | | |
| Tons Material Mined/Day | | 710.36 | 720.08 | 782.59 | 805.51 | 785.39 | 599.89 | 190.88 | | |

Figure 1.1 shows the material planned to be mined.

**Figure 1.1 Material Planned to be Mined**




Mining will proceed from the left side of Figure 1.1 to the right, or from the existing historic Presidio mine toward the Shafter area.

## 1.7 Plant Design

George Burgermeister, Senior Process Engineer, PE, QP, with Samuel Engineering prepared the plant design and flowsheet for the PEA. The Shafter mine processing facility proposed in this study will use whole-ore cyanide leach to extract silver from the mill feed material. Metal recovery will be accomplished using a standard Merrill Crowe CCD zinc precipitation method. Run of mine material will be crushed to a nominal 1 inch size using a single jaw crusher for primary crushing and a cone crusher in closed circuit with a product screen. The crushing plant will operate on a single, 12-hour shift seven days a week to replenish the crushed mill feed stockpile. The stockpile will have enough capacity to feed the milling operations which will operate with two twelve hour shifts to continuously operate 24 hours a day, 7 days a week.

Milling to the final leach feed product size of 80 percent passing 74 microns will be achieved by a single ball mill in closed circuit with cyclones for classification. Cyclone overflow will feed into a pre-leach thickener. Thickened slurry at 68 percent solids will flow to the leach circuit where it will be diluted with returned filtrate from the zinc precipitation circuit and make up process water to a solids weight percent of 45 percent. The pre-leach thickener overflow will report to the process water tank for use in the grinding circuit and as wash water for the tailings filter.

The leach tanks are design for 72 hour retention to achieve an extraction of silver at 82 percent. The slurry from the leach circuit will report to the counter current decantation (“CCD”) circuit using four thickeners for cleaning of the slurry of pregnant leach solution at an anticipated wash efficiency of 96.0 percent. The pregnant solution from the CCD circuit will flow by pumps to the deaeration vessel and then to the zinc precipitation circuit. Cleaned residue from the CCD circuit will be pumped to the tailings plate and frame filters for one final wash before the residue cake is conveyed to a tailings load out area where it will be haul to a lined dry stacked tailings storage facility. Filtered tailings cake will be conveyed to a tailings load out area to be hauled to the tailings storage facility or trucks for delivery to the mine operations as backfill feed. The battery limit for the Samuel estimate is the discharge end of the filter discharge conveyor.

The zinc precipitation circuit will mix zinc with silver bearing pregnant solution causing the silver to precipitate from solution. The silver precipitated slurry will be pumped through the zinc precipitation filters to capture the silver as a cake. The silver precipitate cake will be transferred to a retort for drying and to remove any contained mercury, which will be collected for removal off site. The dried cake from the retort will then be mixed with flux and melted in a gas fired furnace for pouring in silver doré. The silver doré is to be stored in a safe until it is shipped off site for sale to a refiner.

## 1.8 Capital Cost Estimate

The estimated capital cost for the project is shown in Table 1.4.

**Table 1.4 Shafter PEA Estimated Capital Cost**

| CAPITAL COST $000'S | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | YR 6 | YR 7 | TOTALS |
|---|---|---|---|---|---|---|---|---|---|
| Develop. Capital Cost | $ 775 | $ 4,476 | $ 3,767 | $ 3,511 | $ 4,753 | $ 5,794 | $ - | $ - | $ 23,076 |
| Hoist, Headframe Rehab | | | $ 795 | | | | | | $ 795 |
| Paste Plant and Pipe | | | $ 450 | $ 50 | $ 50 | $ 50 | | | $ 600 |
| Plant Material Handling | $ 300 | | | | | | | | $ 300 |
| Mine Dewatering | $ 200 | $ 483 | | | | | | | $ 683 |
| Drilling | $ 290 | $ 218 | $ 218 | $ 530 | $ 398 | $ 606 | $ 156 | $ 156 | $ 2,570 |
| Mine Equip. Capital Cost | $ 2,008 | $ 3,954 | $ 771 | $ 3,233 | $ 48 | $ - | $ - | $ - | $ 10,014 |
| Mine Contingency | $ 399 | $ 839 | $ 587 | $ 738 | $ 560 | $ 372 | $ 16 | $ 16 | $ 3,527 |
| Process Capital | $ 7,743 | $ 200 | $ 200 | $ 200 | $ 200 | $ 200 | $ 200 | | $ 8,943 |
| Env & Closure | | | | | | | | $ 655 | $ 655 |
| Owners Process Construction | $ 556 | | | | | | | | $ 556 |
| Owners Cost | $ 893 | | | | | | | | $ 893 |
| **Totals** | **$ 13,163** | **$ 10,170** | **$ 6,788** | **$ 8,262** | **$ 6,008** | **$ 7,021** | **$ 372** | **$ 827** | **$ 52,612** |

## 1.9 Operating Cost Estimate

The estimated operating cost for the project is shown in Table 1.5.

**Table 1.5 Estimated Operating Cost**

| Item | LOM $000's | $/ton |
|---|---|---|
| Mining | $53,085.4 | $40.00 |
| Surface Hauling | $1,854.1 | $1.40 |
| Cement for Paste | $6,308.5 | $4.75 |
| Paste Plant & Distribution | $1,752.4 | $1.32 |
| Processing | $28,798.8 | $21.70 |
| G & A | $11,280.6 | $8.50 |
| | | |
| **Totals** | **$103,079.9** | **$77.67** |

## 1.10 Cash Flow Analysis

**A *Preliminary Economic Assessment 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 preliminary economic assessment will be realized. A PEA study can only demonstrate the potential viability of mineral resources and cannot be used to support mineral reserves.***

MDA completed the cost estimates for the mine, while Samuel Engineering completed the cost estimates for the plant. The economic model was prepared by MDA.

Based on the assumptions and estimated costs of the project, the base case has a net present value (“NPV”) (at a 5 percent discount rate) of $18.0 million, and a IRR of 40.9 percent. The base case silver price is based on the three year average price for silver, and Haywood Metals August, 2016 projection of 2 years forward. Table 1.6 shows the cash flow estimate based on the study.

**Table 1.6 PEA Cash Flow Estimate**

| Item | Year -1 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| **PRODUCTION** | | | | | | | | | | |
| 000's Tons | | 210.0 | 210.0 | 210.5 | 210.0 | 210.0 | 210.0 | 66.8 | | 1,327.1 |
| oz Ag/t | | 9.93 | 9.73 | 8.26 | 6.66 | 7.86 | 8.92 | 8.47 | | 8.56 |
| 000's Oz Ag | | 2,085.4 | 2,043.6 | 1,739.4 | 1,399.2 | 1,649.7 | 1,872.8 | 565.9 | | 11,356.0 |
| 000's Tons Waste | 11.6 | 38.7 | 42.1 | 63.4 | 72.0 | 64.9 | 0.0 | 0.0 | | 292.6 |
| 000's Tons Total * | | 248.6 | 252.0 | 273.9 | 281.9 | 274.9 | 210.0 | 66.8 | | 1,608.1 |
| | | | | | | | | | | |
| Tons Material Mined/Day | | 710.36 | 720.08 | 782.59 | 805.51 | 785.39 | 599.89 | 190.88 | | |
| **SALES ($000's)** | | | | | | | | | | |
| Mill Recovery | | 84.13% | 83.83% | 81.11% | 76.79% | 80.18% | 82.43% | 81.55% | | 81.73% |
| 000's Oz Ag Recovered (Mill) | | 1.8 | 1.7 | 1.4 | 1.1 | 1.3 | 1.5 | 0.5 | | 9.3 |
| Silver Payment (99.5%) | | $34.9 | $34.1 | $28.1 | $21.4 | $26.3 | $30.7 | $9.2 | | $184.7 |
| Smelting and Transportation | | $0.4 | $0.3 | $0.3 | $0.2 | $0.3 | $0.3 | $0.1 | | $1.9 |
| Royalty | | $0.0 | $0.0 | $0.0 | $0.0 | $0.3 | $0.3 | $0.0 | | $0.6 |
| Texas Franchise Tax (0.0075%) | | $0.2 | $0.2 | $0.1 | $0.1 | $0.1 | $0.2 | $0.0 | | $1.0 |
| | | | | | | | | | | |
| **Total Revenue** | | **$34.4** | **$33.6** | **$27.6** | **$21.0** | **$25.6** | **$29.9** | **$9.0** | | $181.2 |
| **OPERATING COSTS $000'S** | | | | | | | | | | |
| Mining | | $8.4 | $8.4 | $8.4 | $8.4 | $8.4 | $8.4 | $2.7 | | $53.1 |
| Surface Hauling | | | | $0.3 | $0.5 | $0.5 | $0.4 | $0.1 | | $1.9 |
| Cement for Paste | | | | $1.0 | $1.7 | $1.7 | $1.7 | $0.3 | | $6.3 |
| Paste Plant & Distribution | | | | $0.3 | $0.5 | $0.5 | $0.5 | $0.1 | | $1.8 |
| Processing | | $4.6 | $4.6 | $4.6 | $4.6 | $4.6 | $4.6 | $1.4 | | $28.8 |
| G & A | | $1.8 | $1.8 | $1.8 | $1.8 | $1.8 | $1.8 | $0.6 | | $11.3 |
| | | | | | | | | | | |
| **Totals** | | **$14.7** | **$14.7** | **$16.4** | **$17.4** | **$17.3** | **$17.3** | **$5.2** | | $103.1 |
| **$/Ton** | | **$70.20** | **$70.20** | **$78.00** | **$82.66** | **$82.63** | **$82.32** | **$77.72** | | $0.1 |
| **$/oz Ag** | | **$8.4** | **$8.6** | **$11.6** | **$16.2** | **$13.1** | **$11.2** | **$11.3** | | **$11.1** |
| | | | | | | | | | | |
| **Net Profit before Tax** | | **$19.6** | **$18.8** | **$11.2** | **$3.7** | **$8.3** | **$12.7** | **$3.8** | | **$78.1** |
| **CASH FLOW $000'S** | | | | | | | | | | |
| Capital Cost | $13.2 | $10.2 | $6.8 | $8.3 | $6.0 | $7.0 | $0.4 | $0.8 | | $52.6 |
| Working Capital | | $3.7 | | | | | ($3.7) | | | $0.0 |
| Cash Flow | (13.2) | $5.8 | $12.0 | $3.0 | (2.3) | $1.2 | $16.0 | $3.0 | | $25.5 |
| Cumulative Cash Flow | (13.2) | (7.4) | $4.7 | $7.6 | $5.3 | $6.5 | $22.5 | $25.5 | | |
| Net Present Value (5%) | | | | | | | | 18,027.6 | | |
| IRR | | | | | | | | 40.9% | | |

Aurcana has sustained losses from the prior operation of the property to negate any income tax. The project NPV (5 percent) sensitivity is shown in Figure 1.2, while IRR sensitivity is shown in Figure 1.3 to changes in price, operating costs, and capital costs. Table 1.7 through Table 1.9 shows the details of the sensitivity to silver price, operating cost and capital cost respectively.

**Figure 1.2  NPV(5 percent) Sensitivity**

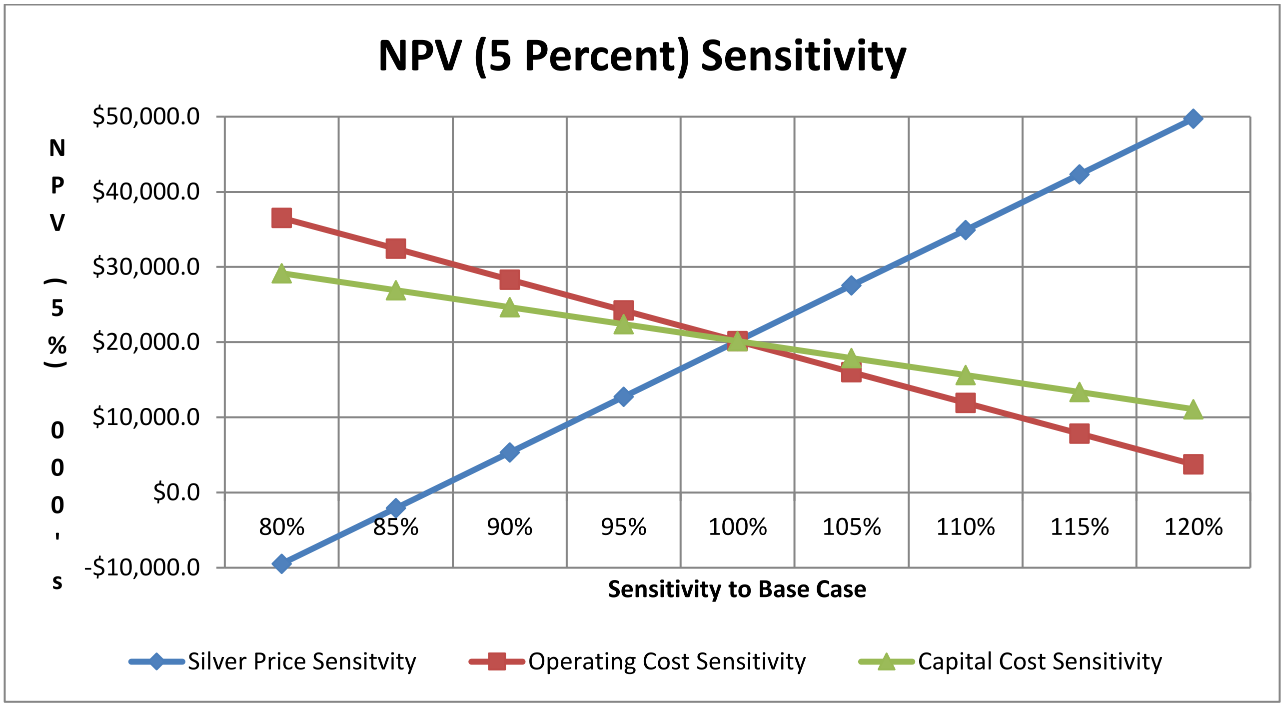



**Figure 1.3  IRR Sensitivity**

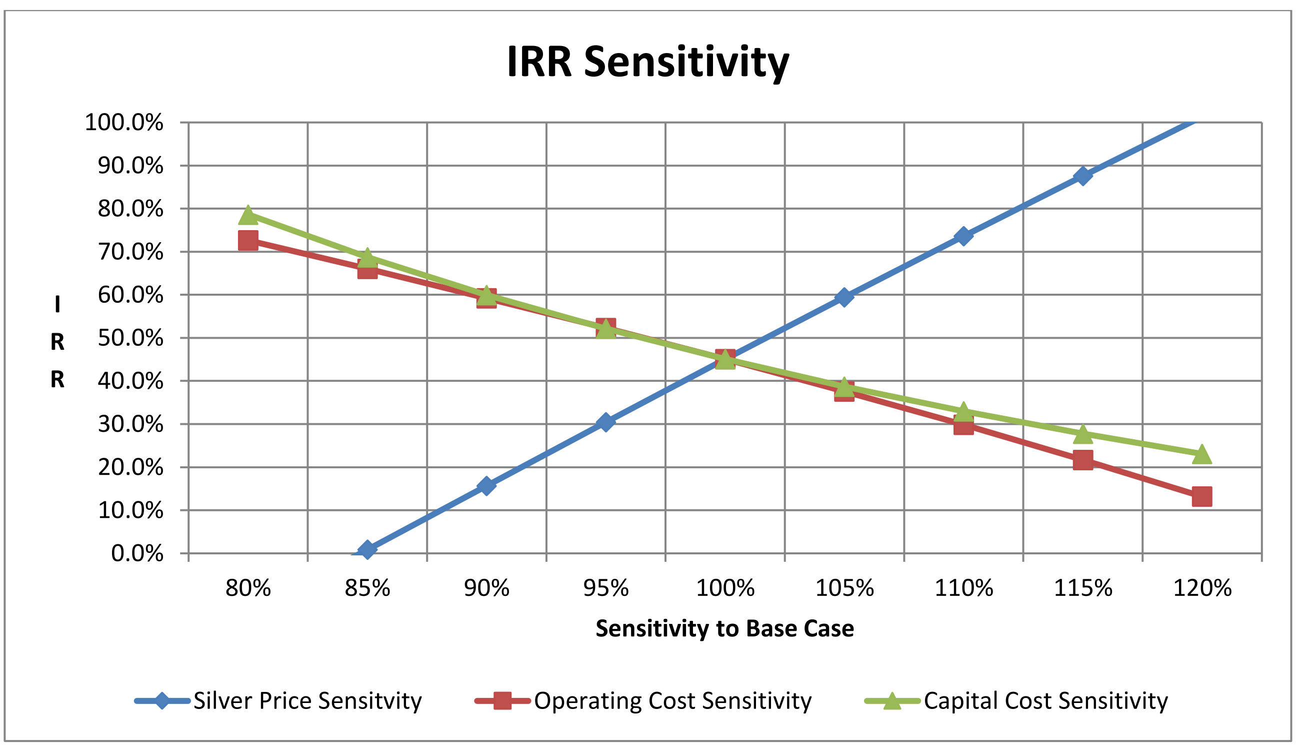


**Table 1.7 Project Sensitivity to Silver Price**

| Silver Price | % of base | NPV (5%) | IRR |
|---|---|---|---|
| 16 | 80% | -$11.2 | -16.9% |
| 17 | 85% | -$3.9 | -2.7% |
| 18 | 90% | $3.4 | 11.9% |
| 19 | 95% | $10.7 | 26.5% |
| **20** | **100%** | **$18.0** | **40.9%** |
| 21 | 105% | $25.3 | 55.2% |
| 22 | 110% | $32.6 | 69.2% |
| 23 | 115% | $39.9 | 83.0% |
| 24 | 120% | $47.2 | 96.7% |

**Table 1.8 Project Sensitivity to Operating Cost**

| % of base | NPV (5%) | IRR |
|---|---|---|
| 80% | $34.4 | 68.8% |
| 85% | $30.3 | 62.1% |
| 90% | $26.2 | 55.3% |
| 95% | $22.1 | 48.2% |
| **100%** | **$18.0** | **40.9%** |
| 105% | $13.9 | 33.4% |
| 110% | $9.8 | 25.5% |
| 115% | $5.7 | 17.2% |
| 120% | $1.6 | 8.6% |

**Table 1.9 Project Sensitivity to Capital Cost**

| % of base | NPV (5%) $000's | IRR |
|---|---|---|
| 80% | $27.1 | 73.6% |
| 85% | $24.8 | 63.9% |
| 90% | $22.5 | 55.4% |
| 95% | $20.3 | 47.8% |
| **100%** | **$18.0** | **40.9%** |
| 105% | $15.8 | 34.8% |
| 110% | $13.5 | 29.2% |
| 115% | $11.2 | 24.2% |
| 120% | $9.0 | 19.6% |

## 1.11 Conclusions and Recommendations

The project has merit and should be considered for additional work. It will be important to upgrade the estimated resources that are currently in the inferred classification. Probably the most important initial work will be to complete a cavity survey of the old mine workings. This will aid in the definition of material that can be mined from the Presidio area of the mine. In addition, it is suggested that some of the underground workings be rehabilitated to allow this surveying and that an underground core drill be purchased to complete drilling required to improve the definition of the mineralized material.

MDA has reviewed the project data and the Shafter drill-hole database and has visited the project site. MDA believes that the data provided by Aurcana are generally an accurate and reasonable representation of the Shafter silver deposit.

The Shafter mineral resource estimate honors the drill-hole geology and assay data and is supported by the geologic model. The resource is at a depth of less than 100 feet in the west-central portion of the deposit and then gradually deepens to a depth of over 1,000 feet within the eastern end of the deposit following the general stratigraphic dip. *Manto* thickness and silver grades can be highly variable, often related to near-vertical structures.

Although silver mineralization is generally continuous along the 13,000-foot length of the deposit, the resource is fragmentary in the vicinity of the historic Presidio mine due to the removal of mined-out material. The resource is also fragmented west of the historic Presidio mine underground development at the 4oz Ag/ton cutoff.

Fifteen activities are recommended to advance the Shafter project prior to developing a new mine plan and converting the estimated mineral resources into mineral reserves. The estimated cost of these activities is about $3.25 million, including the direct cost of preparing the required pre-feasibility or feasibility study. The proposed activities are:

- Complete a cavity survey of the Presidio workings
- Develop a plan to improve the definition of the remaining Presidio mineralization
- Map the Presidio workings and put sample data information on maps completed with cavity survey information
- Drill 16 holes (pre-drilled by RC or rotary to 700 feet, then core) to test the zone east of mine-grid 53,750. The primary objective of this in-fill drill program is to obtain geotechnical data, samples for metallurgical testing, and rock density measurements. A secondary objective is to test for continuity and extensions of the high-grade domain (domain code 200) to the southeast.
- Re-examine historic drill-hole data with respect to collar locations, particularly underground.
- Update the database with historic channel-sample information and re-sample some locations to confirm historic results.
- Re-examine and compile historic information from Amax and Gold Fields.

- Develop both level plans and sections that map mineral domains and rock types and that document the continuity of faults and dikes.
- Compile results of Gold Fields' underground core drilling and sludge, panel, and bulk sampling.

- Develop an accurate survey of the project's land holdings with respect to proposed development activities

- SE recommends that testing be performed on samples representative of the mine plan. Since extensive test-work has been very consistent on comminution studies as well as tailings observations that have established occlude silver in the sub 10 micron solids, SE recommends that a bottle roll leach campaign be performed on these composite samples at the recommended grind size. Bottle roll testing at one grind size ($P_{80}$=74 µm) on 4 composite samples by year (i.e. year 1 composite, year 2-3 composite, year 4-5 composite, and year 6+ composite). Pricing for three bottle rolls on each of composites (12 bottle rolls) is expected to be in the range of $20,000 to $30,000. SE recommends that the client consider further testing on the same composites to examine the benefits and disadvantages of finer grinding since that option is available with the current mill proposed in this study. Grind size versus recovery bottle roll testing, as well as thickening and pressure filtration testwork should be performed to examine this opportunity. Grind size versus recovery should include a minimum of the achievable grind $P_{80}$ characteristic distributions of 43 and 53 micrometers. This would require 24 grind and bottle roll test which would cost in the range of $40,000 to $60,000.

- SE recommends that liquid solid separation testing on the different grind sizes of each of the composites should also be performed. The cost for 8 samples will be about $ 43,200.

- SE recommends that a qualified consultant(s) who specializes in the inspection, testing, repair and refurbishment of used mechanical equipment be engaged to inspect major equipment and assess its suitability for return to operation. Detailed inspections to verify the integrity of the equipment and provide specific recommendations and estimates for repair work required to bring each piece of major equipment back into service should be considered. It is anticipated that the cost of such inspections could be in the range of $50-150K.

- SE recommends that qualified person be consulted to evaluate the thickeners to determine if refurbishment and/or upgrading of key components is necessary to achieve the thickening performance predicted by the Pocock testwork.

- Complete a pre-feasibility or feasibility study for the project.

MDA believes that the Shafter project is a project of merit and warrants the program proposed by Aurcana and the level of expenditures outlined above.

# 2.0 INTRODUCTION AND TERMS OF REFERENCE

Mine Development Associates ("MDA") has prepared this Technical Report on the Shafter silver project, located in Presidio County, Texas, at the request of Aurcana Corporation ("Aurcana"), a Canadian company listed on the TSX Venture Exchange and the OTCQX. Aurcana owns 100 percent of the Shafter project through its wholly owned subsidiary Rio Grande Mining Company ("RGMC").

The current report and associated resource estimate have been prepared in accordance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101 ("NI 43-101"), Companion Policy 43-101CP, and Form 43-101F1, as well as with the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards - For Mineral Resources and Reserves, Definitions and Guidelines" ("CIM Standards") adopted by the CIM Council on May 10, 2014.

The Shafter silver deposit consists of replacement bodies, termed *mantos*, in a horizontal to gently dipping sequence of carbonate sedimentary rocks. The Shafter deposit was exploited by historic underground mining activity from 1881 through 1942, with further exploration and development work conducted through 1999. Aurcana commenced recent development in 2011 with underground and limited open-pit production commencing in 2012 and terminating in December of 2013. The project has been on care and maintenance since December 2013.

## 2.1 Project Scope and Terms of Reference

The purpose of this report is to provide a technical summary and Preliminary Economic Assessment ("PEA") of the Shafter project. It builds on MDA's updated resource estimate and Technical Report with an effective date of December 11, 2015, by Tietz and MacFarlane (2016).

The mineral resources described in the current Technical Report were estimated and classified under the supervision of Paul Tietz, C.P.G. and Senior Geologist for MDA. Mr. Tietz is a qualified person under NI 43-101 and has no affiliation with Aurcana or any of its subsidiaries except that of independent consultant/client relationship. Mr. Tietz had prior experience with the Shafter project in the early 1980s while an employee of a previous operator. Peter Ronning, P.E., an associate of MDA, performed the quality assurance/quality control analysis as described in Section 12.0. Neil Prenn, P.E. and Principal Engineer for MDA, described Aurcana's mining at Shafter from December 2012 to December 2013 in Section 6.1.1, and performed the economic analysis described in the PEA. Mr. George Burgermeister of Samuel Engineering Inc., Denver, Colorado, contributed Section 13.0 Mineral Processing, and Metallurgical Testwork, Section 17.0 Recovery Methods, Section 18.0 Project Infrastructure, and portions of Section 21.0, 25.0, and 26.0 pertaining to the process plant. Mr. Stephen Glass, an independent consultant to Aurcana, contributed Section 20.0 and the permit status shown in Section 4.0.

The scope of this study included a review of pertinent technical reports and data provided to MDA by Aurcana relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, interpretations, drilling programs, and metallurgy. The author's mandate was to comment on substantive public or private documents and technical information listed in Section 27.0.

Mr. Tietz visited the Shafter project on January 30 and 31, 2013. This visit included a review of exploration data and associated drilling, logging and sampling procedures. Mr. Tietz toured the underground workings and the open pit, examined existing core, and reviewed the sampling procedures of the underground mine and the mill. In addition, MDA reviewed previous block models. Mr. Tietz visited the Shafter project again on May 21 through May 25, 2013. During the May 2013 site visit, additional historical drill data were discovered, compiled, and added to the project database. Mr. Tietz also worked with the Shafter geologic staff to develop a cross-sectional geologic model and made a brief underground tour of some of the working faces that were active at the time

Mr. Prenn visited the Shafter project during the week of April 1, 2013 to review mine plans and operations at Shafter. His observations are included in Section 6.1.1. A more recent site visit was completed on June 10, 2016 by Mr. Prenn with Mr. Burgermeister.. During the site visit of June 10th, Mr. Prenn and Mr. Burgermeister toured the processing facility and inspected the existing equipment and buildings, including the crushing circuit, the leach and reagents circuits, the thickening and filtration equipment, Merrill Crowe equipment, and the refinery. Infrastructure was toured, including the hoist room, the substation, warehouse, laboratory, administration facilities, and the tailings facility. Mr. Burgermeister spent time with onsite personnel gathering historical operational data from the archives. Equipment list and inventories were also obtained during the visit.

MDA has relied almost entirely on data and information derived from work done by Aurcana and predecessor owner/operators of the Shafter project. MDA has reviewed much of the available data and made site visits and has made judgments about the general reliability of the underlying data. Where deemed either inadequate or unreliable, the data were either eliminated from use, or procedures were modified to account for lack of confidence in that specific information. MDA has made such independent investigations as deemed necessary in the professional judgment of the author to be able to reasonably present the conclusions discussed herein.

The effective date of this report is August 26, 2016. The effective date of the mineral resource estimate is December 11, 2015. There has been no material work on the project since the effective date of the mineral resource and therefore the resource is considered current.

## 2.2 Frequently Used Acronyms, Abbreviations, Definitions, and Units of Measure

In this report, measurements are generally reported in Imperial units.

**Currency:** Unless otherwise indicated, all references to dollars ($) in this report refer to currency of the United States.

**Frequently used acronyms and abbreviations**

| | |
|---|---|
| AA | atomic absorption spectrometry |
| ACOE | Army Corp of Engineers |
| Ag | silver |
| ATF | Bureau of Alcohol, Tobacco, Firearms and Explosives |
| Au | gold |
| core | diamond core-drilling method |

| | |
|---|---|
| °F | degrees Fahrenheit |
| ft | foot or feet |
| $ft^2$ | square foot |
| gpm | gallons per minute |
| g/t | grams per ton |
| h | hours |
| hp | horsepower |
| ICP | inductively coupled plasma analytical method |
| ICPES/MS | inductively coupled plasma emission and mass spectrometry |
| ICP-OES | inductively coupled plasma-optical emission spectrometry analytical method |
| In | inch |
| kg | kilograms |
| kV | kilovolt |
| KW | Kilowatt |
| L | liter |
| $M^2$ | square meter |
| Ma | million years old |
| mi | mile or miles |
| NSAMT | Natural Source Audio-frequency Magnetotellurics – type of geophysical survey that reads natural earth currents generated by lightning strikes |
| NSR | net smelter return |
| oz | ounce |
| ppm | parts per million |
| QA/QC | quality assurance and quality control |
| RC | reverse-circulation drilling method |
| RQD | rock-quality designation |
| SHPO | State Historic Preservation Office |
| t | metric tonne |
| ton | short ton |
| TCEQ | Texas Commission on Environmental Quality |
| TNRCC | Texas Natural Resource Conservation Commission |
| tpd | tons per day |
| tph | tons per hour (dtph=dry tons per hour) |
| tpy | tons per year |
| um | micron |
| USFWS | United States Fish and Wildlife Service |
| Zn | Zinc |

# 3.0 RELIANCE ON OTHER EXPERTS

The authors have fully relied on Aurcana and Rio Grande Mining Company, through a series of communications occurring over a period of three years from January 2013 through 2016, to provide information pertaining to land ownership and the obligations incurred from any related underlying agreements, as described in Items 4.2 (Land Tenure in Texas and the Shafter area) and 4.3 (Land Area).

Mr. Stephen Glass from Gault Group LLC, is considered an expert in permitting and environmental regulation in the region as it applies to the mining industry. He provided information for Section 4.4 (Environmental Liabilities), Section 4.5 (Environmental Permitting) in the following memorandum:

- Section 4 Environmental Text by Stephen Glass submitted September 12, 2016

and information in Section 20.0 (Environmental Studies, Permitting, and Social or Community Impact) in the following memorandumsection :

- 2016-08-17 PEA Environmental Section by Stephen Glass dated August 19, 2016

and MDA is fully relying on the information from both memoranda.

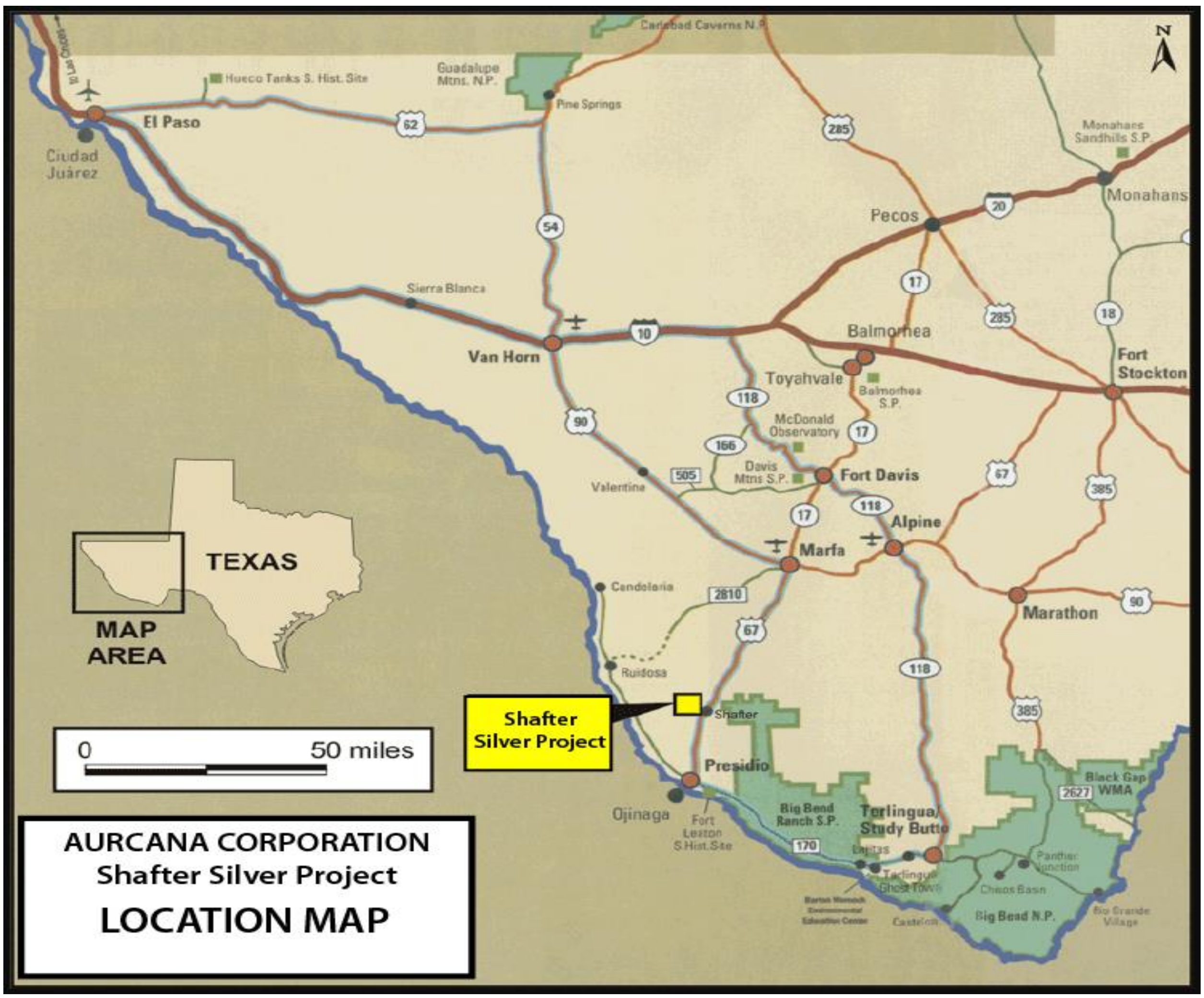
MDA is not an expert in legal matters, such as the assessment of the legal validity of mining claims, private lands, mineral and surface rights, and property agreements in the United States, or upon environmental, permitting, or socioeconomic issues associated with the Shafter project.

# 4.0 PROPERTY DESCRIPTION AND LOCATION

## 4.1 Location

The Shafter project is located in south-central Presidio County in the Trans-Pecos region of southwestern Texas (Figure 4.1). The center of the Shafter resource area is located at approximately 29° 48' 49" North latitude and 104° 19' 25" West longitude. The sparsely inhabited town of Shafter lies at the eastern end of the property, about 40 miles south of Marfa and about 20 miles north of Presidio, Texas. Presidio is located on the Mexican border.

**Figure 4.1 Location of the Shafter Project**



## 4.2 Land Tenure in Texas and the Shafter Area

Section 4.2 is based on information provided by Aurcana.

Private title to land in Texas has been granted by the central governing body (historically by Spain, then Mexico, then the Republic of Texas, and currently the State of Texas). Mineral rights have not always been conveyed with the surface rights unless expressly stated. Consequently, mineral rights may be held by private land owners or the State of Texas. Where the State retains the mineral rights, the benefits thereof are often allocated to various charities and educational institutions. When a landowner owns both the surface and the mineral rights to his tract, he may legally sever the mineral rights from the surface rights.

Although lease agreements vary, in Texas they typically permit the lessee to develop the mineral resources in order to earn a 7/8 interest; the landowner or lessor retains a 1/8 carried interest. Since 1955, the basic royalty on oil and gas on State lands has increased from 1/8 to 1/6, and since 1995, royalties for state-run lands of the Permanent School Fund have a minimum standard of 6.25 percent of the gross value. The Shafter project includes two parcels whose mineral rights Aurcana leases in this manner from the State, Section 10 of Block 23 and Section 320 of Block C-3. Private landowners may have similar royalty expectations, but royalties with private landowners are negotiable. The State of Texas does not differentiate between metallic, non-metallic, oil, gas, and aggregate resources; they are all "minerals."

In 1854, the Texas legislature offered an incentive to build railroad lines. Sixteen sections (10,240 acres) of land were available to the railroad companies for every mile of railroad contracted and put into operation. For each section the railroad companies surveyed, a second survey was done on a duplicate parcel of adjacent land. The second parcel was owned by the State, but the original by the railroad company, who usually sold the land immediately in order to construct more railroad line. This practice continued until 1882.

In western Texas, land is described in terms of "blocks" (usually surveyed by one entity, often a railroad company), and within the blocks are "sections." Subsequent subdivisions of sections are into tracts or lots (in town sites, for example). Surface and mineral rights of sections and tracts or lots may or may not be held by the same entity. Surveying was done using "metes and bounds," a method using a landmark as a point of origin (often a pile of stones), a series of compass bearings and distances from a sequence of turning points that determine corners of the property (at best, but sometimes a creek or a road), then back to the point of origin. Units of measure could be in feet, yards, miles, and acres, or in Spanish units of varas or leagues, labors, and lots. Sometimes all appear in the same survey notes. Geographic co-ordinates are usually in latitude/longitude. There are no reliable, comprehensive survey maps of the old Shafter town site.

Some mineral and surface titles at Shafter date back as far as 1884, although most are more recent. Both surface and mineral rights may be "leased" (whereby the rights are held by virtue of a lease agreement requiring annual payments or possibly work commitments) or "deeded" (purchased outright and title conveyed by a public deed). Title is recorded in county records by volume, abstract, and certificate number. An abstract number is assigned to a piece of land by the General Land Office of Texas when it is first granted or sold and is unique within the survey or league/labor to which it is assigned. Abstracts are associated only with surveys and league/labor land survey types, not for block/tract. The abstract number is assigned in perpetuity. All title documents and plats refer back to the original survey and original owner(s). Individual lots maybe surveyed (a "plat"), and the map may show the location of the lot with respect to a nearby pile of stones, a steel rod or brass pin, or the corner of a landmark such as the abandoned jailhouse. Adjacent lots are rarely included on the same plat, and detailed examinations of the records indicate numerous inconsistencies between plats and reveal surveying errors. To make matters more confusing, most of the infrastructure of the town of Shafter is in disrepair or has disappeared; landmarks are destroyed; and only a few long-time or multi-generation residents remain. All these aspects make the location of lots in the Shafter town site in Section 327 uncertain. In order to track tenure, Gold Fields developed an indexing system for each parcel of land with an "L" (lease) or "D" (deed) followed by a 4-digit number (10XX). This internal filing system remains in use.

At Shafter, as with many areas in Texas, there are numerous right-of-ways for highways, roads, utility lines, and easements that allow the passage of people and goods or to facilitate hunting and grazing activities.

The preceding description is based upon internet research and private company materials. Important reference materials may be found at:

http://www.p2energysolutions.com/tobin-talk/land-survey-west-texas-vs-east-texas
http://www.rrc.state.tx.us/about/faqs/royaltiesleases.php
http://www.tshaonline.org/handbook/online/articles/gym01
http://www.glo.texas.gov/what-we-do/energy-and-minerals/hard-minerals/index.html
http://www.surveyhistory.org/metes_&_bounds_vs__public_lands.htm
http://www.mineralhub.com/2010/04/how-can-i-locate-who-owns-the-mineral-rights-under-my-land/
http://www.tobin.com/documents/TechWhitePaper8.pdf, and
http://www.tlma.org/resources.htm.

## 4.3 Land Area

Section 4.3 is based on information provided by Aurcana.

Through its wholly owned subsidiary, RGMC, Aurcana owns or controls about 3,960 acres of property at Shafter, including eight sections or half sections, 13 parcels of Shafter town lots in two additional sections, and one additional half-section consisting of leased mineral claims.. All but one section consists of private land for which Aurcana holds either deeded surface rights or no surface rights, and deeded, leased, or no mineral rights. The mineral resources described in Section 14.0 are located on private land. Table 4.1 lists the parcels that comprise Aurcana's Shafter property, including the nature of Aurcana's interests, applicable royalties, and annual holding costs for each parcel. Figure 4.2 shows an overview of Aurcana's property holdings at Shafter.

Figure 4.3 shows more detail of Aurcana's holdings in the vicinity of the Shafter town site in Section 327.

Figure 4.4 shows greater detail of Aurcana's holdings in Section 328.

## Table 4.1 Aurcana's Land Tenure at the Shafter Project

(See Figure 4.2, Figure 4.3, and Figure 4.4 for the location of the resources relative to the land held by Aurcana Corp.)

| Gold Fields File No. | Aurcana's Mineral & Surface Rights | Description | Acreage | Royalties | Payments Owed by Aurcana | Easements (E) or Right-of-Ways (RoW) | Comments |
|---|---|---|---|---|---|---|---|
| **BLOCK 23** – Galveston, Harrisburg & San Antonio Railway Company Survey | | | | | | | |
| D-1074 | Deeded surface.<br>No mineral rights | Section 9 | 36 | N/A | N/A | Highway RoW | Note #2<br>Grazing, hunting rights granted |
| L-1090<br>D-1050<br>D-1074 | Deeded surface.<br>Mineral rights leased (M-110259) from State of Texas | Section 10 | 37 | 6.25% of "Market value". Minimum $1.25/ton (Note #1) | See Note #1 | Highway RoW<br>Electric Utilities (RoW), Telephone (E) | Note #2<br>Grazing, hunting rights granted |
| D-1088 | Deeded surface.<br>No mineral rights | Section 11 | 640 | N/A | N/A | Passage (E) | Grazing, hunting rights leased |
| **BLOCK 8** – Houston & Texas Central Railway Company Survey | | | | | | | |
| D-1056 | Deeded Mineral.<br>No surface rights. | Section 2 | 640 | N/A | N/A | Not known | |
| D-1088 | Deeded Surface.<br>No mineral rights. | Section 4 S½ | 320 | N/A | N/A | Passage (E)<br>Electric Utilities (E) | Grazing, hunting rights leased |
| D-1050<br>D-1075 | Deeded surface & mineral rights. | Section 5 | 640 | N/A | N/A | Electric Utilities (E) | Grazing, hunting rights granted |
| | Leased mineral claims<br>No surface rights | Section 6 N½ | 288 | 5% NSR | $1,000/yr | Option Agreement | Re-confirm annually by July 1. Expires 2019 |
| D-1050<br>D-1074 | Deeded surface & mineral rights | Section 8 | 640 | N/A | N/A | Passage (E), Electric, Telephone Utilities (RoW), | Grazing & hunting rights granted |
| D-1088 | Deeded surface.<br>No mineral rights | Section 9 S½ | 320 | N/A | N/A | Passage (E), Electric RoW | Grazing & hunting rights leased |

| Gold Fields File No. | Aurcana's Mineral & Surface Rights | Description | Acreage | Royalties | Payments Owed by Aurcana | Easements (E) or Right-of-Ways (RoW) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **BLOCK 23 -** Adams, Beatty & Moulton | | | | | | | |
| L-1055 | Leased mineral<br>No surface rights | Section 328, Blk 1 (i.e., N½) | 282.9 | 6.25% | $1,414.50/yr | | |
| D-1053 | Deeded surface. 50.85% deeded (interest in) mineral rights | Part of Section 327 | ~35 | No | | | |
| D-1057<br><br>L-1057 | Deeded Surface (part labeled D-1057, part with no D- label).<br>Leased Mineral rights. | Part of Section 327 SE | 62.5 | 6.25% | $ 517.41/yr<br>Portion paid in advance to 2031. | | Lessors retain ownership of any revenue derived from waste rock or tailings |
| L-1058 | Leased mineral<br>No surface rights | W/2 of Town lot 1, Blk. F, Section 327 | <1.0 | 6.25% | Paid to 2030 | | |
| D-1059 | Deeded surface<br>Deeded mineral | Part of Section 327, NE/4, NW/4 | 310.0 | 2% | N/A | | Grazing leased |
| L-1060 | Leased mineral<br>No surface rights | Town lots 6 & 11 & land in between lots 7 & 10, Cibola Addition, Section 327 | <3.0 | 6.25% | $15/yr<br>Paid until 2020. | | |
| D-1060.1 | Deeded surface.<br>Deeded mineral | Town lots 7 & 10,Cibola Addition, Section 327 | <2.0 | 6.25% | N/A | | |
| L-1068 | Leased mineral.<br>No surface rights | Town lots 2 & 3, Block F, & Lot 8 Cibola Addition, Section 327 | <3.0 | 6.25% | Paid until 2032 | | |
| L-1080 | Leased mineral.<br>No surface rights. | Lots 1 & 4, Cibola Add., Lots 6 &7 Cibola Add. B & Lot 1, Blk. 1 Cibola Add. Section 327 | <5.0 | 6.25% | $25/yr<br>Paid until 2032. | | |

| Gold Fields File No. | Aurcana's Mineral & Surface Rights | Description | Acreage | Royalties | Payments Owed by Aurcana | Easements (E) or Right-of-Ways (RoW) | Comments |
|---|---|---|---|---|---|---|---|
| L-1081 | Leased mineral.<br>No surface rights. | 2 town lots 6's, Blk. 4, Section 327 | <2.0 | 6.25% | | | |
| D-1094<br>L-1094 | Deeded surface.<br>5/6 mineral deed,<br>1/6 mineral lease | Part of Section 327, W of Hwy. 67 (Tr. 1) | 24.5 | 1/6 of 6.5% and Shut-in royalty after production starts but is suspended | $10/yr<br>per acre | Electric, Telephone (E), Electric (RoW), Right of Access to Amax | 1.9 acres quitclaimed to Amax.<br><br>Note #3 |
| D-1050<br>D-1074 | Deeded surface & mineral rights. | Part of Section 327, W. of Hwy 67: Northern (Tr. 2b), Central (Tr. 4)<br>Southern (Tr. 3) | 66.5<br>5.38<br>40.2 | No | N/A | Telephone (E), Right of Access to Amax | Portion (11.7 acres) of surface quit-claimed to Amax (covers historic tailings site). Small portion extends E of Hwy. 67. |
| "Amax" | Deeded mineral<br>No surface | Part of Survey 327 | ~13.7 | N/A | | Right of Access to Amax | Surface quitclaimed to Amax for tailings remediation in 1995. Formerly part of D-1050 & D-1094. |

NOTE #1 MINING LEASE M-110259 ("Lease 110259") granted July 14, 2009, valid for 15 years under the following terms:

A - DELAY RENTAL: If production in paying quantities has not been obtained on or before one year after the date of the lease, then Lease 110259 terminates unless the Owner, on or before that date, pays a "delay of production" penalty (considered as a rental and to be covering the privilege of deferring commencement of production in paying quantities) to the State as per the following schedule:

| Anniversary Year | Amount (US $) | Status | Anniversary Year | Amount (US $) | Status |
|---|---|---|---|---|---|
| 2011 | 10,220 | Paid | 2017 | 12,440 | - |
| 2012 | 10, 590 | Paid | 2018 | 12,810 | - |
| 2013 | 10,960 | Paid | 2019 | 13,180 | - |
| 2014 | 11,330 | Paid | 2020 | 13,550 | - |
| 2015 | 11,700 | Paid | 2021 | 13,920 | - |
| 2016 | 12,070 | Paid | 2022 | 14,290 | - |
| | | | 2023 | 14,660 | - |

B - MINIMUM ADVANCE ROYALTY: Immediately upon commencement of production from Lease 110259, RGMC will pay $5,000.00 as a minimum advance royalty. (This Section does not apply to the production of waste materials). The payment of the initial minimum advance royalty is to be received by the COMMISSIONER, at Austin, on or before seven days after the date of the initial commencement of production. Thereafter, this royalty is to be paid and received on or before the anniversary date of Lease 110259, in advance, for each year (as determined by the anniversary date) in which the minerals are produced. It is understood and agreed that this minimum advance royalty is due and payable for every year that the leased minerals are produced from Lease 110259, regardless of the amount of actual production. If applicable, any minimum advance royalty paid will be credited against the first royalty due provided for the leased minerals actually produced from Lease 110259 during the lease year for which such minimum advance royalty is to paid.

C- PRODUCTION ROYALTY: There is a royalty on production of six and one-quarter percent (6¼ %) of the"Market Value". The intention is that if production is achieved the State will receive not less than one-sixteenth (6.25%) of the value of the minerals produced. Market Value, as that phrase is used in this lease, is defined to mean the higher of, at the option of the Comissioner, either: (1) gross proceeds received by RGMC (e.g., the gross price paid or offered to RGMC) from the sale of minerals and including any reimbursements for severance taxes and production related costs, or (2) the highest price for materials or minerals (a) produced the from Lease 110259 or from other mines and (b) that are comparable in quality to those produced from Lease 110259. Price shall be determined by any generally accepted method of pricing chosen by the Commissioner, including, but not limited to, comparable sales (e.g. prices paid or offered), published prices plus premium, and values/costs reported to a regulatory agency. In no event will the royalty due the State be less than the minimum royalty amounts. The Minimum Royalty is defined to be no less than One and 25/100 Dollars ($ 1.25) per long ton of the minerals produced from Lease 110259. Finally, by providing 60 days' notice the Commissioner may elect to take the production royalty in kind.

Payments and notices are due to the office of the Commissioner located in the General Land Office, State or State of Texas, 1700 North Congress, Austin, Texas (78701), Attention: Petroleum & Minerals Division.

**As of the Effective Date of this report, RGMC has not commenced commercial production from the Lease 110259**.

NOTE #2 THE 18 ACRE GRANT

By a Deed dated January 28, 1985 (257 DR 42), Gold Fields granted the State of Texas 10 parcels of land totaling 18.1953 acres for highway realignment purposes. Of the 18.1953 acres conveyed to the State of Texas 7.55 acres are on Section 327, and 0.11 acres are on Section 9, and 10.52 acres within Section 10, Block 23.

The Shafter resource does extend beneath the highway in Section 327, where three separate areas of the 18-acre grant totalling 6.23 acres are located immediately north of the Shafter resource area and 1.32 acres are situated a half a mile southwest of the Shafter resource area. Gold Fields did not own the mineral rights for the portion of the 18-acre grant falling within Section 327 at the time (1985) they signed the deed with the State. The Section 327 mineral rights were later acquired by RGMC when it completed the option payments to the underlying owners and title was conveyed to RGMC. As a result RGMC does have mineral title on those portions of the 18-acre grant located on Section 327.

RGMC does not own mineral rights beneath the 18-acre grant where it sits on Sections 9 and 10, other than for oil, gas, and sulfur.

NOTE #3 SHUT-IN ROYALTY

If RGMC (Lessee) first commences mineral production from the lands situated beneath D-1094/L-1094, and subsequently elects to suspend production from that same area on account of the lack of a suitable market for the minerals or other unsatisfactory market conditions, a “shut-in royalty” must be paid in the amount is 1/6th of $5,000 per annum. The first such payment is to be made within 90 days after Lessee ceases to produce therefrom. Thereafter production shall be deemed to be made in paying quantities, and such shut-in royalty payment shall extend the term of the lease for a period of one year from the first day of the next month succeeding the month in which the mine was shut-in and production ceased; and thereafter, if no suitable market for such mineral exists. The Lessee may extend the lease for four additional successive periods of one year each by the payment of a like sum of money (1I6th of $5,000), as provided. The Lessee is not relieved of the obligation to proceed with the reasonable development of the leased land and to make annual payments as required. In the event that the Lessee is conducting mining operations on or within the leased property in conjunction with mining operations on or within adjacent or other land, the leased property shall not be considered to be shut-in unless operations on the adjacent or other lands are ceased and also shut-in.

**Figure 4.2 Aurcana's Property Position at the Shafter Project**
(From Aurcana Corp., 2014)

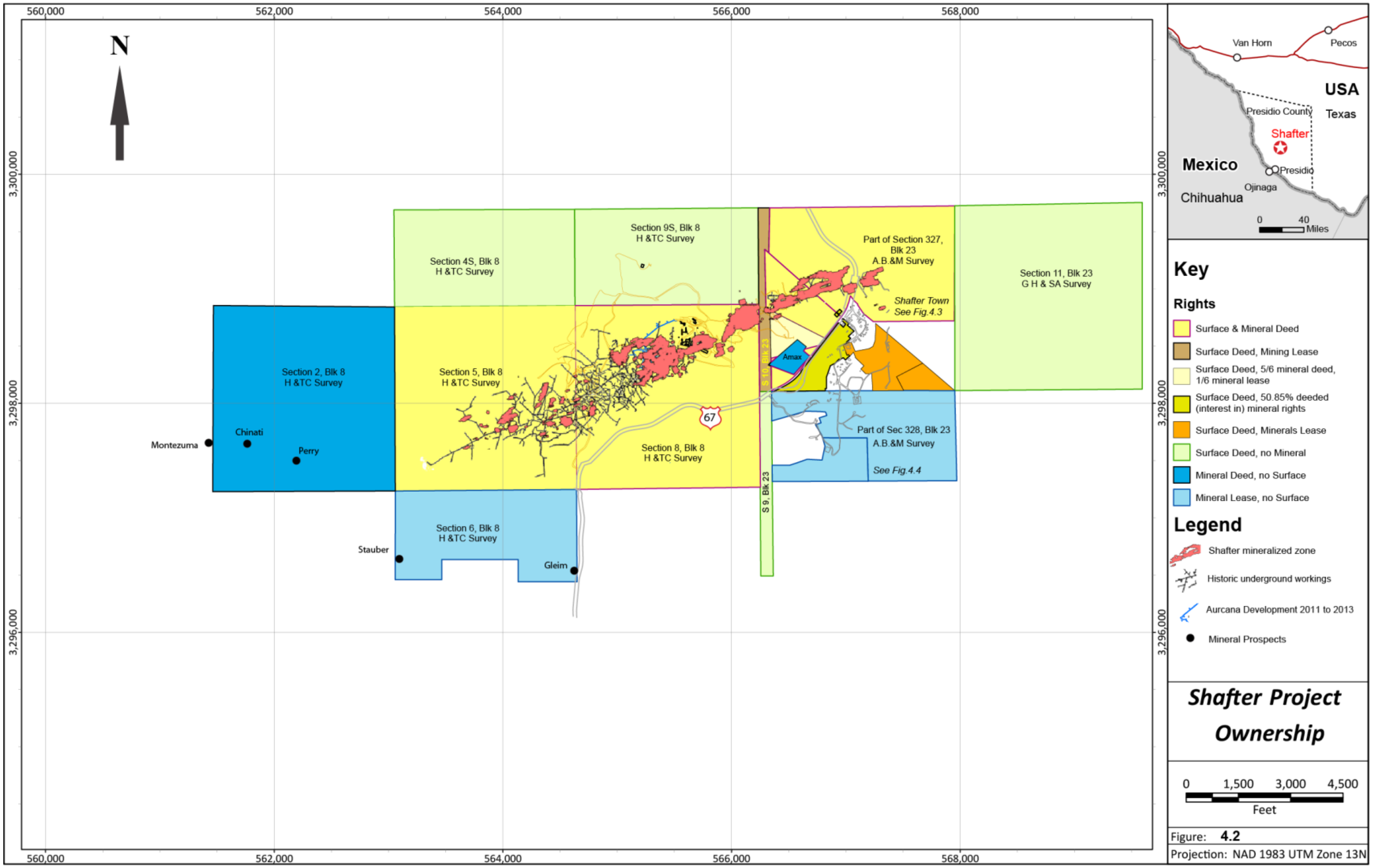


**Figure 4.3 Detail of Part of Section 327 of Shafter Property Map**
(From Aurcana Corp., 2014)

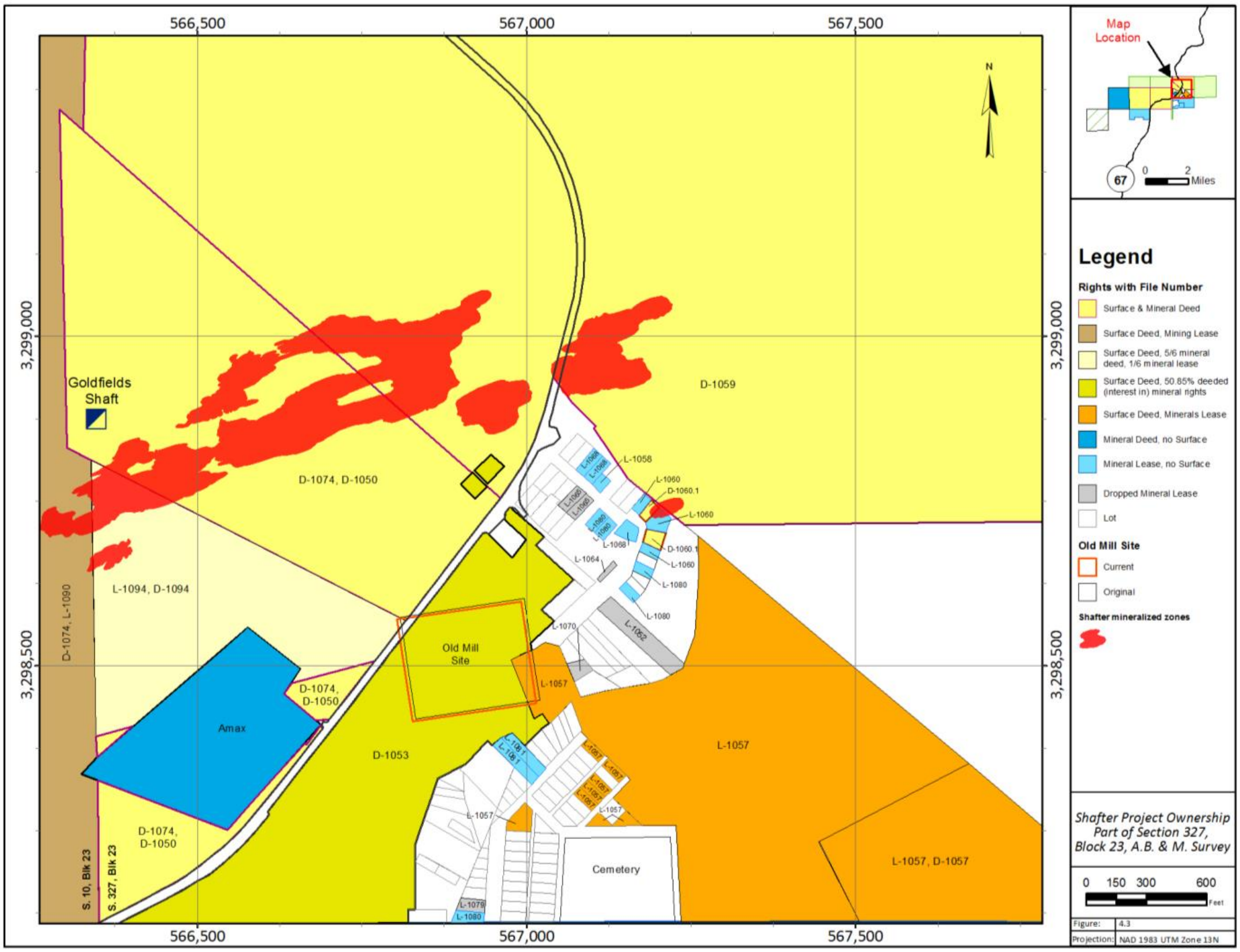
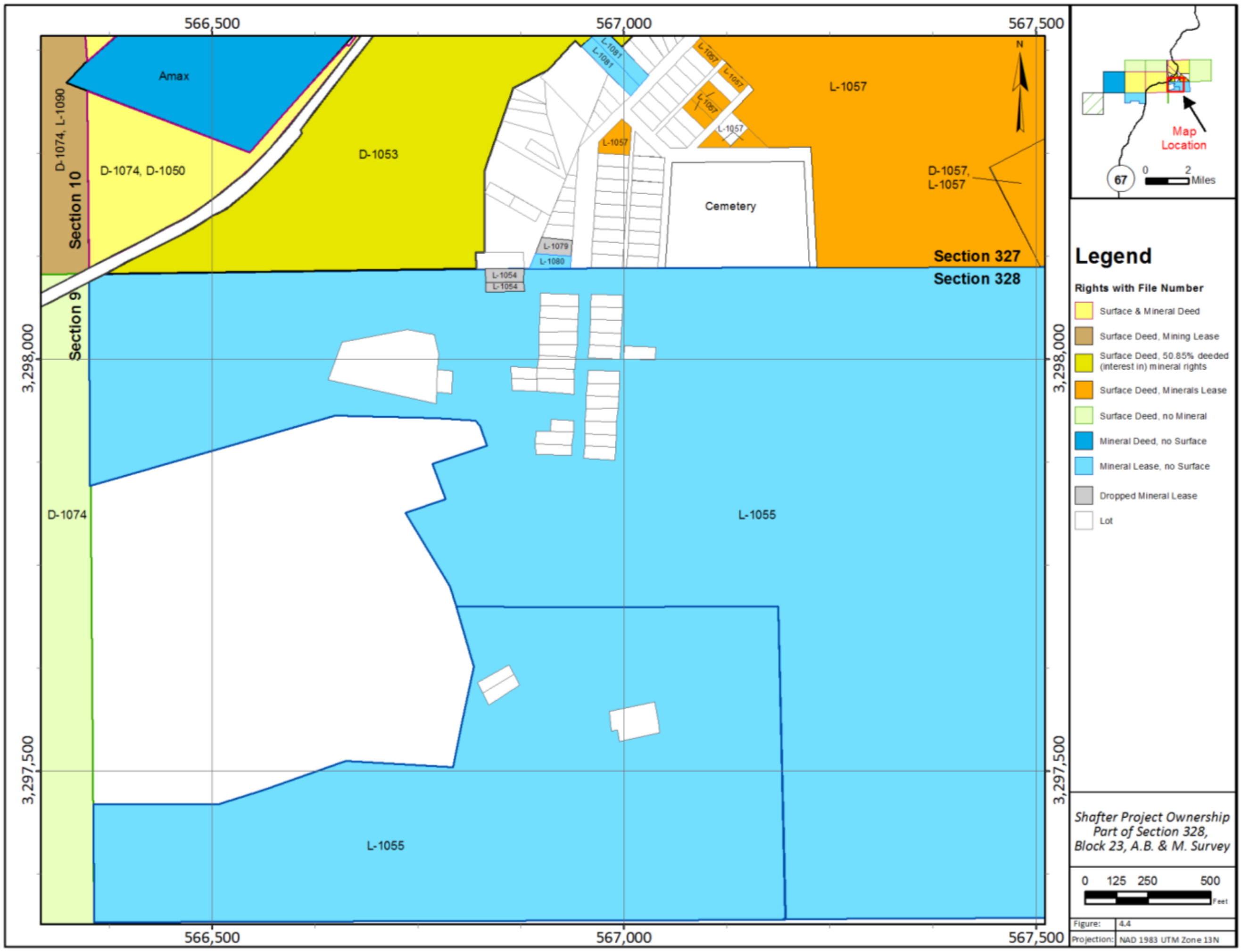


**Figure 4.4 Detail of Part of Section 328 of Shafter Property Map**
(From Aurcana Corp., 2014)



## 4.4 Environmental Liabilities

The information in Sections 4.4 and 4.5 has been supplied by Stephen Glass, an environmental and reclamation consultant to Aurcana.

Known environmental liabilities for the Shafter mine are limited to reclamation responsibilities for the tailing disposal area and mill bleed water pond. RGMC requested, and received, concurrence from the Texas Commission on Environmental Quality, that waste from these two facilities qualifies as exempt from hazardous designation pursuant to the Bevill Amendment (42 U.S.C. § 6921(b)(2)(A)).

At closure, the remaining active portion of the tailing disposal facility will be capped with an average of three feet of alluvium and seeded with a mix recommended by the Natural Resources Conservation Service. Utilization of native material for capping will promote growth of vegetation that results from the dry seeding and facilitate natural colonization of the area from the surrounding biotic communities.

The plant bleed water is managed through a state-approved Plant Bleed Water Management Plan. Excess barren leaching solution (known as “plant bleed water”) is discharged to a waste-management unit (surface impoundment) known as the Bleed Water Pond. The pond is required through the operational life of the Shafter project. Following completion of any mining activities, the pond will be closed by removal and off-site disposal of residual sludge and the primary impoundment liner in accordance with state regulations.

Reclamation at the Shafter mine required by regulation or statute is limited to the two above described facilities. Reclamation and disposal costs are estimated at $644,000.00. Further discussion of the tailing facility and bleed water pond may be found in Section 20.0 of this document.

## 4.5 Environmental Permitting

Permitting for the Shafter project is regulated by state (Texas) and local (Presidio County) agencies. State agencies include the above-mentioned TCEQ having primary responsibility, Texas Health Department, Texas Historical Commission, Texas Parks and Wildlife, and Texas Department of Transportation. Local agencies include the County of Presidio and the Presidio County Underground Water Conservation District. Federal regulatory programs to which the Shafter mine is subject are limited to the U.S. Army Corps of Engineers (ACOE) implementing the Clean Water Act, and programs that demonstrate ACOE compliance with the National Historic Preservation Act and Endangered Species Act.

As a result of the development and exploration activities conducted by Aurcana, and its predecessors, between 1999 and 2016, all necessary permits and approvals are current and in good standing. Numerous permits, approvals, and operating plans are required to permit mining operations at Shafter, plus numerous supporting studies. A comprehensive list of permits and approvals required by regulatory authorities may be found in Table 4.2, and Table 20.1 of this document. Section 20.0 contains additional details on each permit.

**Table 4.2 Important Permits and Management Plans Required at Shafter**

| PERMIT | AGENCY | STATUS | MONITORING |
|---|---|---|---|
| Clean Water Act (CWA), Section 404 Nationwide #26 Permit | ACOE | Closed/compliant | N/A |
| CWA Section 401 State Water Quality Certification | TCEQ | Closed/compliant | N/A |
| NHPA, Section 106 Clearance | ACOE/SHPO | Compliant | N/A |
| ESA Clearance | ACOE/USF&WS | Compliant | N/A |
| Shaft Permit Waiver | TNRCC (TCEQ) | Granted | N/A |
| Underground Workings Permit | Texas General Land Office | Exempt by statute | N/A |
| New Source Review Air Quality Permit #80987 | TCEQ | Current/compliant | Quarterly emission inspections, pH monitoring, monthly production report, Propane use, Annual Emissions Report |
| Permit to Discharge Waste #04297 | TCEQ | Current/compliant | Daily water sampling when pumping from shaft, Monitor pond for leaks, Daily pond sampling during operation. Perform migratory bird mitigation |
| Solid Waste Registration #31623 | TCEQ | Current/compliant | Daily sampling for cyanide |
| | | | Weekly sampling |
| On-Site Sewage Facility (OSSF) Permit #193 | Presidio County | Current/compliant | |
| Radioactive Materials License #R36454 | Texas Bureau of Health Service - Division of Radiation Control | Active | N/A |
| Storm Water Multi-Sector General Permit #TXR05T074 | TCEQ | Current/compliant | Sampling following storm events |
| Water Well Registration #1890018 | TCEQ | Current/compliant | Standard Water Quality Sampling protocol |
| Public Water System (PWS) | TCEQ | Current/compliant | |
| Explosive User’s License | ATF | Current/compliant | Purchase, use, and inventory control reporting |
| Spill Prevention Control and Countermeasure Plan (SPCC) | TCEQ/EPA | Current | |

# 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

## 5.1 Access to Property

The Shafter project is located in southwest Texas, approximately 20 miles by road north of the border town of Presidio via US highway 67. Access to the property from El Paso, Texas is east via Interstate 10 to Van Horn (118 miles), then southeast via US highway 90 to Marfa (78 miles), then south-southwest via US highway 67 to the town of Shafter (40 miles). Most of the property lies west of Shafter and can be accessed by dirt roads from highway 67.

The closest major airport is at El Paso, which is about 3.5 hours' drive from the property.

## 5.2 Climate

The climate at the Shafter project is cool and dry during the winter and very hot and dry during the summer. Average annual precipitation is about 12 inches, with most of the rainfall occurring during thunderstorms during July, August, and September. High temperatures in the region range from 85° to 95°F in mid-summer, depending on elevation, to about 100°F in Presidio on the Rio Grande. Mid-winter low temperatures range from 27°F to 32°F. The average annual minimum temperature at Presidio is 55°, and the average annual maximum temperature is 87° (Aurcana Corp., written communication, 2014). Table 5.1 shows the precipitation and evaporation rates for the Shafter area.

Mining and exploration can be conducted year round.

**Table 5.1 Precipitation and Evaporation near Shafter**
(Data from the Texas Water Development Board as cited by Burgess, 2011)

| Evaporation Rates Near Shafter Mine, inches/yr | | | |
|---|---|---|---|
| | Evaporation | Precipitation | Net Evap |
| | Mean | Mean | Mean |
| January | 2.5 | 0.883 | 1.62 |
| February | 3.07 | 0.781 | 2.29 |
| March | 4.77 | 0.557 | 4.21 |
| April | 5.93 | 0.110 | 5.82 |
| May | 6.16 | 1.250 | 4.91 |
| June | 6.88 | 1.573 | 5.31 |
| July | 6.36 | 1.857 | 4.50 |
| August | 5.44 | 1.073 | 4.37 |
| September | 4.59 | 2.983 | 1.61 |
| October | 4.12 | 0.707 | 3.41 |
| November | 3.13 | 0.197 | 2.93 |
| December | 2.64 | 0.417 | 2.22 |
| Total - inches/yr | 55.590 | 12.387 | 43.20 |
| Total - ft/yr | | | 3.600 |

## 5.3 Physiography

The Shafter project area is located on the southern side of the Chinati Mountains in rugged, high-desert terrain, on the slopes above the Rio Grande valley to the south. Cibolo Creek is the major perennial stream in the area, which joins the Rio Grande at Presidio. Elevations range from 3,800ft at the town of Shafter, on Cibolo Creek, to 4,200ft at the western end of the property.

Vegetation in this rugged, high-desert terrain is mainly cactus and succulents.

## 5.4 Local Resources and Infrastructure

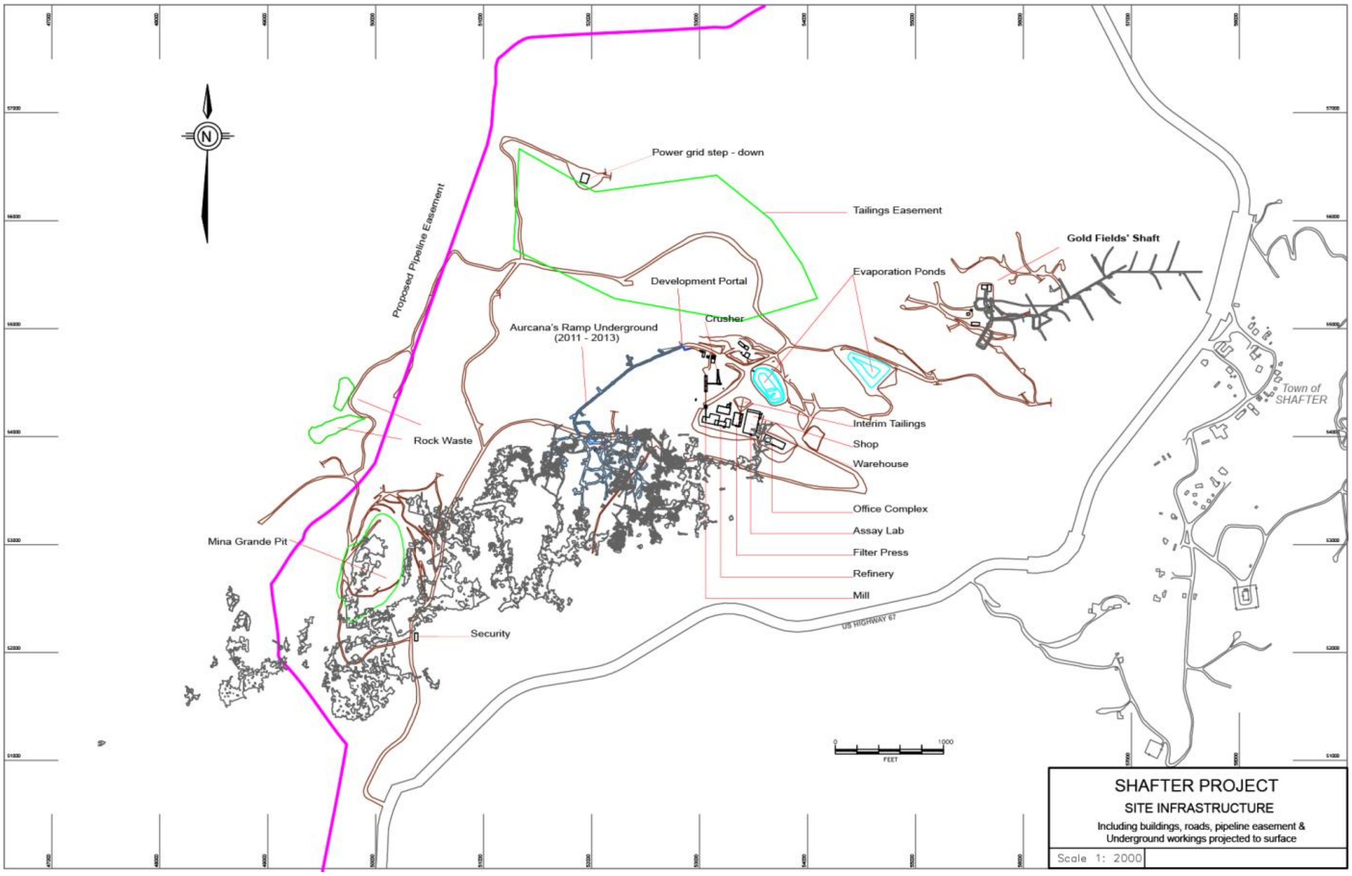
Presidio, Texas, is the nearest population center and a source of supplies and labor, with a population of 4,426 in 2010 (U.S. Census Bureau). Cibolo Creek flows year-round through Shafter (Kastelic, 1983). Mine-water inflow is estimated to be approximately 350 gpm, based on measurements made by Gold Fields Mining Corporation between 1979 and 1982 (Balfour Holdings, Inc., 2000; Burgess, 2011). This amount was expected to be sufficient for mill processing requirements, with any excess disposed of pursuant to permit requirements (Balfour Holdings, Inc., 2000; Burgess, 2011).

American Electric Power ("AEP") generates and transmits electricity in the region. Electric power at Shafter is supplied by a north-south transmission line installed by AEP parallel to an existing 69kV electric line (West Texas County Courier, 2012). A high-voltage substation owned by AEP is situated on the northwestern part of the Shafter property but will require larger-capacity transformers to meet future needs of the project (Burgess, 2011).

Gold Fields Mining Corporation built a 7ft-diameter exploration and production shaft and a separate rescue-ventilation shaft, two hoists, and shop buildings at Shafter (Balfour Holdings, Inc., 2000; Burgess, 2011). In addition, there are an air compressor and mine pumps at the site. In 2003, Silver Standard relocated a 900-ton-per-day mill to the site. In 2011 Aurcana constructed a 1,500 ton-per-day mill on site. Section 18 describes the site infrastructure in more detail.

During 2015 the Company was approached by representatives of Trans Pecos Pipeline LLC who intend to build a 42-inch natural gas pipeline from the Permian Basin of west-central Texas to Presidio, Texas, for delivery in to customers in Chihuahua, Mexico. The proposed route of the pipeline passes through the Shafter property. Trans Pecos Pipeline has initiated legal proceedings to acquire the pipeline route and access easements through eminent domain. As currently surveyed (Figure 5.1), the proposed route should not materially impact any resumption of near-term mining activities. Figure 5.1 shows the site infrastructure.

**Figure 5.1 Infrastructure at the Shafter Project Site**
(From Aurcana, 2016)



# 6.0 HISTORY

The information provided is based on a review of the reports cited. The authors have determined that the information provided fairly represents the project history.

## 6.1 Exploration and Mining History

The following information has been reviewed and summarized from Ross (1943), Kastelic (1983), Rio Grande Mining Co. (1998a, 1998b), Rossi and Springett (1995), Rozelle (2001), Rozelle and Tschabrun (2008), Balfour Holdings, Inc. (2000, including parts of a report by Pincock, Allen & Holt dated 2000b), and Smith (2011), with additional information as cited.

It is thought that some old workings in the Shafter district may date back to early prospecting by Spanish explorers. Post-colonial mining in the Chinati Mountains began about 1860, when rancher John Spencer freighted several cartloads of silver ore to Mexico for smelting (Smith, 2011). The mineralized areas in the Shafter district were first discovered in 1880 or 1881 by Spencer or his Mexican workers. Spencer interested a group of U.S. Army officers stationed at Fort Davis in his discoveries, including Capt. (and later General) William R. Shafter. The first official mining company was the Presidio Mining Company, organized by these officers and others in 1881. Mining of the only exposed mineralized rock at the Mina Grande open pit began in 1883 but was not profitable until 1888. Mining continued underground at what became known as the Presidio mine and was continuous until 1913, with grades of 20 to 30oz Ag/ton as estimated from annual mine output, which averaged about 20,000 tons per year from 1898 to 1913. The mercury-based pan-amalgamation mill had 82 percent recovery. Mining methods were updated, and a cyanide mill was built in 1913. Mine output increased to more than 84,000 tons per year through to 1926, but grade decreased to about 10oz Ag/ton. From 1913 to 1926, total recorded production from Shafter was 1,150,000 tons grading 17oz Ag/ton for a total of 19,550,000 ounces of silver (Pincock, Allen & Holt, 2000b, included in part as an appendix in Balfour Holdings, Inc., 2000).

The American Metal Company of Texas acquired the Shafter property in 1926 and subsequently merged with Climax Molybdenum Company to form American Metal Climax, Inc. (“Amax”); throughout the rest of this report, “Amax” will be used to refer to American Metal Co. as well as American Metal Climax, Inc. Amax conducted both surface and underground drilling; the database used for the estimate described in this technical report includes 1,048 Amax drill holes totaling 178,634 feet. Amax’s annual production from the Presidio mine decreased to 50,000 tons, but at a grade of over 20oz Ag/ton from 1927 to 1929. Much of Amax’s and also Presidio’s earlier production was based on processing hand-cobbed, sorted ore.

Production continued through 1940, except for a period in 1930 to 1934 when the price of silver decreased. When operations resumed in 1934, the facilities were expanded to a capacity of milling approximately 140,000 tons per year. An average grade of nearly 20oz Ag/ton was maintained at first, but the grade declined with an increase in the mined tonnage. In the final full year of production, the mine produced 140,503 tons at an average grade of 9.39oz Ag/ton. The mine was closed in August 1942 due to the War Production Board Limitation Order L-208, and at that time the mill feed grades had dropped to an average of 8.5oz Ag/ton. Upon closure in 1942, the rails and hand carts were pulled and shipped for scrap metal as part of the war effort. Smith (2011) cited the apparent decline of the deposit’s silver grade, diminished reserves, water flooding in the lower levels, and a wartime shortage of miners as other reasons for closure.

Kastelic (1983) reported that the Presidio mine was dry to the 950 level, but after the operations ceased, the workings were flooded back to the 850 level. From 1926 to 1942, Amax mined 1,156,800 tons of material grading 13.49oz Ag/ton and containing 15.6 million ounces of silver, of which they recovered 13.57 million ounces of silver, 5,982 ounces of gold, and 4, 195 tons of lead. This implies a silver recovery rate of 87% (Pincock, Allen & Holt, 2000b, included in part as an appendix in Balfour Holdings, Inc., 2000).

Total recorded production from the Presidio mine from 1883 to 1942 was 2,306,800 tons of ore containing 35,153,466 ounces of silver, for an average grade of 15.2oz Ag/ton. Recovery from the mill was 82 percent from 1883 to about 1912, increasing to 84 percent until about 1926, when it increased again to 90 percent, until the mine closed in 1930. When the mine reopened in 1934, recovery from the mill was 85 percent until the mine closed in 1942 (Balfour Holdings, Inc., 2000). By 1942, the Presidio mine had been developed to the 900 level.

Elsewhere in the Shafter district about 14 smaller lead-silver ± zinc and gold mines and prospects operated west of the Presidio mine from about 1890 to the 1930s. The Stauber and Gleim mines appear to be on Aurcana's property in Section 6, southwest of the Presidio mine. The Perry and Chinati mines are also within Aurcana's property, in Section 2, west of the Presidio mine.

In 1946, M. F. Drunzer leased the Presidio mine and mined ore from the supporting pillars until 1947.

The district was quiet until Phelps Dodge commenced evaluation of the Red Hills intrusion, five miles west of the Presidio mine, when copper prices increased in the 1950s. In the 1970s, Duval Corporation ("Duval") drilled approximately 80 holes into the Red Hills intrusion and outlined a copper-molybdenum porphyry zone. Duval also undertook a regional exploration program involving geochemical and geophysical surveys to search for other mineralized zones.

Teton Exploration Drilling Company drilled about seven rotary holes near the Presidio mine in the early 1970s, hoping to find silver-lead-zinc mineralization west and south of the old workings along the Mina Grande fault. Although they intersected silver-lead-zinc mineralization in some of their holes, especially near old workings, the results were generally inconclusive (Kastelic, 19893). They abandoned the project in 1974.

Osceola Metals Corporation drilled eight air-hammer holes totaling 6,000ft about 3,000ft west-southwest of the Presidio mine, but not on property currently controlled by Aurcana, in 1970. Two of the eight holes intersected strong lead-zinc mineralization with weak silver and gold, generally as fracture/vein-related mineralization in Cretaceous sedimentary rocks (Kastelic, 1983).

Gold Fields Mining Corporation ("Gold Fields") (then called Azcon Corporation's Mining and Exploration Division, a subsidiary of Consolidated Gold Fields Ltd.) acquired the Shafter property in 1977 from Amax. From 1977 to 1983, Gold Fields spent over $20 million on exploration and development work in the Shafter silver district that included surface and underground mapping, sampling, and drilling, as well as extensive metallurgical test work. They drilled 355 core holes totaling 307,925ft from October 1977 to April 1983 (Kastelic, 1983); MDA notes that the 2013 database contains a total of 403 surface and underground core holes attributed to Gold Fields, totaling 218,855ft but cannot account for the difference. About 30 of these holes were drilled on the regional trend extending from the Presidio mine four miles west to the Red Hills. Through a systematic surface-drilling program, Gold Fields identified the northeastern, down-dip extension of the Shafter deposit, extending the deposit more than 5,000ft from the lowest development work in the Presidio mine. (The name "Shafter deposit" as used in this report refers to the entire deposit, of which part was previously mined at the old Presidio mine.) Gold Fields sank two 1,000ft-deep shafts, conducted 5,100ft of underground drifting, performed 9,510ft of underground core and 1,346ft of underground percussion drilling, and mined 8,000 tons of material for metallurgical testing to confirm tonnages and grades (Rossi and Springett, 1995; Pincock, Allen & Holt, 2000b). MDA notes that the database contains 7,719ft of underground core drilling done by Gold Fields, but no percussion drilling data. A comparison between the results of detailed underground sampling and diamond drilling from the surface indicated that the actual silver grade may be as much as 10 percent higher than the grade determined by surface drilling (Gold Fields, 1982). Gold Fields' underground work in Block I (see Figure 6.1) found silver grades to be 15 percent higher than what had been indicated by surface drilling in the same area (Balfour Holdings, Inc., 2000).

Gold Fields conducted extensive geophysical work in an attempt to acquire a geophysical signature of the deposit that could be used to generate additional targets (Kastelic, 1983). Audio-magneto tellurics ("AMT") gave a distinct anomaly, but other methods failed to detect the Shafter deposit. Gravity surveying identified an east-trending ridge, generally coincident with the deposit, that probably represented a deep-seated feature such as a lineament or an old shoreline. Induced polarization and dipole-dipole resistivity surveying failed to show anomalies over the Shafter deposit, probably due to strong oxidation of the mineralization. Ground magnetometer surveys located dikes but did not detect the deposit. Two seismic reflection lines were run over the deposit, but results were ambiguous because shot-holes were not deep enough to impart sufficient energy into the ground. A deep-level gradient-array resistivity survey was conducted in early 1981, which showed an anomaly coincident with the erosional edge of the Mina Grande Formation, but poor results were obtained from several holes drilled on other anomalies. An AMT survey initiated in January 1983 produced an anomaly that was generally coincident with the Shafter silver deposit, and subsequent surveys were conducted over large tracts of Duval and Gold Fields land in the Red Hills area. Six north-south lines were run across Sections 33, 34, 186, 187, and 2. Several of the additional anomalies were drilled, but no mineralization similar to that in the Shafter deposit was intersected.

Gold Fields also carried out detailed mapping and soil-grid, rock-chip, and fault sampling on the property. Surface geochemical sampling generally did not detect the Shafter deposit, probably due to its great depth from the surface (about 1,000ft) (Kastelic, 1983). Limited large-scale mapping and sampling were carried out in specific areas of interest, such as the Montezuma prospect, which is located within the current property boundary, and the Sullivan mine, located outside the current property boundary. A photo-geological study of much of Presidio County was completed in 1981 and identified several structural and alteration features that were examined on the ground.

In addition to their work in the vicinity of the Presidio mine, from April 1980 to March 1983 Gold Fields conducted regional mapping, soil sampling, and drilling between Shafter and the Sullivan mine, located about 5.25 miles west of the Presidio mine. This work identified scattered occurrences of silver, zinc, and gold mineralization within the Shafter district and was part of a joint venture with Duval, with Gold Fields as the operator. The joint venture obtained two north-trending gravity profiles – one over the Red Hills stock and one just west of Section 34 – in October 1982 in an attempt to define the lateral limits of the Red Hills stock under Quaternary gravels (Naylor, 1982). The joint venture also engaged EM Technology, of Boulder, Colorado, to conduct controlled-source AMT surveys in the Shafter and Red Hills areas in early 1983, whose results are described above (Helming, 1983; Knox, 1983). Although Gold Fields stopped work on the Shafter deposit in April 1983 due to the collapse of silver prices, they held the property through most of 1994.

In October 1994, Rio Grande Mining Company ("RGMC"), then a subsidiary of Belcor, Inc., and Silver Assets, Inc. ("Silver Assets") acquired the Shafter project from Gold Fields. RGMC mapped and sampled the 40 and 80 levels of the old Presidio mine workings, sampled the stopes down to the 300 level, conducted additional drilling and sampling, and obtained all major permits necessary for commencement of operations by 2000 (Rozelle and Tschabrun, 2008; Rio Grande Mining Co., 1998a, 1998b). The drill-hole database used for the resource estimate described in this technical report includes 88 shallow reverse circulation ("RC") holes drilled in 1999 by RGMC over the near-surface mineralization above the Presidio workings. They reported that hundreds of Amax and Gold Fields sample results painted on the ribs and back of the old workings showed that many significant areas with 5 to 15oz Ag/ton remained in the old workings (Rio Grande Mining Co., 1998a).

Silver Assets acquired Belcor, Inc. and its subsidiary, Rio Grande, through a number of stock transactions in 1996, 1999, and 2002. Silver Assets was acquired by Silver Standard Resources Inc. ("Silver Standard") through stock purchases in 2000.

Aurcana purchased RGMC and thereby the Shafter property from Silver Standard in July 2008. Aurcana's exploration of the project is described in Section 9.0.

### 6.1.1 Mining by Aurcana Corporation

Aurcana re-entered the old Presidio mine through a new decline on June 1, 2012, and commercial production commenced on December 14, 2012, from material adjacent to and between Amax's old stopes. In conjunction with its underground operations, Aurcana began open-pit mining of lower-grade material from the old Mina Grande pit at the Presidio mine on April 23, 2012. This open-pit mining was discontinued after the plant commissioning and testing phase were complete (Aurcana news releases, June 6, 2012; December 14, 2012). In addition to the mine and mill, Aurcana operated an on-site assay laboratory. Aurcana reported that from October 2012 through December 2013, mine production totaled 149,882 tons and mill feed from the mine totaled 109,599 tons. A total of 134,557 ounces of doré was poured. Due in part to a decline in silver prices, production ceased, and the mine was put on care and maintenance in December 2013.

Aurcana's underground operation consisted of cut-and fill and room-and-pillar methods. The size of the development headings was reduced in 2013 from 15ft x 15ft to 12ft x 12ft, cutting the size of a typical round from 216 tons to about 115 tons. At the time of MDA's site visit in April 2013, mining averaged over 400 tons per day of material averaging 5oz Ag/ton based on mine channel samples, and two stopes were available for production. Water was said to be present on or below the 600-foot level in the area Aurcana was mining and at the 770 level in the Gold Fields' shaft.

Ore stockpiled at the surface of the mine was transported by 30-ton haul trucks to the processing plant, where crushing, grinding, leaching, and smelting were conducted. Ore was crushed in two stages, using a jaw crusher and a cone crusher. Crushed ore was fed to the grinding circuit and ground in a ball mill.

Ground ore was conveyed to the leach circuit to undergo cyanide leaching. Filter presses reclaimed the pregnant leach solution and filter cake, which were conveyed to a Merrill-Crowe precipitation circuit, where silver was precipitated by the addition of zinc dust. Precipitates were transferred to a smelter to separate silver from zinc.

## 6.2 Historical Mineral Resource Estimates

The following has been modified from Tietz and MacFarlane (2016):

The Shafter deposit has been divided along its east-west trend into five exploration sectors, called blocks (see Figure 6.1). These blocks were defined by RGMC based on topography, the old Presidio workings, and the primary drill targets of Gold Fields (Balfour Holdings, Inc., 2000). Block I, farthest to the east, includes the Shafter deposit from 53,750 East to 59,000 East; it includes the underground development by Gold Fields but has had no previous production. Block II includes the Shafter deposit from 52,300 East to 53,750 East; it had a limited amount of production from the deepest workings of Amax's Presidio mine. Block III extends from 51,000 East to 52,300 East and includes extensive areas of production by Amax in the Presidio mine along with the 2013 and 2013 RGMC production. Block IV includes mineralized rock immediately east of the Mina Grande fault and extends from 49,600 East to 51,000 East; it was also mined extensively from Amax's Presidio mine. Block V, the westernmost block, extends from 45,500 East to 49,600 East and includes mineralized areas immediately west of the Mina Grande fault; this part of the deposit was mined to a limited degree by Amax.

Various historical mineral resource and reserve estimates are described in Section 6.2. Terminology shown in quotation marks is as described by the original authors and may not represent current classifications. A qualified person has not done sufficient work to classify the historical estimates described in this section as current mineral resources or mineral reserves, and Aurcana is not treating the historical estimates as current mineral resources or mineral reserves. These historical resource estimates should not be relied upon. These historical estimates are superseded by the current mineral resource estimate described in Section 14.0.

### 6.2.1 Gold Fields Mining Corp.

The following information is taken from an economic feasibility study conducted by Gold Fields in 1982 (Gold Fields Mining Corp., 1982), with additional information from Cracraft and Williams (1982) and Rossi and Springett (1995).

Gold Fields drilled the down-dip extension of the Shafter deposit from the surface and partially developed it with a shaft and underground workings in the late 1970s and early 1980s; the down-dip extension is shown as Blocks I and II on Figure 6.1. The first "ore reserve calculations" were made in 1979 using data from 44 surface core holes. Kriging was used for the estimate, and the results were compared with results derived from conventional polygonal analysis. This first estimate yielded "reserves" of 4.175 million tons at an average grade of 6.40oz Ag/ton (elsewhere in the Gold Fields report these "reserves" are said to total 4.275 million tons; MDA cannot reconcile this conflict).

Gold Fields completed an in-house economic feasibility study of the Shafter deposit in 1982. Based on this study, they reported a "geologic silver resource" of 4.47 million tons at an average grade of 6.32oz

Ag/ton, for a total of approximately 28 million ounces of silver. Gold Fields estimated a "geologic ore reserve" of 4.49 million tons averaging 6.32oz Ag/ton using block kriging; a second estimate using the polygonal method yielded 4.08 million tons grading 6.03oz Ag/ton. The estimates were based on an 8ft minimum mining height with a cutoff grade of 3oz Ag/ton. The "total ore reserve" based on block kriging was based on 52 surface core holes and was estimated by Gold Fields' Lakewood staff. The "reserve" based on the polygonal method used 57 surface core holes and was performed by the Shafter geological staff. The "geologic ore reserve" was diluted to a "mineable reserve" of 4.675 million tons at an average mill-head grade of 5.65oz Ag/ton, containing 26,406,409 ounces of silver. The 1982 "mineable reserve" included only the mineralization in the Shafter deposit discovered by Gold Fields and did not include an additional 1.2 million tons of "inferred ore" in unmined areas of the old Presidio mine. In 1982, the COMEX average silver price was $7.93 per ounce. Gold Fields used a tonnage factor of 11.65 cubic feet/ton to calculate their resource and reserve estimates (Rozelle and Tschabrun, 2008).

### 6.2.2 Rio Grande Mining Company 1995

GeoSystems International, Inc. and Altamira Mining and Exploration LLC. prepared a "resource estimate" for the Shafter project in December 1995 (Rossi and Springett, 1995). Only Gold Fields' surface and underground drill-hole samples and some older Amax surface holes were used. Rossi and Springett (1995) noted that there were a significant number of sample intervals with poor recoveries, many of which correspond to higher-grade mineralization that is typically more friable than the rest. They developed a geologic block model of the Shafter deposit and used multiple indicator kriging to estimate the grade of the blocks. A polygonal technique was also used as a separate check on the grade estimates. The geologic model was based on envelopes drawn at a 3.0oz Ag/ton cutoff, using a minimum 6ft thickness. The envelopes were developed on section and then wire-framed to create a three-dimensional volume of the mineralization. Mineralized blocks measured 50 by 20 by 6ft. Contact dilution, internal dilution, and ore loss were not considered. At a cutoff of 3.0oz Ag/ton, they estimated "global *in situ* resources" of approximately 3.57 million tons with a grade of 6.36oz Ag/ton for approximately 22.7 million contained ounces of silver.

### 6.2.3 Rio Grande Mining Co. and Pincock, Allen & Holt 1998 and 1999

RGMC made several estimates of the Shafter silver deposit in 1998 and 1999 that are described by Balfour Holdings, Inc. (2000). The most recent "polygonal silver resources" estimated by RGMC as of 2000 are shown on Table 6.1, using cutoffs that can be compared to other historical estimates. This estimate (Table 6.1) assumed a 6ft minimum height for underground mining and included Blocks I through V, which extended from east of Highway 67 to west of the Mina Grande fault (Figure 6.1). No date for this estimate in Table 6.1 is given by Balfour Holdings, Inc. except that it is more recent than the 1999 estimate that is described below and shown on Table 6.2. The polygonal dimensions used by Gold Fields in their 1982 "reserve" estimates were used by RGMC for the estimate in Table 6.1.

**Figure 6.1 RGMC Block Locations for the Shafter Deposit**
(From Balfour Holdings, Inc., 2000)

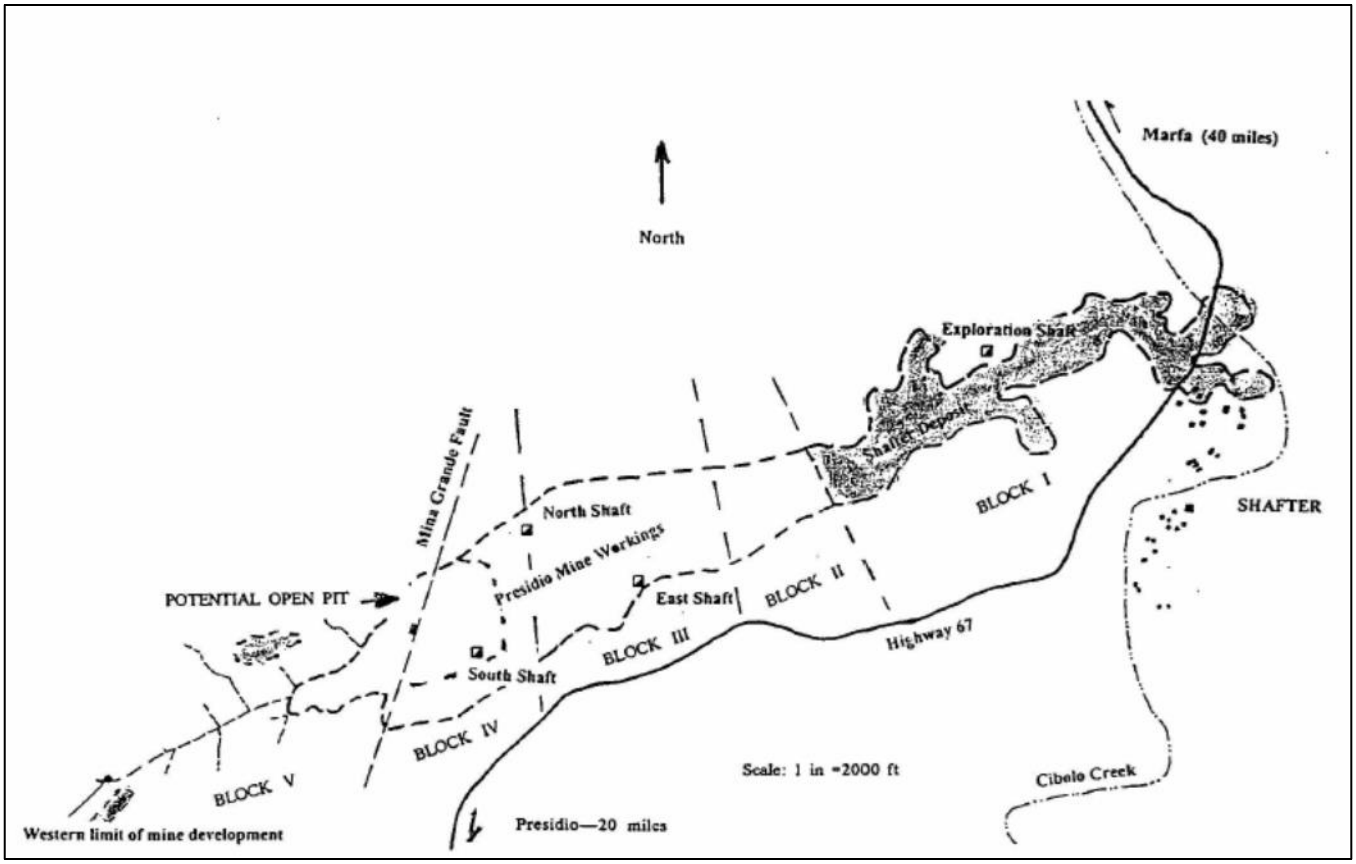



**Table 6.1 Rio Grande Mining Co. Historic Estimate of "Polygonal Silver Resources"**
(Balfour Holdings, Inc., 2000)

| Cutoff (oz Ag/ton) | "Drilled Resources" | | | "Diluted Resource"[1] | | |
|---|---|---|---|---|---|---|
| | Tons (millions) | Silver oz/ton | Contained Silver (million ounces) | Tons (millions) | Silver oz/ton | Contained Silver (million ounces) |
| 6 | 2.86 | 8.9 | 25.49 | 3.29 | 8.0 | 26.20 |
| 7 | 2.26 | 9.8 | 22.12 | 2.60 | 8.9 | 23.11 |

[1]15% dilution factor with 3.0oz Ag/ton material; 6ft minimum mining height.

RGMC had previously commissioned Pincock, Allen & Holt ("PAH") to digitize drilling and sampling data from Gold Fields, Amax, and RGMC and to estimate a "resource." That estimate was apparently completed in 1999 and is shown in Table 6.2 (Balfour Holdings, Inc. (2000), including part of a report by Pincock, Allen & Holt (2000b) in the appendix). The 1999 PAH database contained 891 drill holes, totaling 262,473ft of drilling, and 14,570 samples including Gold Fields' drill data and mine samples, the underground drill data from Amax, and data from RGMC's surface drilling and underground sampling programs.. Using the inverse distance cubed method to create a silver block model, PAH estimated the "geologic resource," which included "measured, indicated, and inferred confidence categories" shown in Table 6.2. The estimation did not provide for any dilutional effects of mining and was based on a density factor of 12.0 cubic feet/ton.

**Table 6.2 1999 Historic Pincock, Allen & Holt "Resource" Estimation**
(Balfour Holdings, Inc., 2000)

| Cutoff (oz Ag/ton) | Tons (millions) | Silver oz/ton | Contained Silver (million ounces) |
|---|---|---|---|
| 6 | 2.76 | 13.2 | 36.26 |
| 7 | 2.16 | 15.0 | 32.43 |

Balfour Holdings, Inc. (2000) noted that the main differences between the 1999 estimates of PAH (Table 6.2) and the presumably later "drilled resources" estimate of RGMC (Table 6.1) were in Block I, which contained the largest portion of the mineralization and which was based on a drill-hole spacing of 200ft. PAH did not assume continuity of mineralization between holes, but the polygonal method used by RGMC assumed continuity to the next hole along the strike of the deposit.

### 6.2.4 2001 Mineral Resource Estimate by Pincock, Allen & Holt for Silver Standard Resources Inc.

PAH prepared a technical report for Silver Standard in 2001 (Rozelle, 2001) that included a geologic resource estimate. Resources were estimated inside of a mineralized boundary that was developed using a 1.0oz Ag/ton limiting boundary and the drill-hole data. Individual model blocks were 25ft by 25ft in plan, with a block height of 3ft. Underground stopes, drifts, and cross-cuts were incorporated into the model to account for material removed by previous underground mining. The resources were estimated using polygonal and inverse distance to the third power methods and were based on a density factor of 12.0 cubic feet/ton applied to all material. Table 6.3 shows the 2001 geologic resource estimate for the total of all five exploration blocks at cutoffs of 6.0 and 7.0oz Ag/ton.

**Table 6.3 2001 Historic Pincock, Allen & Holt Geologic Resource Estimation**
(From Rozelle, 2001)

| | **Measured** | | **Indicated** | | **Measured + Indicated** | | **Inferred** | |
|---|---|---|---|---|---|---|---|---|
| **Cutoff** (oz Ag/ton) | Tons (thousands) | Ag oz/ton | Tons (thousands) | Ag oz/ton | Tons (thousands) | Ag oz/ton | Tons (thousands) | Ag oz/ton |
| 6.0 | 503 | 11.26 | 1,061 | 11.76 | 1,564 | 11.60 | 1,191 | 15.20 |
| 7.0 | 388 | 12.68 | 788 | 13.60 | 1,176 | 13.30 | 986 | 17.03 |

MDA has not done sufficient work to classify these historical estimates as current mineral resources or mineral reserves, and Aurcana is not treating these historical estimates as current estimates. These historical resource estimates should not be relied upon. These historical estimates are superseded by the current mineral resource estimate described in Section 14.0.

# 7.0 GEOLOGIC SETTING AND MINERALIZATION

The following information is the interpretation and conclusions of the qualified person. The authors have determined that the information provided fairly represents the project geologic setting and mineralization.

## 7.1 Geologic Setting

### 7.1.1 Regional Geology

The following reports have provided background information on the regional geology: Balfour Holdings, Inc. (2000), Rozelle (2001), Rozelle and Tschabrun (2008), Gilmer *et al.* (2003), and parts of a report by Pincock, Allen & Holt (2000b) that were included in Balfour Holdings, Inc. (2000).

Many of the world's largest carbonate-hosted silver-lead-zinc deposits occur in northern Mexico, and some have been in production since the 1600s. These deposits were formed in thick carbonate-dominant Jurassic to Cretaceous basinal sedimentary sequences underlain by Paleozoic or older crust. The Mexican districts lie within, or on the margins of, a major fold and thrust zone. The areas of mineralization appear to be controlled by structures parallel to the trend of the fold and thrust belt. Mineralized and hydrothermally altered intrusive and volcanic rocks of Tertiary age are present in most districts. The styles of mineralization are characterized by geometrically irregular deposits that often have definite structural controls and are not conformable to stratigraphic contacts.

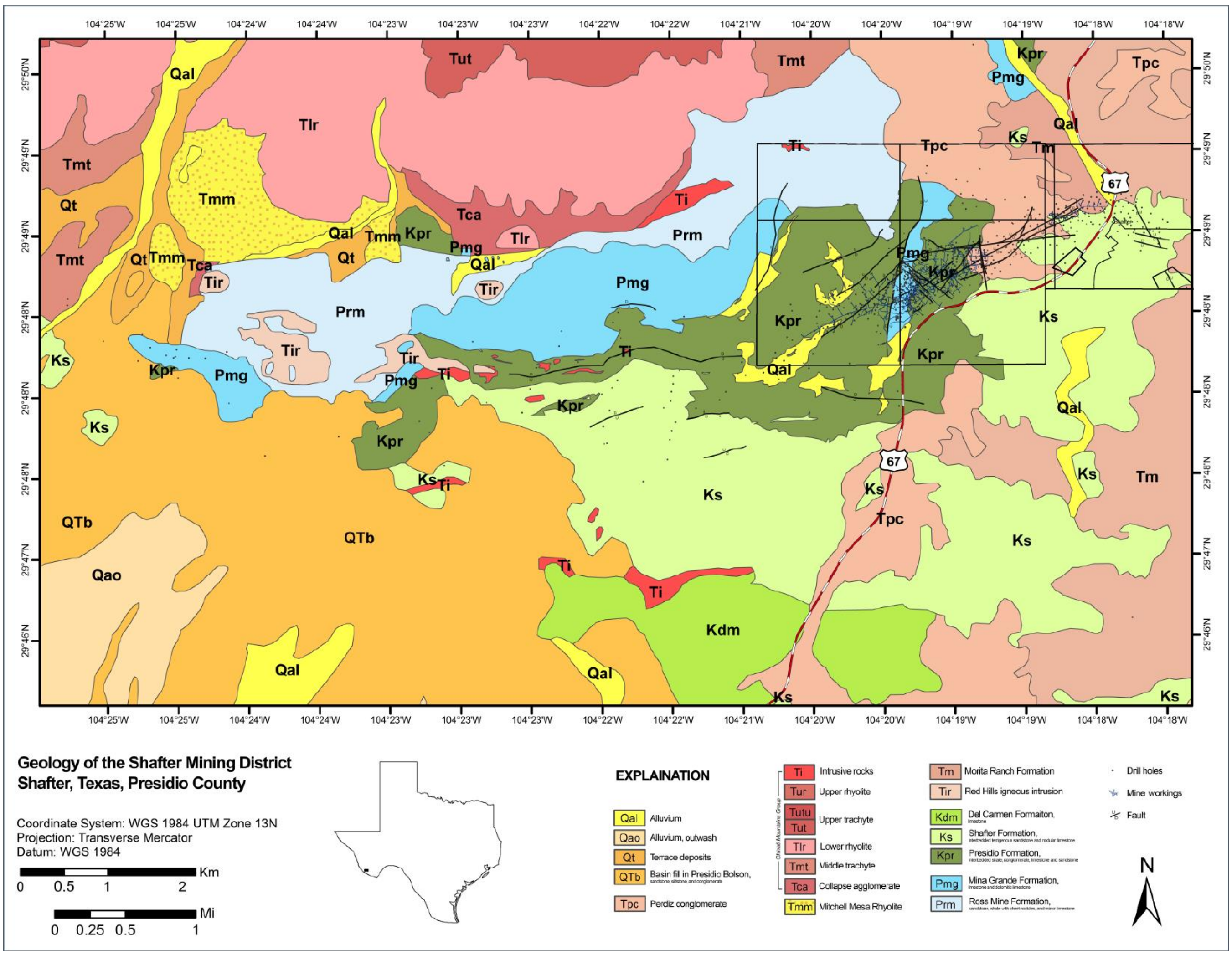
All the carbonate-hosted deposits in northeastern Mexico lie in a tectono-stratigraphic terrain underlain by Paleozoic or older crust. There appears to be no consistent connection between carbonate rock type and mineralization. In some districts, mineralization occurred within numerous different carbonate strata and sedimentary facies through vertical intervals of over 3,000ft. In other places, specific strata or facies contain the bulk of the mineralized rocks. Overall, lithologic contrasts appear to be important, with many deposits containing mineralized zones in carbonate strata within, or below, relatively less-permeable rocks. Mineralization appears to have been controlled by a combination of folds, faults, fractures, fissures, and intrusive contacts that acted as structural conduits for mineralizing solutions. Mineralization apparently occurred between 47 and 26 Ma and is believed to be related to the mid-Tertiary Sierra Madre Occidental volcanic event (Megaw, Ruiz, and Titley, 1988).

The regional geology of southwestern Texas is similar to that of northern Mexico, with a thick Jurassic-Cretaceous sedimentary basin overlying older Paleozoic basement (Figure 7.1). The sedimentary basin contains thick carbonate sequences which extend over 1,000 miles in length from southeastern Arizona and southern New Mexico through northern Mexico and southwestern Texas. This thick sequence of Mesozoic sedimentary rocks represents a transgressive succession deposited during the subsidence of the eastern part of the basin and the formation of an island-reef-basin environment. The carbonate rock formations in the basin sequence often exceed 10,000ft in thickness and consist of continuous sections of platform- and basin-deposited limestones with minor dolomite sequences.

During the late Cretaceous-early Tertiary Laramide orogeny, the Jurassic-Cretaceous rocks in southwestern Texas were folded, overturned, and cut by thrust faults in the intensely deformed Chihuahua tectonic belt. To the east lies the relatively stable Diablo platform, where corresponding Cretaceous rocks are flat lying. The Shafter district lies in the boundary area between the deformed Chihuahua tectonic belt to the west and the stable Diablo platform to the east.

The silver-lead-zinc deposits in the basinal limestone sequences of southwestern Texas are referred to as "high-temperature, carbonate-hosted deposits" because of their irregular, but sharp contacts with their enclosing host rocks (Megaw, Ruiz, and Titley, 1988). At Shafter, Permian basinal limestones are the main hosts for silver mineralization, although overlying Cretaceous carbonate rocks are also mineralized. Regionally, the carbonate deposits of northern Mexico lie along or near the eastern limit of mid-Tertiary volcanic fields and their eastern outliers, as does the Shafter silver deposit. Voluminous magmatism between 38 and 31 Ma generated a number of calderas in west Texas, including the Chinati Mountains caldera, which includes differentiated alkali-calcic to alkalic suites of ash-flow tuffs, intra-caldera lava flows, and intrusions just west of the Shafter deposit.

**Figure 7.1 Regional Geologic Map of the Shafter Project**



### 7.1.2 Local Geology

The following reports have provided background information on the local geology: Ross and Cartwright (1935), Ross (1943), Rozelle and Tschabrun (2008), Pincock, Allen & Holt (2000b; report portions included as an appendix in Balfour Holdings, Inc., 2000), Bogle (2000), Gilmer *et al.* (2003), and Kastelic (1983).

The Shafter mining district is a rectangular area, approximately six miles east and west by three miles north and south, with the town of Shafter situated in the northeast part of the district. The district is located on the southeast flank of the Chinati Mountains, adjacent to a Tertiary volcanic caldera. Outcrops in the district are predominantly Permian and Cretaceous limestone, dolomite, siltstone, and sandstone, which were tilted by folding and uplift during the Laramide orogeny and later cut by Tertiary intrusions. The Tertiary intrusions may have been the heat source for the silver mineralization at Shafter (Balfour Holdings, Inc., 2000), although there is no direct evidence for that in the vicinity of the Shafter deposit, as discussed in Section 7.2.

The strata in the Shafter mining district appear to form part of a broad dome with cross-cutting faults that may have localized the mineralization at the Presidio mine.

Figure 7.2 shows the geology of the Shafter property and surrounding area as compiled by Aurcana Corp.

#### 7.1.2.1 Permian Stratigraphy

The oldest rock unit exposed in the Shafter district is Permian limestone, with some interlayered shale and other sedimentary rocks. These Permian carbonate and siliciclastic rocks were deposited in the Marfa Basin, the westernmost of three large Permian sedimentary basins in west Texas. Permian carbonate rocks are the main hosts for the district's silver mineralization. The Permian units have a combined thickness of more than 1,000ft in the vicinity of Shafter and are subdivided into the following formations from youngest to oldest:

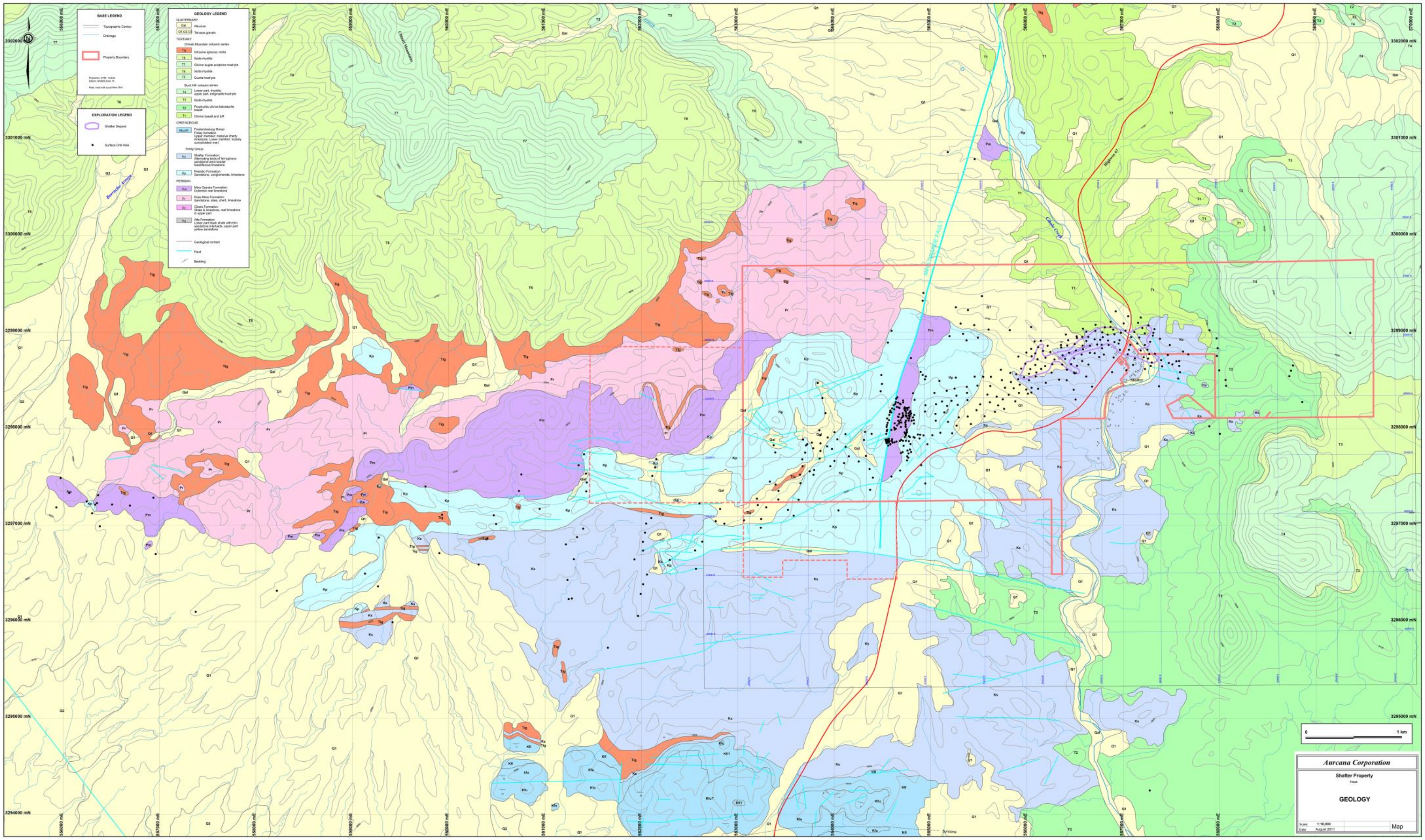
- Mina Grande Formation – Erosional remnants of massive, yellowish, dolomitic limestone, correlative with limestone at the top of the Permian Cibolo Formation elsewhere in the Shafter region, overlie reef-derived talus and fore-reef facies limestone.

- Ross Mine Formation – Alternating beds of black limestone, chert, and yellow sandy shale become more calcareous in the upper part.

- Alta Formation - Shale at the base grades up into yellow sandstone at the top.

- Cieneguita Formation – This basal unit contains shale, chert, and beds of limestone and conglomerate. Peterson (1973) describes this unit as Pennsylvanian.

**Figure 7.2 Geology of the Shafter Property**
(From Aurcana Corp., 2013)



#### 7.1.2.2 Cretaceous Stratigraphy

Cretaceous rocks of the Trinity Group unconformably overlie the Permian units in the Shafter district. The Trinity Group includes the Presidio Formation, which is 450ft thick, and the Shafter Limestone, which is greater than 1,000ft thick. The Cretaceous units cover much of the Permian strata and may be mineralized in places themselves.

The Presidio Formation crops out near the Presidio mine and consists of five major subdivisions, although there is considerable lateral variation in lithology and thickness of the units:

- Cap Rock Unit - 25 to 50+ft thick with massive, hard, arenaceous limestone and some beds of calcareous sandstone
- Shell Breccia Unit - 110 to 165ft thick with soft sandstone, arenaceous limestone, and two rather thick shell breccias
- Tripartite Unit - 75ft+ thick with medium-bedded to massive limestone, shell breccia, and massive partly calcareous sandstone
- Conglomerate Unit - 90 to 120ft thick with arenaceous limestone, calcareous sandstone, and conglomerate
- Basal Unit - 50 to 90ft thick with soft marl, clay, arenaceous limestone, calcareous sandstone, and shell breccia.

The Shafter Limestone is exposed around the town of Shafter and forms a prominent range of hills about three miles southeast of Shafter. The unit rests unconformably on the Presidio Formation. The unit is of Upper Cretaceous age and is more than 1,000ft thick. The unit is primarily limestone with interlayers of marl and sandstone. The unit has less variation than the Presidio Formation, but facies changes from sandstone to limestone can be abrupt.

Overlying the Shafter Limestone is the 80 to 120ft-thick Walnut Formation of the Fredericksburg Group. This unit is distinguished from the Shafter Limestone by having less limestone, a greater proportion of marl and clay, and very little sandstone. A thick succession of massive limestones overlies the Walnut Formation and was designated the Devils River Limestone (Ross, 1943).

#### 7.1.2.3 Igneous Rocks

Mid-Tertiary volcanic rocks are present along the edges of the Shafter district, and intrusions of andesite and diorite are present within the district, including at the Red Hills west of Aurcana’s property. In the central part of the Chinati Mountains and on the plateau east of Shafter, trachyte, rhyolite, andesite, and tuffs of Tertiary age are exposed. The Chinati Mountains Group of peralkaline rhyolite and trachyte flows and tuffs of Oligocene age is almost entirely confined to the Chinati Mountains caldera. The Chinati Mountains caldera, which has been dated at 32 Ma, was a major volcanic center that produced an alkali-calcic suite of ash-flow tuffs, flows ranging from basalt to rhyolite and trachyte, and intrusions of gabbro, alkali granite, and alkali granophyre. The Morita Ranch Formation, composed of basalt, rhyolite, and ash-flow tuff, lies east, south, and north of Shafter and is older than the Chinati Mountains Group. These volcanic rocks rest unconformably on the Cretaceous units and have undergone some faulting but only minor deformation.

Southeast of the Chinati Mountains, a circular intrusive stock, variously described as hornblende-augite andesite (diorite?), quartz monzonite, monzonite, or latite porphyry, crops out in the Red Hills. The Red Hills stock has been dated at 64 to 60 Ma (Gilmer *et al.*, 2003). The Red Hills are less than a mile south of the structural margin of the Chinati Mountains caldera. However, the radiometric age of the Red Hills stock demonstrates that it pre-dates the Chinati Mountains caldera and is part of the older Laramide magmatic arc that accompanied Laramide deformation as far east as the Trans-Pecos region of southwest Texas (Gilmer *et al.*, 2003). The Red Hills intrusion has been explored as a copper-molybdenum porphyry prospect. This stock is about four miles west of the Presidio mine and about one mile west of the western margin of the Shafter property described in this report.

Andesitic and basaltic dikes are reported from the immediate vicinity of the Presidio mine, while farther west, basaltic and andesitic sills that are locally up to 100ft thick intrude the Permian and Cretaceous strata. Diorite porphyry intrudes the lower part of the Permian sequence and extends beneath the Tertiary flows west and north of Aurcana's property.

### 7.1.3 Property Geology

The following reports have provided background information on the property geology: Rossi and Springett (1995), Lambeck (2012), Ross and Cartwright (1935), Ross (1943), a portion of a report by Pincock, Allen & Holt dated 2000b that is included in the appendix of Balfour Holdings, Inc. (2000), and Rozelle (2001).

At the Shafter deposit, the massive limestone at the top of the Permian Cibolo Formation, beneath the unconformable contact with the Cretaceous Presidio Formation, was the most favorable to replacement by solutions. In the vicinity of the mine, this unit is called the Mina Grande Formation. The erosional surface of the Mina Grande Formation developed karst topography, which provided large open areas that served as channels for mineralizing solutions. Silver and base metal minerals were deposited where conditions were favorable. The Mina Grande limestone formed as a Permian reef and has over two miles of mineralized strike length. It is up to 200ft thick and is composed of massive to thin-bedded wackestone to packstone and carbonate mudstone that have been divided into three broad units from bottom to top (Bogle, 2000, and Head, 2002): Basal unit consisting of unaltered or only slightly dolomitized wackestones to packstones (Fore Reef facies of Kastelic, 1983); Pseudobreccia unit of clasts of Mina Grande Formation in a matrix of orange-, red-, and brown-stained dolomite and fossiliferous limestone that shows evidence of dissolution during subaerial exposure (Reef Talus facies of Kastelic, 1983); and Massive unit directly below the Permian-Cretaceous unconformity that is a dolomitized unit with few to no original structures of fabrics evident (Massive Dolomite facies of Kastelic, 1983). The Mina Grande Formation is unconformably overlain by the Cretaceous Presidio Formation, which is in turn overlain by the Shafter Limestone. Narrow andesitic and basaltic dikes were reported by Ross (1943). Fissures and faults are present in all areas of the Presidio mine workings.

Several high-angle faults in the area may have been the main channels for the mineralizing solutions, and high-grade pockets of mineralization occurred within the karsts (Silver, 1999). The mineralization appears to have been controlled by east-trending faults, often where intersected by strong north-south faults such as the Mina Grande fault. The Mina Grande fault strikes N10°E and has a displacement of 300 to 400ft. It is near the west end of the Shafter deposit and has displaced the mineralized horizons downward to the west (Kastelic, 1983). Northwest- and northeast-trending faults of regional extent also cross the Shafter property (Lambeck, 2012).

## 7.2 Mineralization

The following reports have provided background information on the mineralization: Ross (1943), Corbett (1979), Kastelic (1983), Rossi and Springett (1995), Rozelle (2001), Head (2002), Rozelle and Tschabrun (2008), Shannon (2012), and Lambeck (2012), with additional information as cited.

The Shafter deposit is hosted within the gently dipping beds of the Permian Mina Grande Formation, just below their contact with Cretaceous rocks. The reef-derived dolomite and limestone of the Mina Grande Formation were susceptible to differential weathering and karst activity at the upper level of the formation, and passageways for mineralizing solutions formed along facies contacts and bedding planes.

The deposit is parallel to the bedding, has a tabular form, and is called a *manto* deposit, following colonial Spanish terminology for a blanket-like or tabular mineralized body. The deposit has some irregularities in its shape but dips generally east. Veins containing the same minerals as the *manto* are common in the eastern part of the Shafter district. Many of these veins are fissure fillings and have brecciated zones. Rozelle (2001) stated that the mineralization took place after the intrusion of dikes and sills of Tertiary age, and Ross (1943) reported that dikes in the Presidio mine are somewhat mineralized. In contrast, Lambeck (2012) reported that a dike in Aurcana's drill hole 201200694 cross-cuts mineralization. There has been no radiometric dating of minerals associated with the Shafter deposit, and a source for the mineralizing fluids has not yet been identified.

Mineral deposition took place in four main phases: (1) a limited amount of dolomitization; (2) silicification; (3) deposition of calcite and metallic minerals including galena, sphalerite, and acanthite; and (4) supergene alteration. Aurcana identified two separate stages of metal mineralization on the Shafter property – an initial lead stage potentially associated with the north-trending Mina Grande fault, followed by a second stage consisting of silver and anomalous lead and zinc, thought to be associated with the Herculano fault system and multiple east-trending faults that served as distal feeder systems (Lambeck, 2012). Contacts of the mineralized zones with unaltered wall rocks are generally sharp.

Based on drilling by Gold Fields, silver mineralization located to the east of the Presidio mine historical workings (designated Block Groups I and II in the historical reports and re-named the Shafter area for use in this report) appears to be continuous within the *manto* deposit, which extends over 6,000ft of strike length along a zone trending roughly N60°E and lies between 700 and 900ft below the surface. The entire Presidio/Shafter deposit is up to 1,500ft wide in a north-south direction and extends at least 2.5 miles on an east-west trend (Balfour Holdings, Inc., 2000). There appears to be a high-grade core within the broader mineralized zone located just below the Cretaceous-Permian unconformity. The high-grade core is very continuous east of the Presidio mine workings in the Shafter area and in the upper workings of the Presidio mine (Balfour Holdings, Inc., 2000).

About 5,000ft northeast of the eastern limit of stoping in the Presidio mine, silver values decrease markedly. About 1,000ft further east, the favorable Basal and Pseudobreccia units of the Mina Grande Formation were removed by pre-Cretaceous erosion or dolomitization (Kastelic, 1983). West of the Presidio mine, dolomitization has also destroyed much of the favorable host rock for the Shafter-type mineralization (Kastelic, 1983).

The mineralized material consists of a massive aggregate of medium-grained, vuggy silica stained with varying amounts of iron and manganese oxides. Mineralogy is fairly consistent within the district. The mineralization originally consisted of sulfide minerals, which are now almost thoroughly oxidized. Secondary minerals include iron and manganese oxides, acanthite, hemimorphite, descloizite, embolite, plumbojarosite, cerargyrite, native silver, cerussite, anglesite, and small amounts of covellite, chrysocolla, and possibly other copper minerals. Primary minerals include dolomite, calcite, quartz, pyrite, sphalerite, galena, argentite, chalcopyrite, covellite, molybdenite, and tetrahedrite. Silver occurs predominately as oxidized acanthite in fine-grained aggregates of quartz, calcite, and goethite, with lesser dolomite, hemimorphite, willemite, anglesite, galena, smithsonite, and sphalerite. Lead and perhaps zinc appeared to be more plentiful relative to silver in the outlying mines of the district than in the Presidio mine, although the outlying mines are scattered and were poorly developed so generalizations are difficult (Ross, 1943).

### 7.2.1 Structure and Control of Mineralization

The sequence of Late Carboniferous to Late Cretaceous sedimentary rocks in the Shafter mining district has been folded and forms a broad dome. The doming may be related to intrusive activity and is probably related to the Laramide orogeny. In the vicinity of the Presidio mine, beds dip southeast and south. Permian rocks in the Presidio mine are bounded on the west by a persistent fault, the Mina Grande fault, which strikes roughly north-south and drops beds about 270ft to the west (Balfour Holdings, Inc., 2000). Bodies of Permian rock are located along this fault zone, which has been traced at the surface for over a mile in length and cuts sharply across the trend of the Cretaceous rocks. Several other faults in the area parallel the Mina Grande fault.

Extensive alteration and silver mineralization with anomalous lead and zinc values were observed in the east-trending Herculano fault system, which lies east of the Mina Grande fault (Lambeck, 2012). The underground workings of the old Presidio mine lie south of the Herculano fault, while the northeastward extension of mineralization found by Gold Fields lies north of the Herculano fault.

Faults and dikes are exceptionally numerous and closely spaced in the immediate vicinity of the Presidio mine. Mineralized bodies show more closely spaced fractures than the unaltered limestone nearby. Ross (1943) notes the following structural features in and near the Presidio mine that appear to determine the distribution of mineralization:

- Numerous steep faults, many of which do not have the same strike or dip as known faults in the surrounding region;
- Numerous narrow dikes in contrast to the sills in the region to the west; and
- Relatively large amount of shattering in the mineralized rock.

The Mina Grande Formation in the vicinity of the Shafter deposit had both a diagenetic and structural history that prepared it for hydrothermal mineralization (Head, 2002). Multiple phases of dolomitization and calcification, karstification during post-Permian uplift, and multiple phases of fracturing all increased permeability, conducive to subsequent mineralization.

### 7.2.2 Additional Historical Prospects

There are other prospects and occurrences of mineralization within and adjacent to Aurcana's Shafter property, but they are well outside the boundaries of the mineral resource described in this report. Past production, if any, was small. Most of the following information has been summarized from Ross (1943), Rozelle (2001), and Rozelle and Tschabrun (2008). This information is included in the interest of full disclosure.

Regional N70°E-trending structures are associated with a bedded zinc deposit and several high-grade lead-zinc veins (often with some minor gold values) at the Montezuma, Chinati, Perry, Stauber, and Gleim workings (see Figure 4.2 for locations). All of these workings lie within the boundaries of Aurcana's Shafter property.

The Gleim prospect is located about a mile south-southwest of the old Presidio mine, close to the highway to Presidio, on the eastern edge of Section 6 in the southern part of the Shafter property. Little is known about this prospect. The upper Presidio Formation is exposed at the surface, and there is a steeply dipping calcite vein that trends east to N70°E. Gold Fields drill hole SD 264 encountered seven feet of 10oz Ag/ton, 0.07oz Au/ton, 4 percent lead, and 2 percent zinc at 393ft. Samples containing high gold values were reportedly taken at the east edge of the Gleim property (Rozelle and Tschabrun, 2008).

At the Stauber prospect west of the Gleim workings, in the western part of Section 6, silicified and otherwise altered rock containing silver and lead is associated with calcite veins in Cretaceous strata. Similar mineralization occurs south of the Perry prospect, which is located in Section 2. Surface exposures show considerable faulting at the Stauber prospect.

Kastelic (1983) noted that other small deposits, situated west-southwest of the Shafter deposit, were prospected mostly for their lead and zinc values, with only minor amounts of silver and gold. The Perry, Chinati, and Montezuma prospects are located 1.5 to two miles west of the Mina Grande fault in an area that drilling has shown contains high zinc values (Kastelic, 1983). Mineralization occurred primarily along steep fracture planes in the Perry prospect in Section 2. Small masses of galena and its oxidation products were found in and near the Perry workings in limestone close to the top of the Cibolo Formation; some of the rock was said to contain as much as 15 percent lead (Ross, 1943). The main mineralization occurred along a fracture zone that trends N50°E and dips steeply northwest. Locally the mineralization spread along bedding at the top of the Permian limestone.

At the Chinati and the Montezuma prospects in Section 2, west of the Perry prospect, workings explored thrust faults in a zone striking nearly east, with fracture planes dipping north generally 30-40°, but up to as much as 65°, opposite to the dip of the Permian limestone. These faults served as channels for mineralization. This is the only example of mineralization in the district known to be associated with thrust faults. Zinc was recovered from oxidized bodies in both mines. The Chinati and Montezuma prospects are in thick-bedded Permian limestone.

Gold Fields discovered a large zone of bedding-controlled and oxidized zinc mineralization during their regional drill program. Their north-south drill fence with SD 313, SD 316, and SD 317 intersected six feet of 10 percent zinc mineralization extending 1,200ft down-dip from the Montezuma workings. Drill hole SD 313, located approximately 200ft south of the Montezuma prospect, encountered two six-foot zones with 14 percent zinc, and the bottom horizon contained 0.03oz Au/ton. A 4 percent to 6 percent zinc zone was also encountered in Gold Fields' drill holes along strike in fences 2,000ft to the east and 3,000ft to the west of the Montezuma workings.

# 8.0 DEPOSIT TYPES

The Shafter silver deposit is considered an example of a polymetallic replacement deposit. Because of their irregular, but sharp contact with the enclosing carbonate host rocks, deposits of this type have been categorized as high-temperature, carbonate-hosted deposits. Other mining districts with examples of this deposit type are: Leadville, Colorado, Tintic, Utah, and Zacatecas, Mexico.

Polymetallic deposits consist of massive lenses and (or) pipes, known as mantos or replacement orebodies, and veins of iron, lead, zinc, and copper sulfide minerals that are hosted by and replace limestone, dolomite, or other sedimentary rocks; most massive deposits contains more than 50 percent sulfide minerals. Sediment-hosted deposits commonly are intimately associated with igneous intrusions in the sedimentary rocks. Emplacement of these intrusions triggered mineral formation and they host polymetallic veins and disseminations that contain iron, lead, zinc, and copper sulfide minerals. Some polymetallic replacement deposits are associated with skarn deposits in which host carbonate rocks are replaced by calc-silicate±iron oxide mineral assemblages. Most polymetallic vein and replacement deposits are zoned such that copper-gold mineralization is proximal to intrusions, whereas lead-zinc-silver mineralization is laterally and vertically distal to intrusions.

There is little evidence in the Shafter district to indicate the source of the mineralizing solutions. No evidence of contact metamorphism has been noted, and this may indicate that the mineralizing solutions had traveled some distance, either horizontally or vertically through the stratigraphy.

# 9.0 EXPLORATION

The information is the interpretation and conclusions of the qualified person based on the reports cited.

The exploration data have been reviewed and summarized from Lambeck (2012), Lambeck *et al.* (2013), and Aurcana news releases (March 5, 2012; June 6, 2012; April 3, 2013), with additional information provided by Aurcana. The authors have determined that the information provided fairly represents the exploration conducted by Aurcana on the Shafter property.

Aurcana's non-drilling exploration activities are relatively limited, and consist of geophysical surveys, geologic mapping, and limited rock and chip sampling.

From acquisition of the property in 2008 to 2011, Aurcana's work at the Shafter project was focused on completion of the permitting required to commence production and on initiating construction of a mine and mill.

Aurcana began exploration at Shafter in May 2011 with creation of an updated database that included Gold Fields' exploration data from 1977 to 1983. Geotech Ltd. performed a regional helicopter-borne ZTEM and aeromagnetic survey covering 51 square miles in May 2011 (Tong and Legault, 2011). A total of 748.7 line-kilometers of data were collected. The principal geophysical sensors were a Z-axis Tipper electromagnetic ("ZTEM") system and a cesium magnetometer. The survey was flown in a northwest to southeast direction, with a flight-line spacing of 200m; tie lines were flown perpendicular to the traverse lines at a spacing of 2,350m. Aurcana reports that the survey tested for conductivity responses indicating sulfide mineralization, resistivity responses indicating silicification, and magnetic responses indicating potential buried intrusive source rocks. Strong resistivity responses were detected that mirrored the strike of the Shafter deposit and correlated with silicification surrounding known mineralized zones. While the ZTEM magnetic data were of interest from a regional perspective and indicated a number of broad, anomalous features, interference from power lines made the data difficult to interpret relative to geologic features found during drilling.

Field mapping traverses were completed in the northwestern part of the property (sections 4 (S) and 9 (S)) in 2012 to investigate areas of silicification and alteration. Alteration was noted in the Mina Grande Formation, and siliceous veins and iron oxides were noted in outcrops of limestone (Lambeck, 2012).

Zonge International Inc. ("Zonge") of Tucson, Arizona, was contracted to conduct an NSAMT orientation survey over the Shafter deposit, with approximately 40 line-kilometers of survey conducted on 10 lines. However, the study was not completed due to technical reasons (Lambeck, 2012). Interpretation of results was hampered by interference from power lines and project infrastructure. The survey did indicate an anomalous zone striking north-south, parallel to the Mina Grande fault, locally known as the Presidio horst. Structural interpretation of Landsat data confirmed the presence of a parallel fault structure, but a hole drilled in 2012 to intersect the inferred anomaly did not intersect mineralized rocks or the fault structure (Lambeck, 2012).

In 2012, historical workings of the Mina Grande open pit were surveyed and chip sampled on four levels to a depth of 80ft to determine the extent of the mineralized area. Also in 2012, a geochemical study was completed on the intrusive rocks in the Herculano fault system based on 10 samples. The data suggest that the Herculano dike is a basaltic andesite.

During 2013, Aurcana undertook field mapping to identify zones of favorable structural and stratigraphic settings for mineralization, especially in the southwest part of the property (von Fersen *et al.*, 2013). Surface work included limited rock geochemical sampling of gossanous outcrops and goethitic fracture fillings. Underground reconnaissance was undertaken to investigate the extent of mine workings and stopes, as well as the structural framework of this same area and of the Presidio mine area. Selected intervals of historical Gold Fields drill core were re-assayed to determine a district-wide geochemical footprint of the Shafter deposit. Historical drill core near the Shafter deposit was re-logged to re-evaluate controls on mineralization. In addition, an ioGAS data analysis was undertaken using 2012 drill-core assay data, Gold Fields drill-core re-assay data, and historical Ag-Au-Pb-Zn data.

Due to the sporadic and very limited nature of the geochemical sampling, the sampling is not considered relevant, nor are any of the results considered significant, to the current project and specifically to the mineral resource estimate described in Section 14.0. Therefore, further analyses on sampling methods, quality, and representativity were not conducted.

# 10.0 DRILLING

The information provided is the interpretation and conclusions of the qualified person based on the reports cited. The authors have determined that the information provided fairly represents the drilling activities conducted by Aurcana and previous operators on the Shafter property.

## 10.1 Summary

The following information has been reviewed and summarized from Tietz and MacFarlane (2016), which is still considered current since there has been no further drilling since 2013 on the Shafter property.

The Shafter project has been drilled by three companies from both surface and underground locations – Amax, Gold Fields, and RGMC. A summary of the drilling conducted by the various companies is shown in Table 10.1. Drilling by RGMC both before its acquisition by Aurcana and after the acquisition is grouped under RGMC in Table 10.1. A total of 1,694 drill holes are included in the present database for the Shafter project. Of these, 1,606 are diamond core holes, and 88 are RC holes. Since publication of the previous technical reports, approximately 800 holes have been added to the database, including a considerable number of underground and surface holes drilled by Amax (Table 10.1), as well as holes drilled by Aurcana (RGMC 2011-2013 in Table 10.1) and a few additional Gold Fields holes.

Most of the surface drill holes east of the Presidio mine workings in the Shafter area of the deposit were drilled by Gold Fields and spaced 100 to 300ft apart, with an average spacing of approximately 200ft. Underground holes by Gold Fields within the same area were drilled from stations at a variety of angles along lines spaced 50ft apart. Underground holes by Amax in the eastern portion of the Presidio mine workings were drilled from stations at a variety of angles, with stations spaced 100 to 200ft apart. Surface drill holes around the Presidio mine workings were drilled by Gold Fields, with some older holes by Amax, and some newer holes by RGMC/Aurcana. The surface holes in these blocks are more widely spaced, ranging from 100 to 400ft. Underground holes by Amax were drilled from stations along drifts at a variety of angles and spaced from 50 to 300ft apart. Drilling in 1998 by RGMC explored shallow mineralization immediately east of the Mina Grande fault based on mineralization of surface outcrops.

Since its acquisition by Aurcana, RGMC has drilled 65 surface core holes and 90 underground core holes for a total of 63,087.5ft. Of the 65 surface holes, 29 were drilled for exploration, totaling 35,977ft. These holes were drilled at dips between -45° and -70°. The remaining 36 surface core holes totaling 11,874ft were drilled in 2012 and were designed by the mine geology department for a near-surface mine infill program; dips ranged from -65° to -90 °.

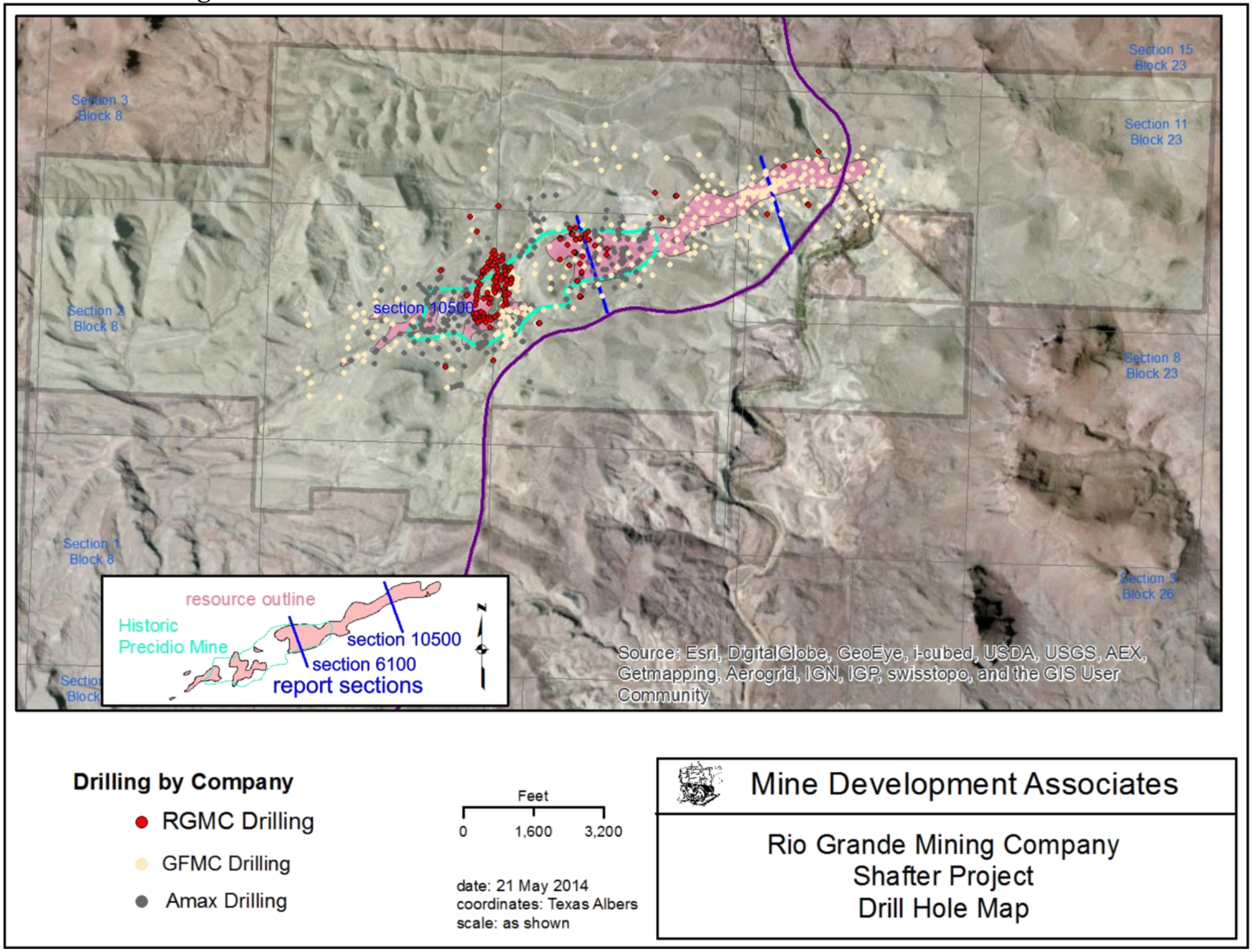
Not included in the resource database or in the total RGMC drilling noted above are eleven underground core holes completed by Aurcana in late 2013 after the database was finalized for use in the resource estimate.

Figure 10.1 shows the locations of drill holes used for the resource estimate described in Section 14.0.

## Table 10.1 Summary of Drilling in the Shafter Project Mineral Resource Database

| Company | Date | Core | | | | RC | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | Surface | | Underground | | | | | |
| | | # of holes | Footage | # of holes | Footage | # of holes | Footage | # of holes | Footage |
| Amax | 1926-1940 | 56 | 22,332 | 992 | 156,302 | | | 1,048 | 178,634 |
| Gold Fields | 1977-1982 | 314 | 211,136 | 89 | 7,719 | | | 403 | 218,855 |
| RGMC | 1998<br>2011-2013 | 65 | 47,851 | 90 | 15,236.5 | 88 | 5,712 | 88<br>155 | 5,712<br>63,087.5 |
| ***Total*** | | 435 | 281,319 | 1,171 | 179,257.5 | 88 | 5,712 | 1,694 | 466,288.5 |

**Figure 10.1 Location of Drill Holes Utilized in the Shafter Resource Estimate**



## 10.2 Drilling by Previous Operators

The Amax and Gold Fields drilling was by diamond core though there is limited information on drilling contractors, drill-rig types, and procedures used by Gold Fields (Springett, 1984) and RGMC (1998 drilling) and no such information for the Amax drilling.

The database contains information on 56 surface core holes and 992 underground core holes drilled by Amax. In the process of reviewing and auditing the source information (detailed cross-sections and plan maps), it was realized that a significant number of Amax drill holes were missing from the database. The hole locations (to an approximate 5-10ft collar accuracy), downhole orientations, sample assays, and general geology of these missing holes were compiled by MDA resulting in the addition of 589 underground holes and 56 surface core holes to the database.

The database contains information on 314 surface core holes and 89 underground core holes drilled by Gold Fields. For their surface drill holes, Gold Fields used Longyear Drilling Co. as the drill contractor for their SD-1 through SD-23 holes and Boyles Brothers for the remaining SD- series, SPMD (SM)- series, and SPSC- series holes. Boyles Brothers used a truck-mounted diamond core rig for all of the surface drilling. Drill logs for the SD-, SPMD (SM)-, and SPSC- series of Gold Fields' surface holes indicate core was NC and NX size, but data are incomplete. It appears that NC holes were downsized to NX and BX as necessary. A few holes were started with a rotary drill, changing to NX coring.

Drill logs for the SU- series of underground core holes drilled by Gold Fields in 1981-1982 indicate that American Mine Services Inc. was the drill contractor. Holes were drilled from a track-mounted rig and were of BX size (Springett, 1984).

Although the database does not contain results from the percussion holes drilled by Gold Fields, Springett (1984) reported that they were drilled with a rubber-tired long-hole machine. A short, secondary percussion hole was drilled slightly below the collar of the percussion long-hole to enable sludge collection (Gold Fields Operating Co. – Shafter, undated). The percussion drill program has not been compiled and these samples are not part of the current database.

RGMC drilled 88 RC holes in October and November 1998 prior to the company's acquisition by Aurcana. Dateline Drilling, Inc. was the drill contractor, according to the drill logs.

## 10.3 Drilling by Aurcana Corporation

The following information was taken from Aurcana news releases (March 5, 2012; June 1, 2012; April 3, 2013) with additional information from Lambeck (2012) and as provided by Aurcana. This section describes drilling by Aurcana that is shown in Table 10.1 as RGMC 2011-2013 drilling.

Aurcana began drilling at Shafter in November 2011 (S-11-401 was the single hole drilled in 2011) and concluded in 2013 (Lambeck, 2012). Both surface and underground core drilling was conducted during this period. Of the 65 surface holes, 29 were drilled as part of the exploration program, while 36 were drilled by the mine geology department for mine infill drilling. Boart Longyear and Connors Drilling were the drill contractors for the surface holes drilled in 2011 and 2012, drilling HQ core holes with reduction to NQ core as necessary. Three drill rigs were used: one LY-44 and two LF-90s, one of which was truck mounted and one track mounted. The Boart Longyear LF-90 truck-mounted rig was the most productive rig used, but their LY-44 rig was inefficient and unable to cope with the difficult drilling conditions. Connors used the track-mounted LF-90, which was deemed too slow to move around the property. Holes from the exploration program were drilled at angles from 45° to 70° in an attempt to identify a vertical feeder system for the mineralization (Lambeck, 2012).

Of the 90 underground core holes in the database, five were drilled as part of the exploration program with the rest drilled by the mine geology department. Aurcana purchased a Boart Longyear Skid Steer LM 30 core drill in August 2012 for underground drilling that was put into use in mid-2013. Logs of the underground core holes show that some holes were also drilled by Connors Drilling; core size was NQ. Of 81 logs of the underground core holes reviewed by MDA, 24 holes were drilled by Connors Drilling, and 57 do not have the drilling company identified but may have been drilled by Aurcana.

Not included in the resource database or in the total RGMC drilling noted above are eleven underground core holes completed by Aurcana in late 2013 after the database was finalized for use in the resource estimate. A 2015 review of these eleven drill holes indicates that their inclusion would not have a material impact on the resource model or the resource estimate.

All core logging for the 2011-2012 surface drilling was completed with hand-held Trimble Juno Units using GeoInfo Mobile software and imported into a GeoInfo Tools database (Lambeck, 2012). Logging included lithology, formations, recovery, RQD, structures, alteration, mineralogy, intervals of silver-bearing clays and sand called the Jaboncillo interval, vuggy intervals, and in a few holes, fluorescence (Lambeck, 2012).

## 10.4 Drill-Hole Collar Surveys

Drill-hole collar locations for holes drilled prior to Aurcana's drilling were reportedly (Rozelle, 2001) surveyed to determine the collar coordinates. Collars for Aurcana's underground holes were surveyed by Aurcana staff. Collars for Aurcana's surface holes were surveyed by Tony Trujillo Land Surveying.

## 10.5 Down-Hole Surveys

Pincock, Allen & Holt (2000a; 2000b, portion of a report included in the appendix of Balfour Holdings, Inc., 2000) reported that most of the 891 holes in the database for the Shafter project at the time of their report had not been surveyed for down-hole deviations, and that for those holes for which down-hole surveys were recorded on the drill logs a "problematic degree of drift" was not indicated.

The current database has no down-hole survey data for any of the Amax or Gold Fields holes. However, handwritten notes on drill logs for some of the SD- series holes, most of the SPMD- holes, and some of the holes from SPSC-217 to SPSC-309 indicate that these holes were down-hole surveyed, most likely with a single-shot camera. For most of these holes, the down-hole information consists of a single dip reading at or near the final drill depth. No azimuth is provided. These holes were all drilled as vertical holes and the occasional dip reading indicates only a minor deviation of less than 5 degrees from vertical. None of these sporadic data has been tabulated or included in the current database.

For Aurcana's 2011-2012 drilling, all of the surface core holes were surveyed down hole and these data was available for MDA's review. The surface holes were surveyed to the total depth with either a REFLEX Ez-Shot single-shot camera or a REFLEX EZ-TRAC multi-shot camera (Lambeck, 2012). The exploration holes were surveyed at 20 or 50ft intervals. It was noted that the data for holes S-12-438 to S-12-462 were inconsistent, and the tool was replaced for subsequent holes; the inconsistent data were attributed to the accelerometers in the tool being damaged due to excessive shock, which resulted in poor constant on the azimuth, resulting in a lack of information on the actual drift in these holes (Lambeck, 2012). Lambeck (2012) reported that it was assumed that the holes were set up at the intended azimuth and dip. Aurcana notes that Holes S-12-417, S-12-438, S-12-439, S-12-440, and S-12-459 had significant errors in their survey data.

REFLEX Ez-shot data for 17 of the 2012-2013 underground holes was available for MDA's review and verification.

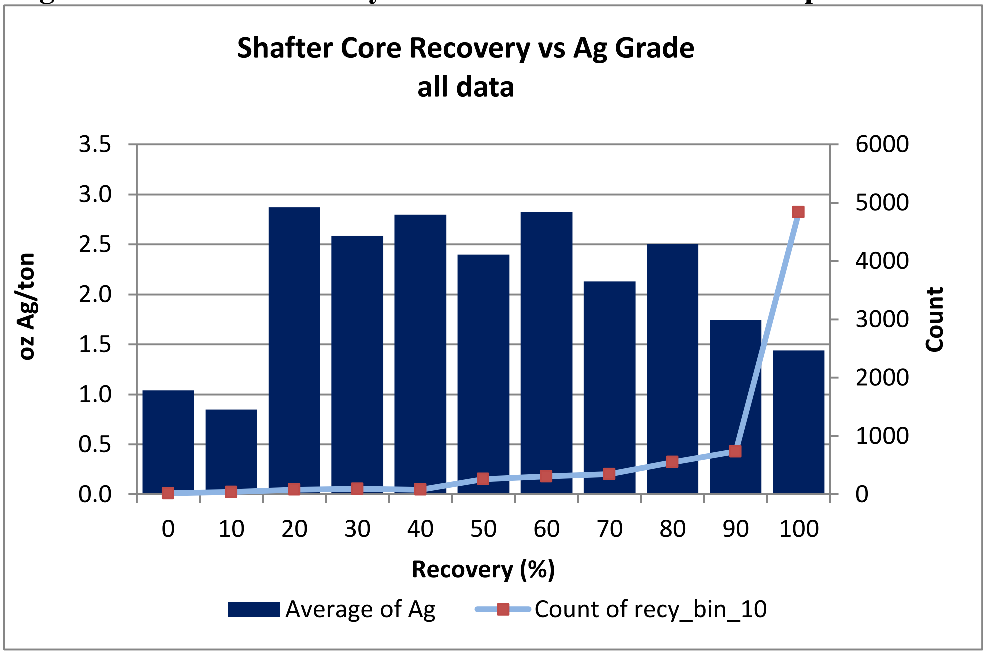
## 10.6 Core Recovery

The database contains core recovery data for the Gold Fields and Aurcana core holes.

Average core recovery for all drill intervals is 93 percent while average core recovery for the mineralized intervals assaying greater than 1oz Ag/ton is 86 percent. The core is generally moderately to highly fractured within the mineralized horizons.

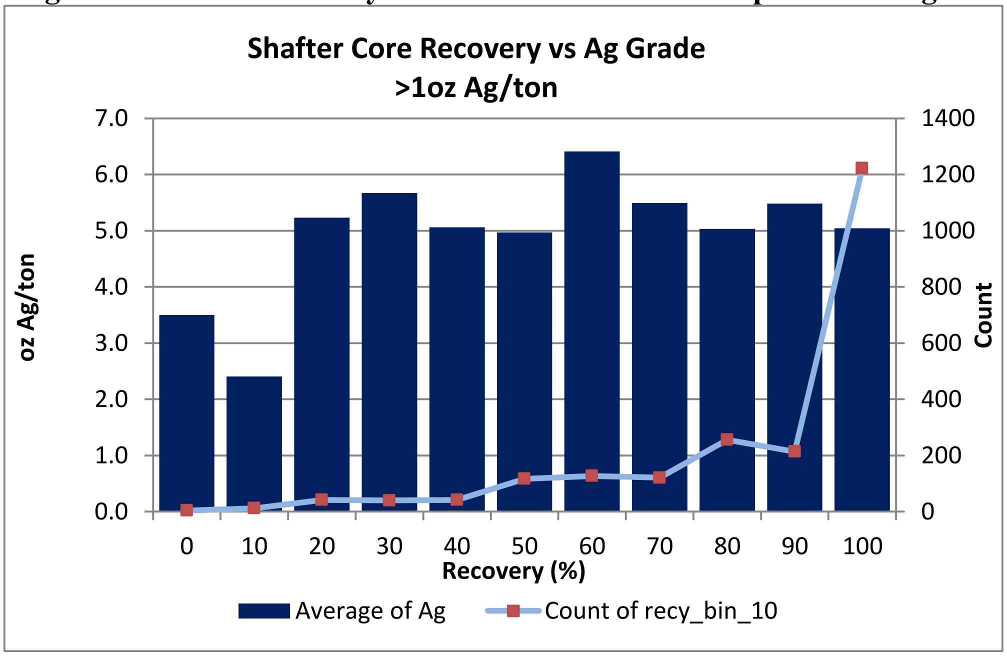
MDA analyzed the drill data to determine if there was a deposit-wide relationship between poor recovery intervals and decreasing silver grades. Figure 10.2 and Figure 10.3 show the silver grades (blue vertical bars) and the number "Count" of intervals (light blue line with orange data points) plotted in the vertical axis, while core recovery is plotted along the horizontal axis. The core recovery data have been separated into distinct bins for each 10 percent increase in recovery. So the "70" value in the horizontal axis contains all data points which have core recovery values between 70 and 80 percent. Figure 10.2 includes all sample intervals while Figure 10.3 has only those mineralized intervals assaying 1.0oz Ag/ton or greater. The high data count in the "100" recovery bin reflects the large number of intervals with recoveries of exactly 100 percent.

**Figure 10.2 Core Recovery versus Silver Grade – All Sample Intervals**




For all sample data (Figure 10.2), there is a distinct increase in silver grade with decreasing core recovery. This correlates with the observation from core and underground that the mineralized rock is fractured and susceptible to poor recovery as compared to the unmineralized limestone wallrock. When the data is filtered to only show those sample intervals assaying 1.0oz Ag/ton or greater (Figure 10.3), the inverse grade relationship with core recovery is no longer apparent. The data suggests that within the mineralized horizon there is not a selective grade loss with decreasing core recovery.

**Figure 10.3 Core Recovery versus Silver Grade – Sample >1.0oz Ag/ton**



## 10.7 Summary Statement

MDA believes that the drill sampling procedures provided samples that are representative and of sufficient quality for use in the resource estimations discussed in Section 14.0.

The current database does not include the Gold Fields underground percussion drilling noted in Section 10.2. These data, if available, should be added to the project database.

There is some uncertainty associated with the Amax drilling due to the lack of information on drill procedures, drill type, and core recovery, and this uncertainty is reflected in the resource classification noted in Section 14.0. Confidence in the Amax drilling is provided by spatial and sample results comparisons with the more recent verified underground and surface drilling conducted by Gold Fields and Aurcana.

MDA is unaware of any other drilling, sampling or recovery factors that materially impact the mineral resources discussed in Section 14.0.

## 11.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

The following information has been reviewed and summarized from Gold Fields Operating Co. – Shafter (undated), Kastelic (1983), Springett (1984), Rozelle (2001), and Lambeck (2012), with updated information provided by Aurcana. The interpretations and conclusions stated are those of the QP.

### 11.1 Sampling Procedures

Sampling at the Shafter project has occurred over a considerable time period and was conducted by various companies. Most of the samples that were taken prior to the work of Gold Fields came from chip samples in the ribs and back of the underground openings along with underground core drilling by Amax.

MDA has seen no information on sampling procedures used by Amax. The core sampling data in the current database, along with the original assay tables shown on the project cross-sections, indicate that Amax selectively sampled and assayed only those intervals with visual indications of mineralization. Many of the core holes have just a few individual samples with most of the hole length having no assay data.

Although Gold Fields' sampling included core, chip, channel, and underground bulk samples, only the core sample data were used in this resource estimate. Springett (1984) described the relative merits of different sampling methods that were examined during their underground test program: underground core drilling, sampling the cuttings from percussion holes, or developing raises and either bulk sampling or channel sampling the raise. A comparison of results from percussion drilling, bulk sampling, and core drilling indicated that the core results may be biased low, possibly due to washing out high-grade friable material during drilling (Springett, 1984).

Gold Fields sampled core in lengths varying from 1ft to 5ft; it was generally sampled in 2ft to 3ft intervals in weakly mineralized areas, while 1ft samples were taken in strongly mineralized zones in order to minimize dilution (Kastelic, 1983). Although the protocols for sampling indicated sludge from the core drilling would be collected and assayed due to the fineness of the silver particles (Gold Fields Operating Co. – Shafter, undated), sludge was not collected from the core holes (Springett, 1984). Core from surface holes was generally NX or NC, but core from the underground holes was BX size. The core was logged geologically by the geologist. Visibly mineralized sections of core were selected and cut in half with a diamond saw in order to preserve loose fine material that contains many of the silver values. Standard 2ft intercepts were generally prepared for assay, but 1ft intercepts were utilized on certain sections (Springett, 1984). One half of the sawn core was placed in bags and shipped to the assay lab for sample preparation and assaying.

For their underground percussion holes, which are not represented in the project database used for this report, Gold Fields collected the cuttings in either 5-gallon buckets for horizontal holes or in 32-gallon garbage cans for inclined holes. The excess water was carefully decanted, and the cuttings were stored in 10-inch by 16-inch plastic bags tied with a tagged wire and labeled with the hole number and footage increment. Cuttings were collected over 4ft increments corresponding to the drill-steel lengths.

For Gold Fields' underground bulk drift sampling, whose results are not included in the database used for the current resource estimate, each blasted round was mucked with a scoop tram and taken to the surface for separate treatment through a bulk-sampling plant. A guide to sampling procedures used by Gold Fields provided further details on this sampling method (Gold Fields Operating Co. – Shafter, undated).

Other than the drilling program carried out by RGMC in the late 1990s and Aurcana's recent drilling, the majority of the samples in the drill-hole database were collected prior to 1982. Although there is limited information available on the sampling methodology employed by the previous mining companies that can be reviewed or verified, Amax and Gold Fields were well respected mining companies with a long history of operational experience. The results obtained by each company generally agreed with results from others who explored in the district, as well as with data from the historical mining records.

RGMC's samples from their 1998-1999 drilling were reported to be standard 5ft-long chip samples from RC drilling and were split using a cyclone splitter (Rozelle and Tschabrun, 2008). However, Aurcana noted that according to the drill logs, samples were collected mainly in 2.5ft increments (occasionally 5ft increments) where visual indications of mineralization and/or favorable lithology were noted by the rig geologist. The assay database indicates most of the samples were taken on 2.5ft intervals.

For Aurcana's 2011-2012 exploration surface drilling program, drill-core assay intervals were determined based on the geologist's visual examination of the core for mineralization, which was then confirmed with a hand-held Delta x-ray fluorescence ("XRF") instrument; intervals with silver greater than 20ppm by XRF and anomalous lead and zinc were selected for assay. A minimum of two XRF readings were obtained on each box of core. Sample intervals were normally 1ft for initial orientation purposes and later were 2ft intervals, with a barren sample selected above and below the mineralized zone to limit the mineralized zone. Core was sawn, and one half was placed into polyethylene sample bags along with a sample tag and secured with a zip-lock tie.

For Aurcana's underground drilling program, and the surface drilling by Aurcana's mine geology department, sample intervals were generally 2ft. Core was sawn, and one half was placed into polyethylene sample bags along with a sample tag and secured with a zip-lock tie.

## 11.2 Sample Preparation, Analysis, and Security

### 11.2.1 Sampling by Previous Operators

Very little documentation exists regarding the sample preparation or security procedures used by former operators of the property. Gold Fields analyzed all mineralized core samples by fire assay for gold and silver; lead and zinc analyses were done by titration at first and later by atomic absorption (Kastelic, 1983). Gold Fields used Union Assay Office in Salt Lake City, Utah for sample preparation and assaying of all core samples until mid-1981 (Kastelic, 1983). Check samples were assayed by Skyline Labs, Inc. (now Skyline Assayers & Laboratories; "Skyline") in Wheat Ridge, Colorado. From 1981 until the end of Gold Fields' work, core samples were analyzed by various labs, including Gold Fields' own lab in Golden, Colorado, the Gold Fields Operating Co. – Shafter lab at the project, and Skyline. Soil and stream-sediment samples were screened to minus 80 mesh at Shafter and sent to Skyline in Tucson, Arizona, for analysis. Silver and gold grades were determined by standard fire assaying techniques. Since Union Assay is no longer in business, details of their sample preparation procedures are not available for review.

RGMC used Actlabs-Skyline in Tucson, Arizona, as the assay laboratory for their 1998-1999 drilling program, based on copies of assay certificates in Aurcana's files. Sample analysis for gold and silver was performed using standard, one assay-ton, fire-assay techniques with a gravimetric finish.

### 11.2.2 Sampling by Aurcana Corporation

The following information was taken from Lambeck (2012), Aurcana news releases (March 5, 2012; April 3, 2013), and information provided by Aurcana.

For their 2011-2012 exploration drilling program, Aurcana's drill-core samples were dried and crushed to minus 10 mesh. A 250g subsample was pulverized to 90 percent passing 150 mesh using a ring and puck pulverizer. Samples taken in early 2012 were analyzed by Pinnacle Analytical Laboratories ("Pinnacle") in Lovelock, Nevada (holes S-12-401, S-12-407, S-12-408, S-12-409, and, S-12-410 with S-12-412 not sampled). Duplicate samples on returned pulps for selected samples with high- and low-grade silver were sent to American Assay Labs ("American Assay") in Sparks, Nevada, for check assaying. Pinnacle closed in 2012. Samples from surface holes S-12-417 to S-12-467 (which included both exploration and mine geology department surface holes) and from underground holes 201200602, 201200603, 201200604, 201200609, and 201200705 were sent to American Assay for analysis. Samples were delivered to the laboratories by courier.

At Pinnacle, all samples were assayed for silver and gold by fire assay with gravimetric finish on a 30g sample. Samples from S-12-401 were assayed with fire assay for silver and gold and for 37 other elements using ICP-OES analysis with two-acid total digestion. Holes S-12-407 through S-12-410 were only assayed for silver and gold. For the holes analyzed by American Assay, multi-element analysis for 72 elements including gold was performed, consisting of two-acid digestion and analysis by ICP-OES. For hole S-12-417, four-acid total digestion and analysis by ICP-OES was used. Samples with silver values greater than 2.917oz/ton were analyzed by fire assay with a gravimetric finish on a 30g charge. Pulps and rejects were returned to Aurcana by courier.

Pinnacle was accredited by the International Accreditation Service and complied with ANS/ISOIEC Standard 17025:2005, according to a copy of their accreditation certificate. American Assay is ISO 17025:2005 accredited, according to their website.

For their 2012-2013 underground drill program, most of Aurcana's drill samples were analyzed at their on-site laboratory. According to Aurcana, samples were crushed, pulverized, and screened, then subjected to multi-acid digestion. Silver was analyzed by atomic absorption spectrophotometry ("AA"). Samples with greater than 2.917oz Ag/ton were re-assayed using fire assay for gold and silver. MDA has not verified these procedures with Aurcana.

## 11.3 Quality Assurance and Quality Control

This discussion of quality assurance/quality control ("QA/QC") focuses only on the drill-hole assay table used by MDA for the estimation of the Shafter resource. The bulk of the assay table contains "historical" data, which for practical purposes means data generated prior to the RGMC drilling programs of 2012 and 2013. There is no formal documentation of any QA/QC programs that may have been in effect from time to time prior to RGMC's acquisition of the project. However, in MDA's review of paper files available at the Aurcana mine office, MDA did find some files whose labels indicated that they contained "core check assays," and which proved to contain copies of assay certificates or records from at least three labs. Aurcana personnel scanned the paper files to digital pdf files for MDA during MDA's April 2013 visit to the site. Subsequently MDA reviewed the scanned records and was able to compile two sets of comparisons between labs. These are described in Section **Error! Reference source not found.** and Section **Error! Reference source not found.**, which follow.

The RGMC 2012 and 2013 assay data fall into two groups: those generated by the mine geology department and those generated by the exploration department. For drilling performed by Aurcana's mine geology department in 2012-2013, QA/QC consisted of standards, pulp duplicate assays, "coarse blank" material, and check assaying. Three standards were prepared by MEG of Reno, Nevada. In addition, the mine lab used standards for internal quality control. Coarse blank material came from a quarry in Cretaceous rock that could potentially be weakly mineralized. Original assays were performed by the on-site mine lab, and coarse crush material was sent to Pinnacle for check assaying. Analysis of QA/QC data from Aurcana's mine geology department is discussed in Section **Error! Reference source not found.**.

For Aurcana's surface exploration drilling in 2011 to 2012, pulp and field duplicates, control standards, and blanks were used for QA/QC. Standards and blanks were inserted into the sample batches by Aurcana staff at a minimum frequency of one QA/QC sample, alternating, for every 10 samples (Lambeck, 2012; Aurcana news release, March 5, 2012; April 3, 2013; information provided by Aurcana). Field duplicates consisted of quarter-core. Duplicate samples of returned pulps from selected high- and low-grade silver assays from Pinnacle were sent to American Assay for check assaying. MDA's analysis of QA/QC data from Aurcana's exploration group is discussed in Section **Error! Reference source not found.**. Standards and blanks were not inserted by Aurcana into the sample stream for underground exploration holes 201200602, 201200603, 201200604, 2012609, and 201200705.

### 11.3.1 Historical QA/QC Data

#### 11.3.1.1 Skyline vs. Union Silver Checks

MDA was able to match 495 sample numbers of assays done by Skyline in 1980 and 1981 to sample numbers in the Shafter database. The original analyses were done by Union Assay Labs, and Skyline received pulps for the purpose of check assays.

MDA compared the silver grades in the 495 sample pairs. Twelve assay pairs were judged to have extreme differences that skewed the comparison and obscured the underlying relationship between the Skyline checks and the original assays. MDA evaluated the remaining 483 pairs and obtained the results illustrated in Figure 11.1 and Figure 11.2.

**Figure 11.1 Skyline Silver Checks vs. Original**

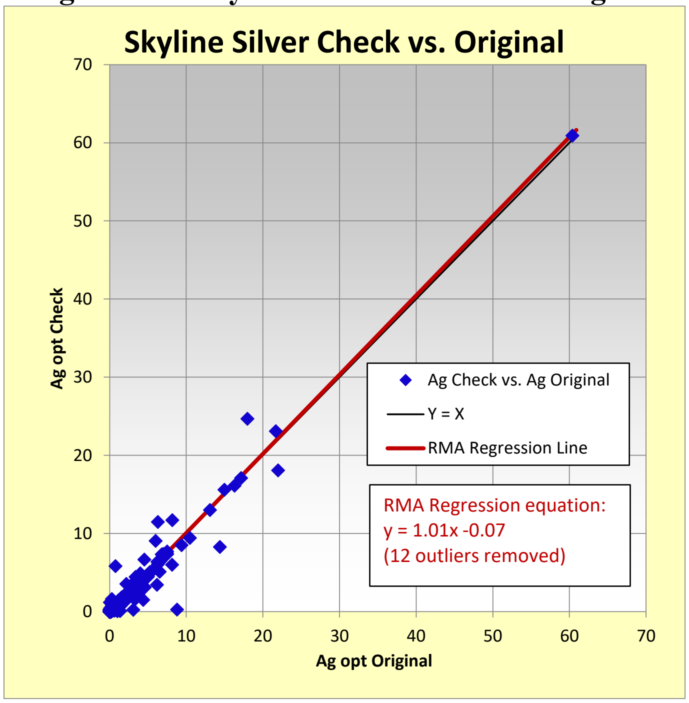
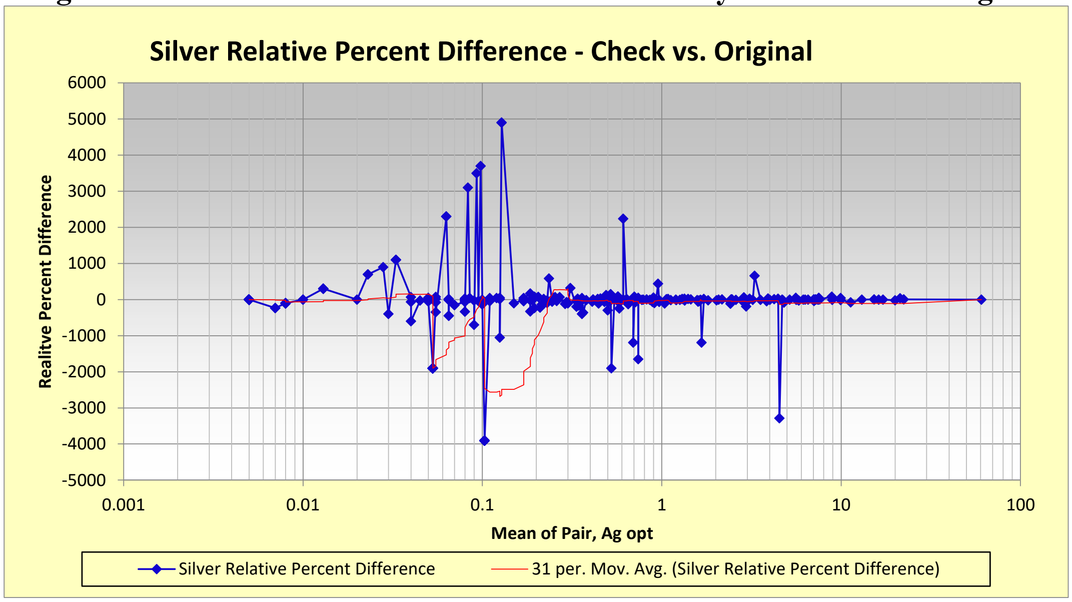



**Figure 11.2 Silver Relative Percent Difference - Skyline Check vs. Original**




In Figure 11.2 and similar charts the relative percent difference is calculated as:

$$100\ x\ \frac{Dup-Original}{lesser\ of\ (Dup,Original)}$$

Figure 11.1 and Figure 11.2 suggest that, with some exceptions, the correspondence between the Skyline checks and the original Union Assay data is quite good, particularly for silver grades above about 0.1oz Ag/ton. It should be noted, however, that the paired data sets "fail" standard statistical tests for differences in means and medians at the 95 percent confidence level, suggesting that significant differences do exist. Nevertheless, MDA concludes that the Skyline silver check assays substantially support the silver assays in the Shafter database.

#### 11.3.1.2 Gold Fields vs. Skyline Silver Checks

MDA was able to identify 93 pulp check samples done at Gold Fields' on-site mine laboratory and compare the silver values to the silver values in the Shafter assay table. The assays in the assay table appear to have been done by Skyline.

MDA eliminated one pair of silver assays having an extreme difference from the comparison, leaving 92 assay pairs. Figure 11.3 and Figure 11.4 illustrate the comparison.

**Figure 11.3 Gold Fields Silver Checks vs. Original**

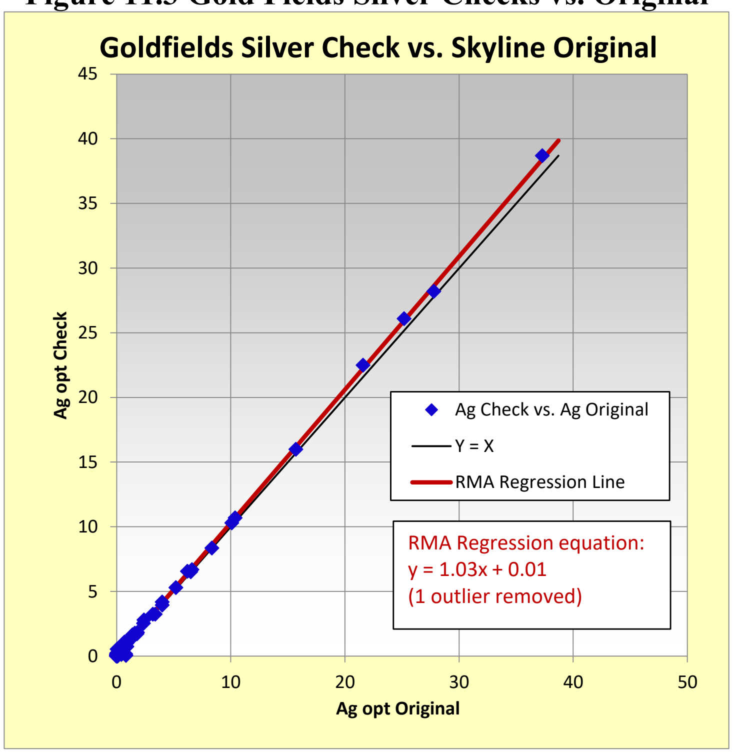
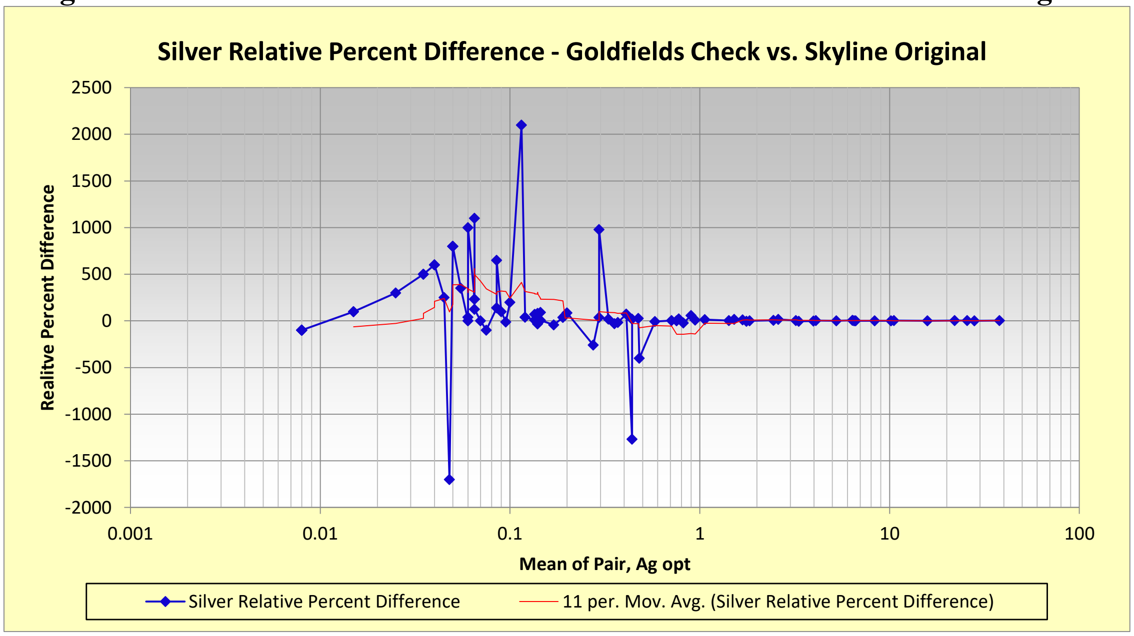


**Figure 11.4 Silver Relative Percent Difference - Gold Fields Check vs. Original**




In Figure 11.4 and similar charts the relative percent difference is calculated as:

$$100\ x \frac{Dup-Original}{lesser\ of\ (Dup, Original)}$$

Figure 11.3 and Figure 11.4 suggest that, with some exceptions, the correspondence between the Gold Fields checks and the original Skyline data is quite good, particularly for silver grades above about 0.1oz Ag/ton. It should be noted, however, that the paired data sets "fail" standard statistical tests for differences in means and medians at the 95 percent confidence level, suggesting that significant differences do exist. Nevertheless, MDA concludes that the Gold Fields silver check assays substantially support the silver assays in the Shafter database.

## 11.3.2 Aurcana/RGMC Mine Geology QA/QC Data

### 11.3.2.1 Standards

RGMC's mine geology department at Shafter used three distinct standards during the 2012 - 2013 drilling campaign. All three were prepared by MEG of Reno, Nevada. Two of the standards, MEG-Au.09.03 and MEG-Ag-2, were from MEG's regular inventory. The third, Shafter-A, was custom-made using material from Shafter. MDA has specifications provided by MEG for these standards.

In the notes provided with the specifications, MEG stated that the specifications for Shafter-A are preliminary and should be modified as results from Shafter's own analyses become available. In the accompanying charts, for the three MEG standards MDA has shown limits using both MEG's statistics and statistics generated from the Shafter lab data. The failure counts in Table 11.1 were determined using MEG's statistics.

The laboratory batch files that MDA obtained from RGMC also contained results for samples designated "control," which were standards used by the on-site mine lab for internal quality control. It appears that two distinct "control" samples were used during different but overlapping time periods. MDA has listed these as "Control 1" and "Control 2" in Table 11.1. MDA does not have specifications for these two control samples, so MDA calculated a set of statistics from the results themselves.

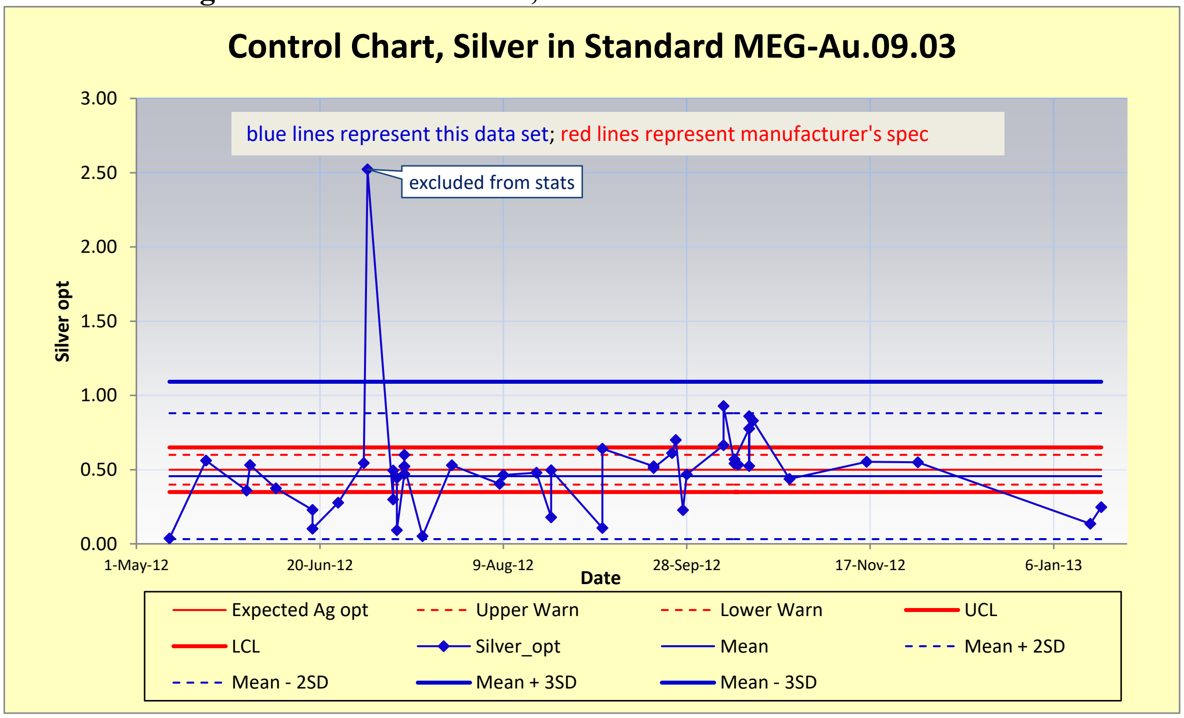
The mine geology department provided MDA with compilations of the results of the standards inserted by that department. MDA built its own compilation of the mine lab's control samples, working from laboratory batch files.

The results obtained for the standards are summarized in Table 11.1 and shown graphically for each standard in Figure 11.5 through Figure 11.9, inclusive. The "Fail Counts" listed in Table 11.1 include any analyses falling outside the "best" value ± 3 standard deviations, using the specifications provided by MEG for the three MEG standards and statistics calculated from the compiled analyses for the two control samples.

**Table 11.1 Specifications and Results for Standards**

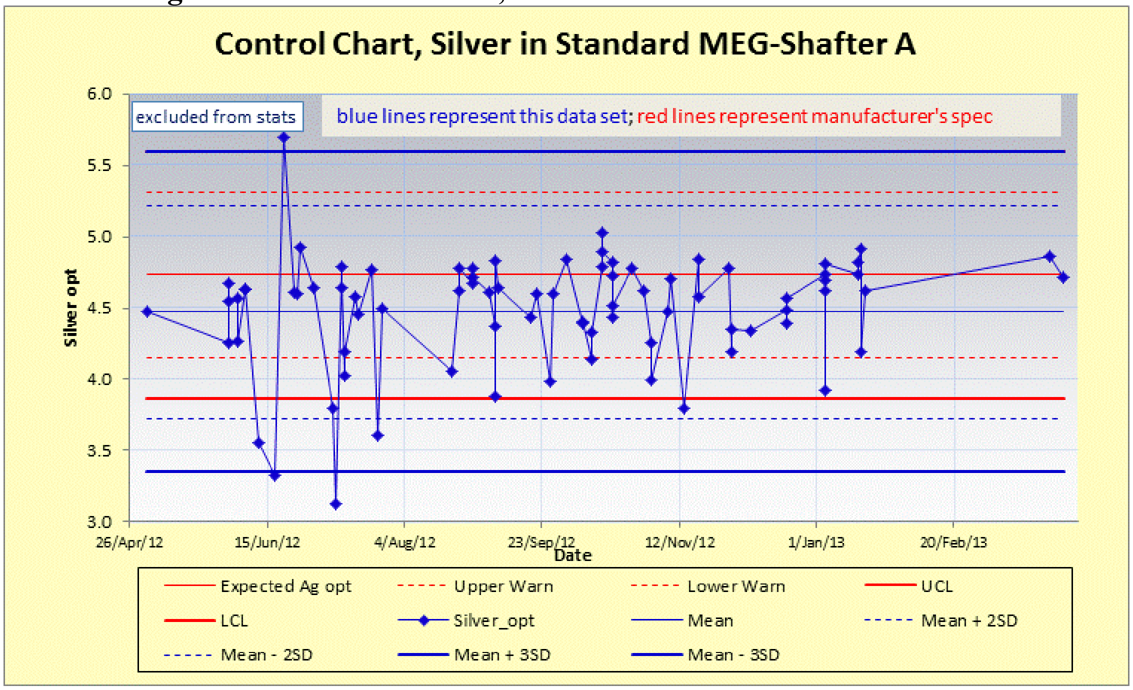
| Standard | Insertions | Start Date | End Date | Best Value | Average | Bias Pct | Fail Counts | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | High | Low |
| **Standards Inserted by Mine Geology Department** | | | | | | | | |
| MEG-Au.09.03 | 47 | 10-May-12 | 19-Jan-13 | 0.5 | 0.501 | +0.2 | 7 | 12 |
| MEG-Shafter-A | 81 | 2-May-12 | 1-Apr-13 | 4.73 | 4.487 | -5.1 | 1 | 6 |
| MEG-Ag-2 | 42 | 20-May-12 | 19-Jan-13 | 8.54 | 7.86 | -8 | 0 | 2 |
| **Standards Inserted by Lab** | | | | | | | | |
| Control 1 | 205 | 10-May-12 | 8-Dec-12 | ?? | 1.744 | n/a | 2 | 0 |
| Control 2 | 65 | 19-Nov-12 | 6-Apr-13 | ?? | 3.538 | n/a | 0 | 2 |

**Figure 11.5 Control Chart, Silver in Standard MEG-Au.09.03**



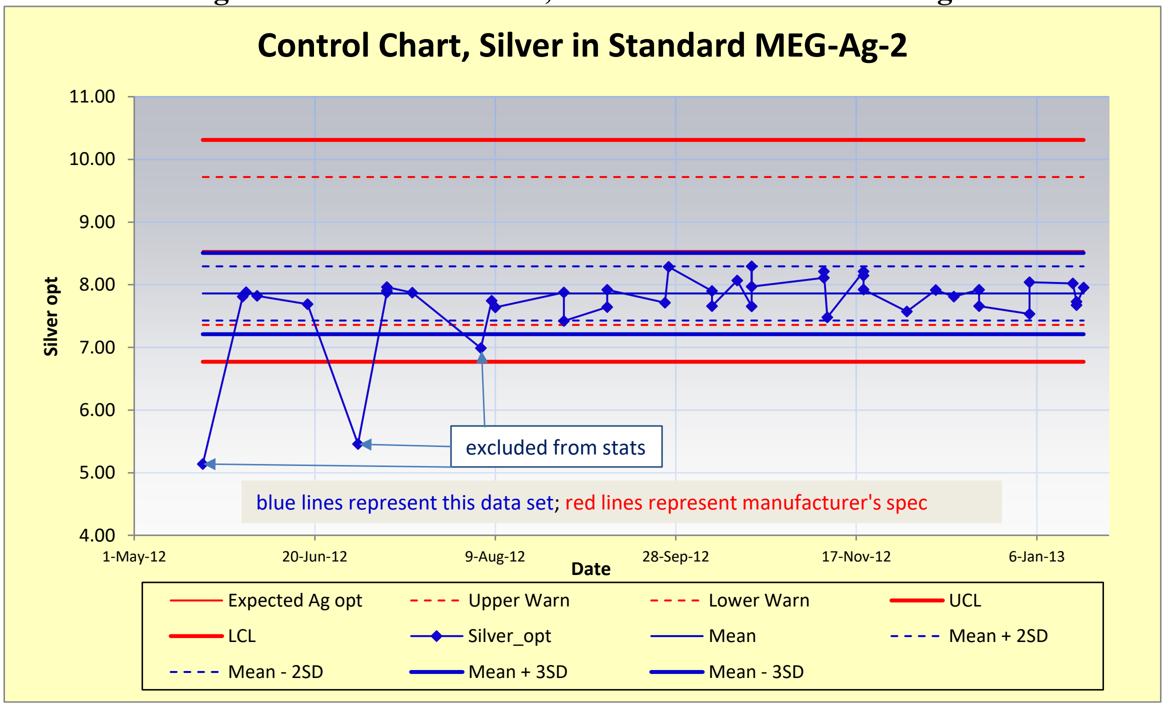

Except for one unexplained high outlier, the results for MEG-Au.09.03 (Figure 11.5) exhibit a period of generally low bias from May through to the end of September 2012. In the first two weeks of October 2012, a distinct high bias is present, after which an overall low bias resumes. At the relatively low grade of this standard, the high failure count and the magnitudes of all but one of the failures themselves engender no concern with respect to the silver grades in the resource estimate. The one unusually high outlier is puzzling; it may be due to an analytical failure or to some other cause such as a sample mix-up.

**Figure 11.6 Control Chart, Silver in Standard MEG-Shafter-A**



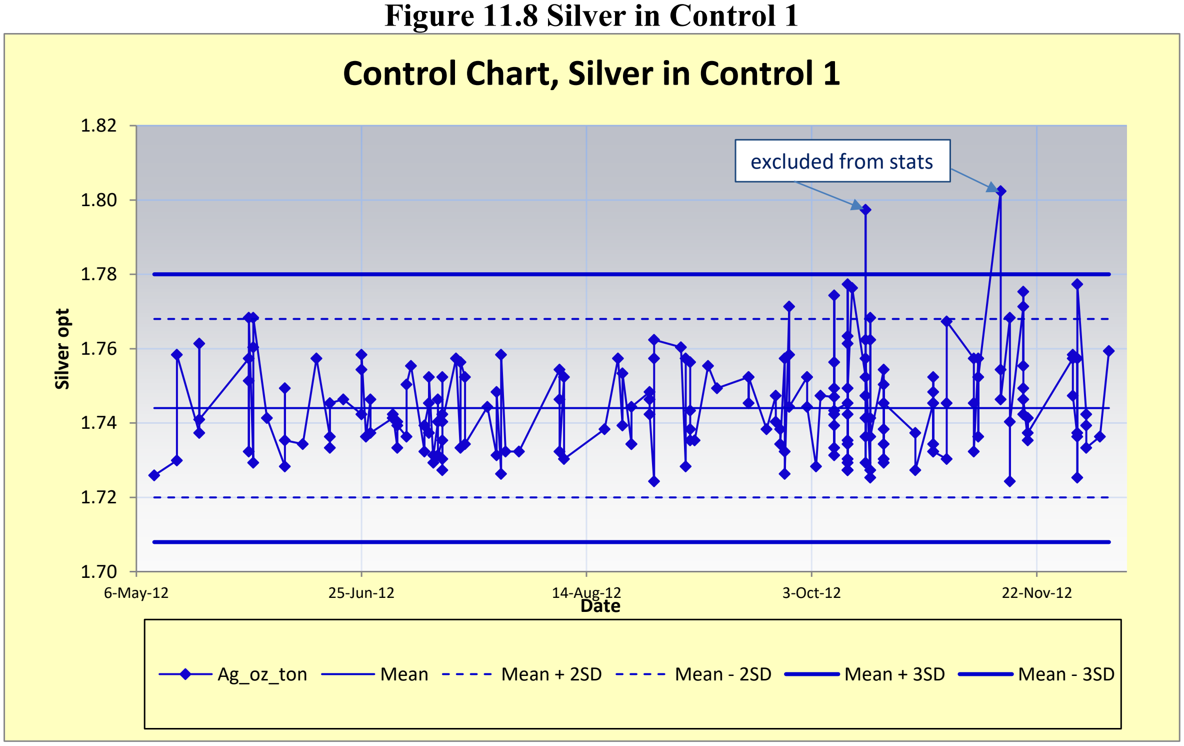

The results for standard MEG-Shafter-A (Figure 11.6) show a generally low bias relative to the preliminary results obtained by MEG from three labs used by MEG for its round-robin tests. Though not conclusive, this suggests the possibility that the on-site mine lab may produce slightly low silver results in this grade range.

**Figure 11.7 Control Chart, Silver in Standard MEG-Ag-2**



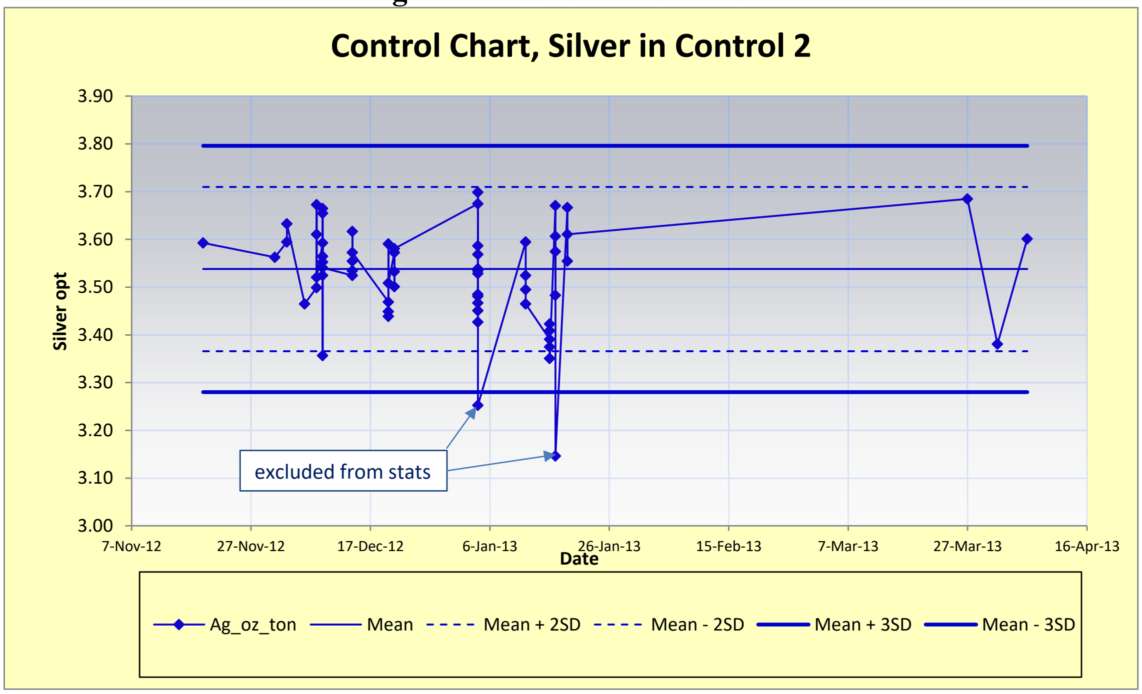

The silver results for MEG-Ag-2 (Figure 11.7) are all biased slightly low relative to the statistics reported by MEG.

**Figure 11.8 Silver in Control 1**



Predictably, the analyses of Control 1 (Figure 11.8) conform reasonably well to statistical control limits derived from those same analyses. It is evident that at about the beginning of October 2012 some change took place that resulted in greater "scatter" of results from then on, even producing two high-side failures.

**Figure 11.9 Silver in Control 2**




The results for Control 2, illustrated in Figure 11.9, reveal two low-side failures but are otherwise unremarkable.

### 11.3.2.2 Pulp Duplicate Samples

Pulp duplicate assays are analyses of splits from the original pulps, done by the RGMC lab during the same analytical runs as the original assays. MDA compiled the pulp duplicate data from individual Excel batch files provided by RGMC. Note that a number of cases exist in which the mine geology department requested that analytical batches be re-run, resulting in re-analyses for every sample in the batch. For the purpose of this discussion, such re-analyses, done in a separate analytical run at a different time on batches whose results were already deemed suspect, are not considered to be part of the pulp duplicate data set.

MDA identified 178 pulp duplicate pairs derived from 160 batch files provided by RGMC. Ninety-six batch files do not contain any duplicate analyses.

Four of the duplicate pairs are statistical outliers exhibiting extreme differences in the silver values. Possible causes for this include, but are not limited to, natural heterogeneity in the sample material, problems during sample preparation, analytical errors, or sample mix-ups. To get a sense of underlying quality of the duplicate data, MDA eliminated the four outliers from its statistical evaluations.

MDA evaluated the remaining 174 pairs using a scatterplot (Figure 11.10), relative difference charts (Figure 11.11), and statistical tests including a paired T-test, Wilcoxon signed rank test, and a Pearson correlation coefficient. All tests suggest that there is no meaningful difference between the results for the original and the duplicate.

**Figure 11.10 RGMC Silver Pulp Duplicate Scatterplot**

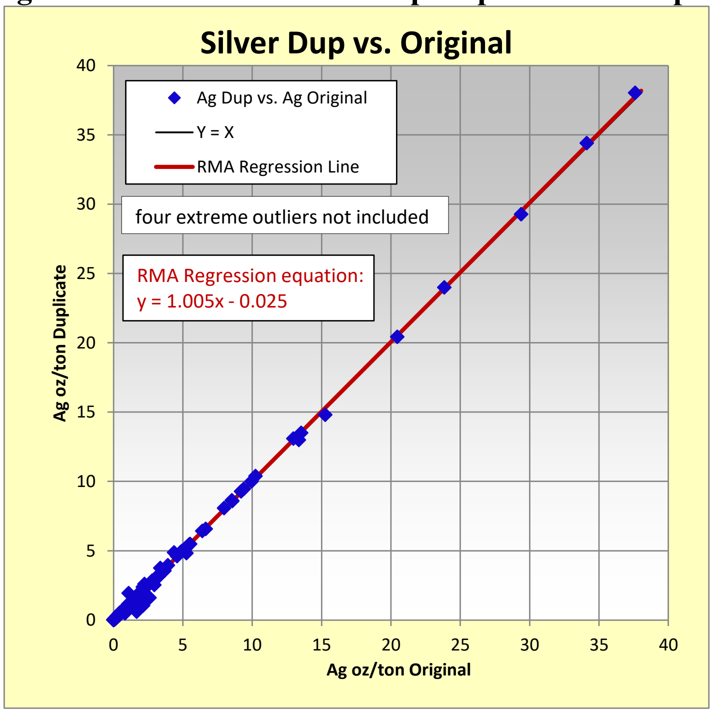
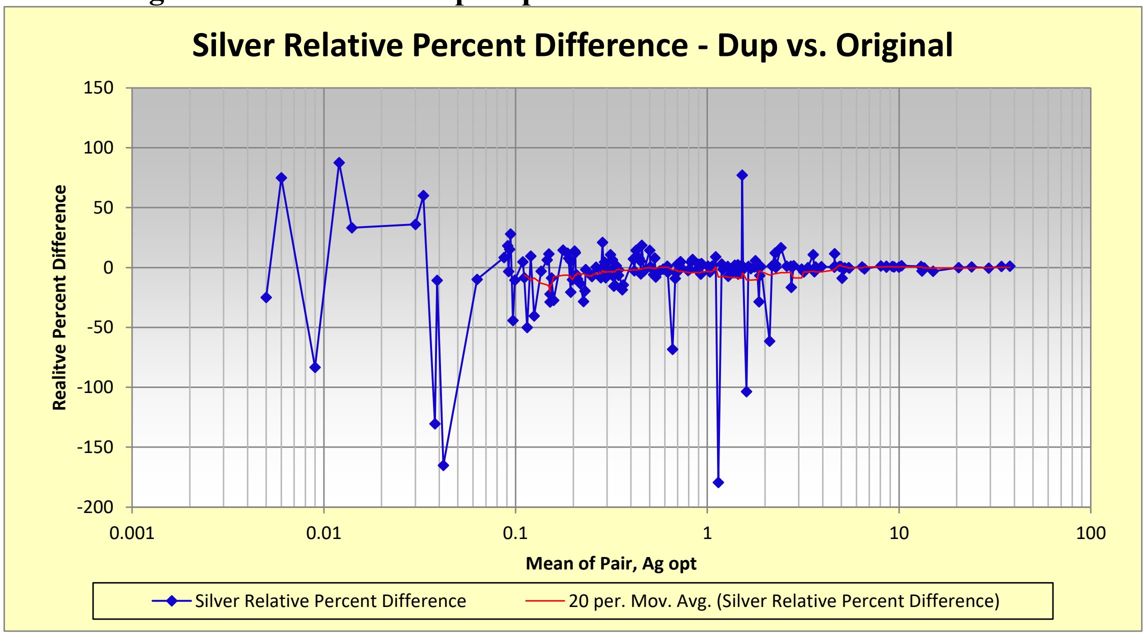


**Figure 11.11 RGMC Pulp Duplicates - Relative Percent Difference**




In Figure 11.11 and similar charts the relative percent difference is calculated as:

$$100\ x\ \frac{Dup - Original}{lesser\ of\ (Dup, Original)}$$

### 11.3.2.3 Coarse Blank

The QA/QC data include 19 analyses of material described as "coarse blank," analyzed during the period July 10, 2012 through January 16, 2013. RGMC advises MDA that the material used for the coarse blank is from a quarry in Cretaceous rock and that it could potentially be weakly mineralized. Figure 11.12 is a time-series chart of the silver analyses of the coarse blank material. Given the possibility that the material is naturally weakly mineralized, MDA can draw no important conclusions from these data, other than to conclude that there is not evidence for contamination of a severity likely to have a material effect on the resource estimate.

**Figure 11.12 Silver Grades in Coarse Blank**

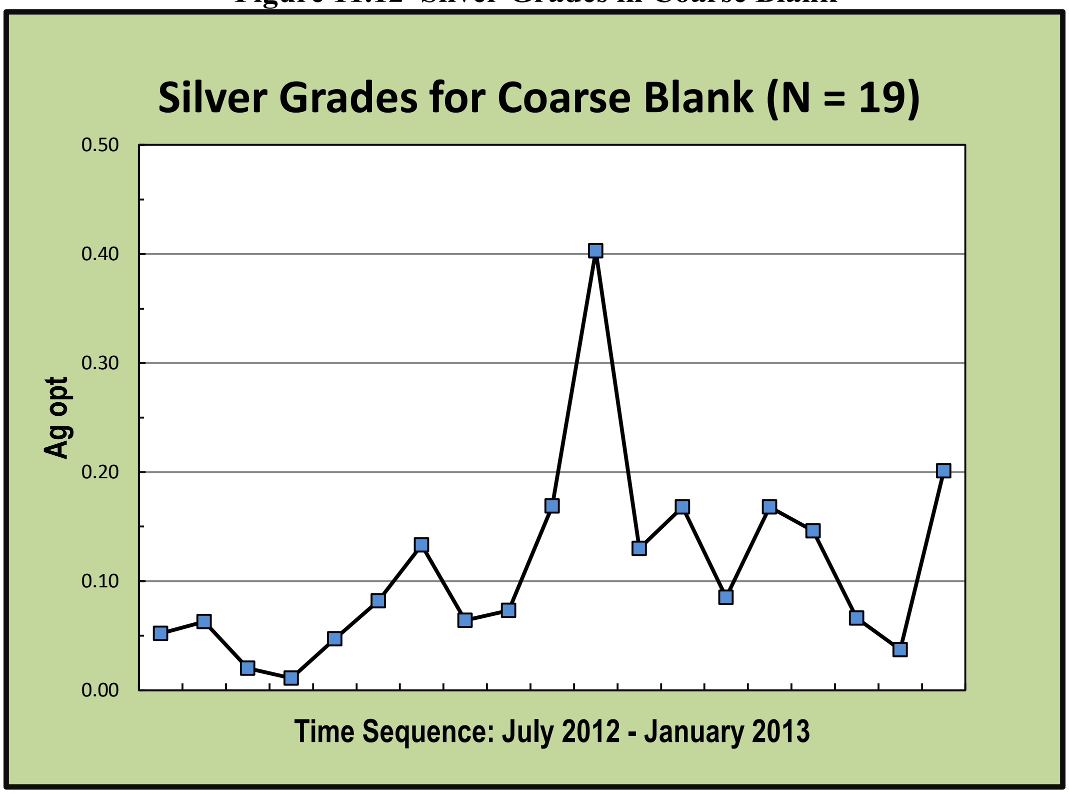



Figure 12.12 was modified by MDA from a chart prepared by RGMC.

### 11.3.2.4 Checks at External Lab

RGMC provided MDA with a file containing a comparison of silver analyses of 43 samples from the 2012 drilling program. The samples were originally analyzed by the on-site mine lab, and then coarse crushed reject material was sent to Pinnacle for comparative analyses. The use of coarse reject material for external check analyses means that rather than producing a comparison of just analytical results, the outcomes of the entire processes of splitting, pulverizing, and analyzing are being compared.

The results of MDA's evaluation of the Pinnacle checks vs. the Shafter originals are illustrated by Figure 11.13 and Figure 11.14. The Pinnacle silver analyses are on average significantly higher than the Shafter analyses. The magnitude of the differences is best illustrated by the relative difference chart in Figure

11.14. MDA cautions that this comparison provides no information as to which lab is closer to the "true" silver concentration, and it is complicated by the fact that Pinnacle was given coarse crush material to work with, introducing many variables into the comparison. The comparison does indicate that relative to Pinnacle, the Shafter lab produces relatively low or "conservative" silver results.

**Figure 11.13 Silver in Pinnacle Check vs. Shafter Original**

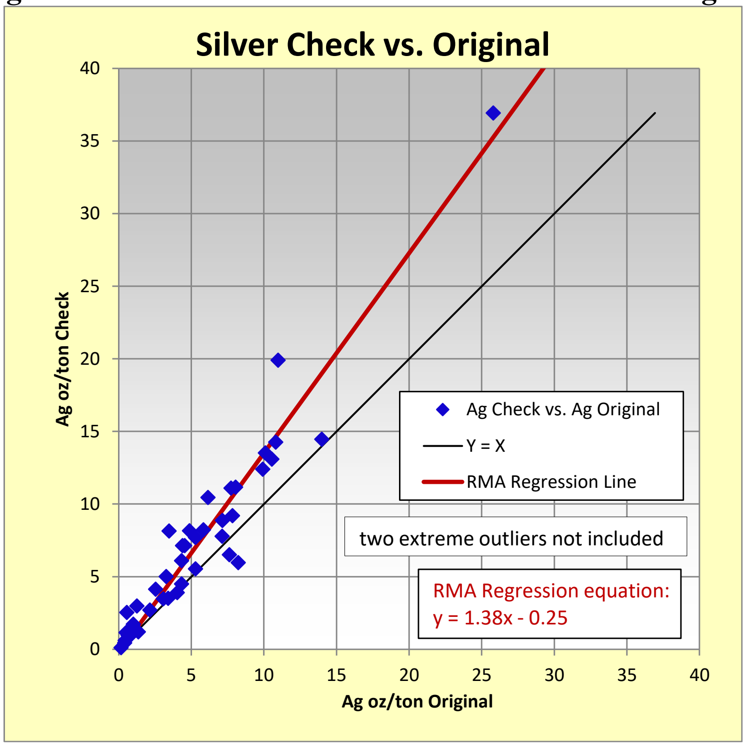
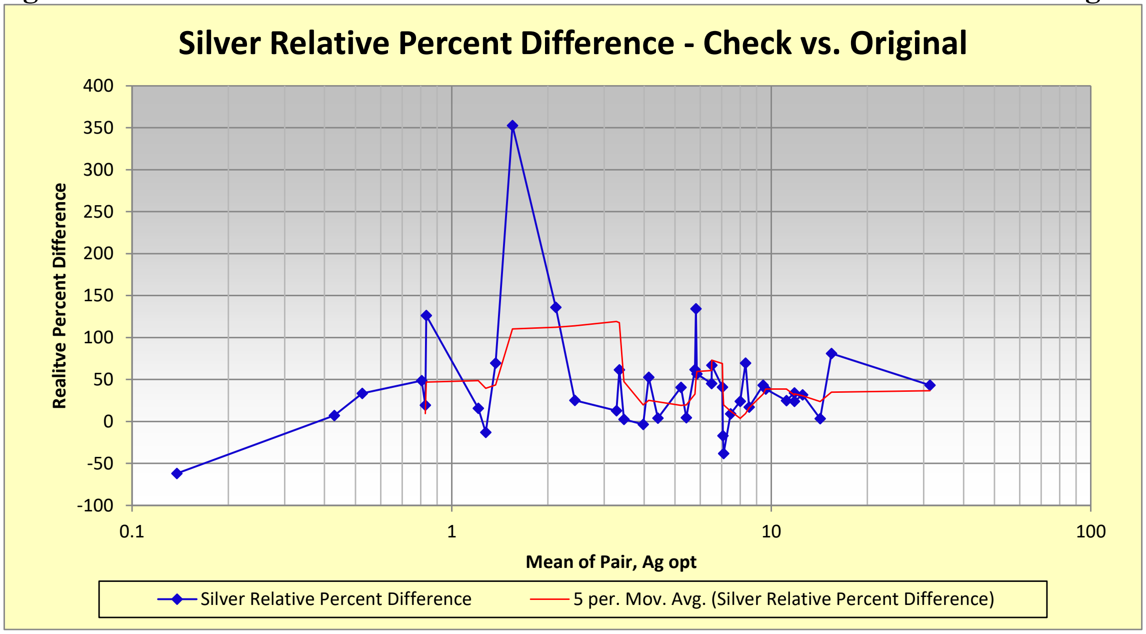



**Figure 11.14 Silver Relative Percent Difference - Pinnacle Check vs. Shafter Original**



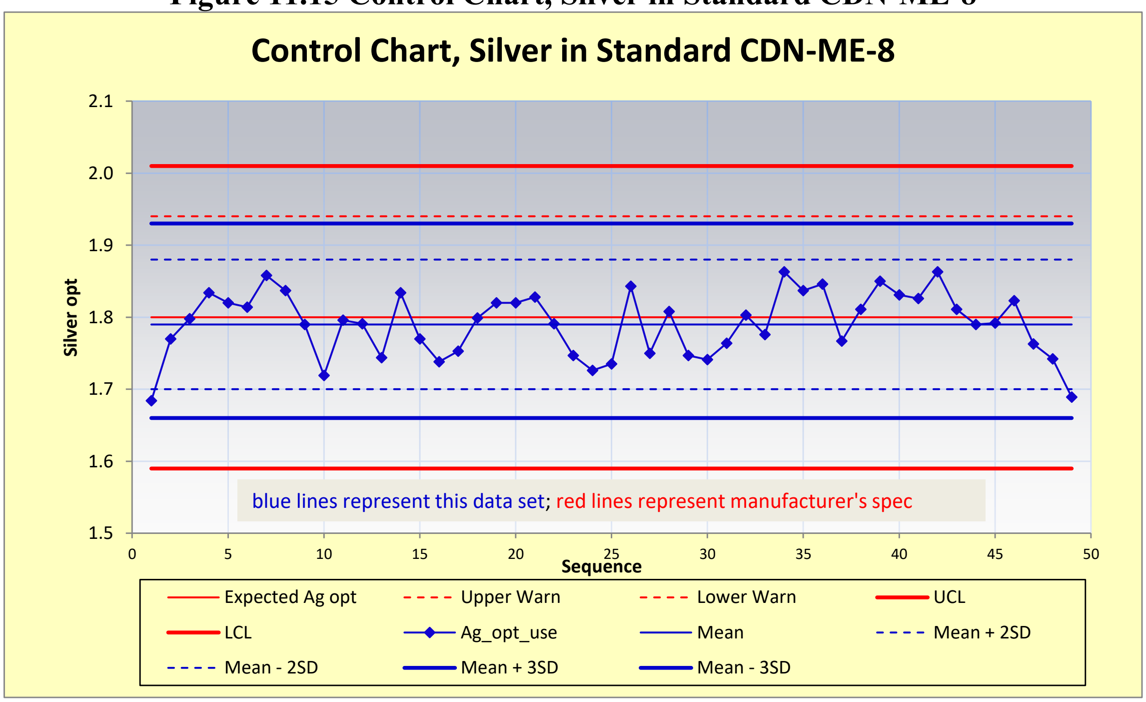
### 11.3.3 Exploration Geology QA/QC Data

#### 11.3.3.1 Standards

The QA/QC data set provided by Aurcana's exploration group includes 55 analyses of a commercial standard, CDN-ME-8, two analyses of a standard identified as "A-1," and two analyses of one identified as "MEG." The analyses of A-1 and MEG were done by Pinnacle, as were six of the analyses of CDN-ME-8. The remaining 49 analyses of CDN-ME-8 were done by American Assay.

Of the three standards, only CDN-ME-8 was analyzed enough times to be useful for monitoring the quality of routine silver assays. The six analyses of CDN-ME-8 done by Pinnacle show erratic silver values. MDA suspects that the erratic values are due to sample mix-ups rather than analytical errors, but in any case, MDA concludes that the data from Pinnacle are not useful. This leaves the 49 analyses done by American Assay as useful monitoring data. MDA's evaluation of the results of these analyses is illustrated in Figure 11.15. No failures or other problems are evident.

**Figure 11.15 Control Chart, Silver in Standard CDN-ME-8**



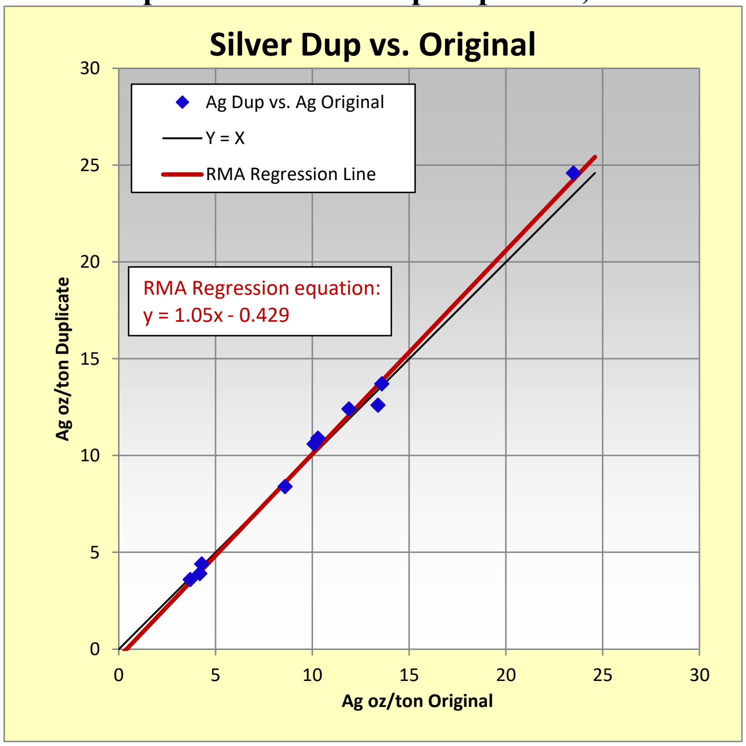

Note: The horizontal axis in Figure 11.15 represents an approximate time sequence.

#### 11.3.3.2 Pulp Duplicates

##### 11.3.3.2.1 Pulp Duplicates Fire Assay - Gravimetric

Twenty pulp duplicates are included in the QA/QC data set for the exploration drill holes. In 10 instances, both the original analysis and the duplicate analysis were done using a fire assay preparation with a gravimetric finish. MDA reviewed these 10 duplicate pairs using scatterplots, relative difference charts, and statistical tests including T-tests and Pearson Correlations and found no issues of consequence. The comparison is illustrated by the scatterplot in Figure 11.16.

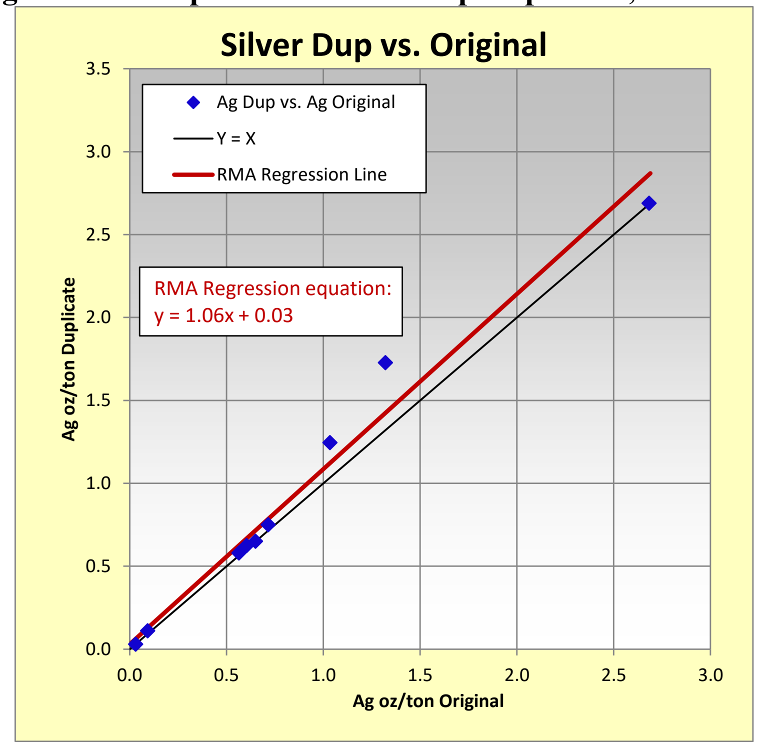
**Figure 11.16 Exploration Silver Pulp Duplicates, FA-Gravimetric**




## 11.3.3.2.2 Pulp Duplicates ICPES/MS

In nine instances, both the original and the duplicate pulp analysis were done using an ICPES/MS method. In all but one case, a two-acid digestion was used for both the original and duplicate analyses. In one of the nine cases, the original analysis was done using a four-acid digestion, but the duplicate was again done using a two-acid digestion. As with other duplicate pairs, MDA reviewed these nine duplicate pairs using scatterplots, relative difference charts, and statistical tests including T-tests and Pearson Correlations. MDA found no issues of consequence. The comparison is illustrated by the scatterplot in Figure 11.17. Two sample pairs, readily identifiable in Figure 11.17, cause the average value of the duplicates to be biased high relative to the original samples. If those two sample pairs are removed from consideration, the bias effectively disappears.

**Figure 11.17 Exploration Silver Pulp Duplicates, ICPES/MS**




For one instance of a pulp duplicate, the initial analysis was done using ICPES/MS with a two-acid digestion, but the duplicate was done using fire assay with a gravimetric finish. These analyses yielded 2.57oz Ag/ton and 3.0oz Ag/ton, respectively. No general conclusion can be drawn based on this one comparison of the two analytical methods.

### 11.3.3.3 Field Duplicates

The exploration department's QA/QC data include results for three duplicate pairs described as "field duplicates." The results appear in Table 11.2. Three duplicate pairs are too few to draw any general conclusions, but MDA notes nothing unusual in the results.

**Table 11.2 Silver in Exploration Field Duplicates**

| Original Sample | Duplicate Sample | Original Batch | Duplicate Batch | Original Ag (oz/ton) | Duplicate Ag (oz/ton) |
|---|---|---|---|---|---|
| 2012441014 | 2012441015 | SP0102194 | SP0102194 | 1.321 | 1.727 |
| 2012441020 | 2012441021 | SP0102194 | SP0102194 | 2.505 | 1.718 |
| 2012441025 | 2012441026 | SP0102194 | SP0102194 | 1.035 | 1.245 |

#### 11.3.3.4 Blanks

The QA/QC data set provided by Aurcana's exploration group includes 55 silver analyses of material described in the database as "KBlank." Lambeck (2012) says the blank material was unmineralized Cretaceous rock from core.

##### 11.3.3.4.1 Blanks Analyzed at Pinnacle Analytical Laboratories

Seven of the 55 silver analyses of blanks were done at Pinnacle, using a fire assay gravimetric method. Six of the seven analyses returned less than 0.1oz Ag/ton. The other analysis returned 0.59oz Ag/ton. MDA has no explanation for this aberration. It could affect hole S-12-407.

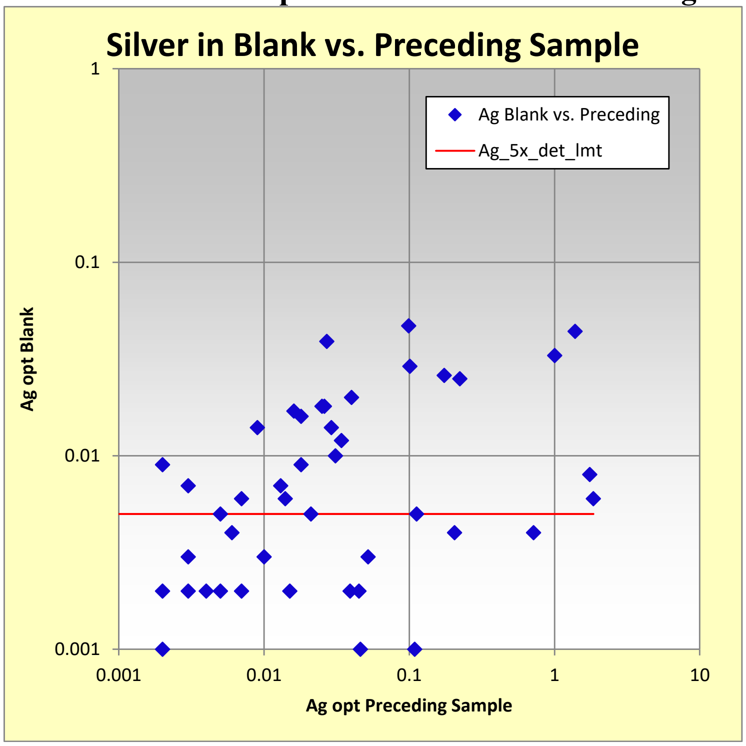
##### 11.3.3.4.2 Blanks Analyzed at American Assay Laboratories

Forty-eight of the 55 silver analyses of blanks were done at American Assay. MDA was able to match 47 of those to samples that numerically preceded them in the sample sequence. MDA found that in 22 instances, the samples numerically preceding blanks in the same batches were themselves blanks. In one rather extreme example, batch SP0101800 contained five blanks in numerical sequence from 2012437051 through 2012437055.

Figure 11.18 is a scatterplot showing the silver analyses obtained for the 47 blanks referenced to the vertical axis, plotted against the silver in the numerically preceding sample referenced to the horizontal axis. The intent of this type of plot is to gain a visual impression as to whether the analysis obtained for a blank is influenced by the grade of the preceding sample. In Figure 11.18, there is a visual impression that blanks numerically following higher-grade samples tend to have higher grades reported than blanks that follow lower-grade samples. A Spearman rank correlation test supports this possibility, yielding a correlation coefficient of 0.44, found to be significant at the 95 percent confidence level.

While the blanks show plausible evidence of low-level between-sample contamination somewhere in the processing of samples, the magnitude of such contamination does not appear to be severe enough to have a material effect on the outcome of a resource estimate.

**Figure 11.18 Silver in Exploration Blanks vs. Preceding Sample**




## 11.4 Security

MDA has no information on sample security used by operators prior to Aurcana's recent drilling. For the 2011-2012 drilling, Aurcana's samples were sent to either Pinnacle or American Assay by courier, with pulps and rejects returned by courier. Drill core is stored within secure facilities within the the gated mine property.

## 11.5 Summary

MDA is of the opinion that the sampling methods, security, analytical procedures, and QAQC procedures and results indicate that the data are adequate for mineral resource estimation. Principal findings from the data verification are:

- There is limited information available on the sampling methodology employed by Amax and Gold Fields. These were well respected mining companies with a long history of operational experience and the results obtained by each company generally agreed with the RGMC results.
- There is no QA/QC data on the Amax drilling which is reflected in the Mineral Resource classification.

- The limited Gold Fields QA/QC data indicate that these assay data are sufficiently accurate for use in Mineral Resource estimation.
- There is limited evidence from standard and second lab check analyses that the RGMC lab shows a low bias in the silver grades. MDA does not believe this bias has a material effect on the resource estimate.

The authors are not aware of any other sampling or assaying factors that may materially impact the mineral resources discussed in Section 14.0

# 12.0 DATA VERIFICATION

The following section is derived from Tietz and MacFarlane (2016) which is still current as no new data has been added to the database. The data verification procedures described herein as being completed by MDA were devised, implemented and directly supervised by Paul Tietz.

Data verification, as defined in NI 43-101, is the process of confirming that data has been generated with proper procedures, has been accurately transcribed from the original source and is suitable to be used. The drilling, sampling, and assay procedures used to generate the Shafter drill data, which are described in Sections 10.0 and 11.0, were reviewed and are considered to be proper and appropriate with no material concerns. The transcription of the data into the current digital database was verified through a detailed audit of the historical and Aurcana assay and collar drill data. The audit included a verification of about 40 percent of the project assay data. Drill hole geology was verified using geologic cross-sections and maps along with a visual inspection of select core intervals. The use of hand-drawn cross-sections and maps was a limitation on verifying the Amax drill data while there was a failure to audit some of the Gold Fields drill data due to a lack of source material. Further details on the data audit procedures and results are in Section 12.1.

Additional confirmation on the drill data's suitability for use are the analyses of the Gold Fields and Aurcana QA/QC procedures and results as described in Section 11.3. No material issues were noted in the QA/QC data which would cause concern with the use of the data.

## 12.1 Database Audit

In April of 2013, Peter Ronning, an MDA associate working under the direction and supervision of the QP, visited the Shafter site for 4 ½ days and worked in the mine-site technical office. A principal task during that week was to search through 16 file cabinets and a dozen cardboard boxes that contain many of the historical records of the Shafter operation, looking for original sources of data to compare with the current digital database.

### 12.1.1 Assay Table

The primary focus of MDA's database audit was the assay table. There were two principal components of this work: the audit of the historical assays with reference to paper sources, and the audit of the assays produced by the drilling done by RGMC in the period 2011 to 2013 with reference to digital sources.

#### 12.1.1.1 Historical Assays

Large numbers of historical assay certificates and related records exist, in multiple files at several locations within the file cabinets and boxes at the mine-site office. MDA requested that RGMC scan these records to PDF files, a task that RGMC was able to complete during the week that MDA was at the site. There is considerable repetition of the same documents among different file folders, cabinets, and boxes, but MDA asked to have everything that seemed relevant scanned and sorted out duplications and redundancies after the site visit.

In the assay certificates, it is usually, though not always, possible to ascertain from which drill hole samples originated. However, it is not common for the certificates to contain any information about sample intervals. As sources for sample intervals, MDA resorted to hand-written drill-hole summary records, in which assays had been entered and matched to the sample intervals by the original workers. MDA used the combination of assay certificates and summary records to match assays to drill holes and intervals in the digital assay table. In a small number of cases, no summary records existed, so while MDA was able to verify that the assays for a hole in the database match the assays on a certificate, MDA was not able to verify that the assays were assigned to the correct intervals.

Roughly a third of the historical assay records, and almost 60 percent of the historical records that MDA checked, have hole identifiers that consist only of numeric digits (e.g. "1095"). These holes are assigned to the "numeric" series in Table 12.1. Most, if not all, of these holes were drilled for Amax. All of the assay records in the "numeric" series were drilled for Amax. Assay certificates, or indeed even hand-written summaries of assays, are not available for these holes. However, the drill holes appear on a series of undated cross-sections with basic geological interpretations, and each cross section has in one corner a table setting out the assays for those holes that appear on the section. In reviewing these cross-sections, it was discovered that there were a significant number of AMAX drill holes that were on the cross-sections but not in the RGMC database. As described in Section 12.1.3, these drill holes were added to the database, getting locations from the cross sections and related plan views, and getting the assays from the tables on the cross-sections. Subsequently, different persons associated with MDA double-checked about 68 percent of the assay table records that MDA had entered, as indicated in Table 12.1.

One complicating factor that MDA encountered is that the historical drill-hole identifiers (names) used in the original typed assay certificates, hand-written logs, and hand-written summaries are very commonly not the same as the hole identifiers in the digital assay table, but are altered and usually shortened versions (see for example Table 12.3). It is likely that the digital assay table was first compiled at a time when computer memory and data storage capacity were very limited. It was common for software to impose limits on the sizes of data fields to conserve computing resources, and this is probably why many of the original Shafter hole identifiers were shortened. In most cases, the shortened identifiers are recognizably similar to the original long ones, but in a few cases, particularly those of underground drill holes, the identifiers in the database are quite unlike those in the original records. These could be matched to original ones only by matching the locations and orientations.

In general, MDA found that the data entry in the historical database was very accurate. Table 12.1 summarizes the results of the checks.

Note that for four of the drill-hole series listed in Table 12.1, MDA did not have original sources to use for checking the assays. This does not necessarily mean that original sources do not exist, only that they did not come to hand during MDA's record search in April of 2013.

**Table 12.1 Summary of Audit of Historical Assays**

| Drill Hole Series | Counts | | | | Percentages | | |
|---|---|---|---|---|---|---|---|
| | Records | Checks | Differences | Significant Differences | Checked | Differences | Significant Differences |
| numeric | 5,631 | 3,836 | 57 | 9 | 68.1 | 1.5 | 0.2 |
| RG | 762 | 614 | 6 | nil | 80.6 | 1 | nil |
| S | 96 | nil | n/a | n/a | n/a | n/a | n/a |
| SD | 5,809 | 1,698 | nil | nil | 29.2 | nil | nil |
| SM | 539 | nil | n/a | n/a | n/a | n/a | n/a |
| SPSC | 170 | nil | n/a | n/a | n/a | n/a | n/a |
| SU | 2,477 | nil | n/a | n/a | n/a | n/a | n/a |
| SW | 775 | 302 | 11 | nil | 39.0 | 3.6 | nil |
| **Total** | **16,259** | **6,450** | **74** | **9** | **39.7** | **1.1** | **0.1** |

Notes: Different treatments of data at the lower detection limits are not counted as differences for the purpose of this compilation.

For the purpose of this tabulation, "records" are counted only if they have a silver assay. Some records for intervals without silver assays exist in the assay table but are not counted in this tabulation.

"numeric" drill hole identifiers consist simply of numerical digits. Such holes for the most part were drilled for A.M. Co. of Texas (Amax). All the “numeric” holes that were checked were Amax holes.

Checks of Amax holes were done using scanned, hand-drawn cross-sections as sources, not certificates.

MDA did not have original sources for assays in the “S”, “SM”, “SPSC” and “SU” holes.

Differences are determined to be "significant" if they are deemed to entail a risk that the local estimation would be affected in a material way. The determination of which differences are "significant" is subjective, based on the auditor’s judgment. Usually, but not always, differences deemed to be significant differ by an order of magnitude.

#### 12.1.1.2 Audit of Recent RGMC Assays

In order to audit the silver assays from drilling done by RGMC in 2012 and 2013, MDA obtained laboratory batch files from the mine geology department in the form of Excel files. MDA compiled the batch files into its own assay table and then used software tools to compare silver in the MDA assay table to silver in the RGMC assay table. The results of the comparison are summarized in Table 12.2.

Originally MDA found 128 differences in silver assays between its assay table and RGMC’s table. In Table 12.2, a total of only four differences are indicated. The reason for the large reduction in differences is that MDA sent the original list of 128 differences to RGMC for review and comments. The review determined that MDA had not had all of the relevant batch files, and most of the differences resulted from RGMC having selected a different assay from two or more that were available for each sample. More than one assay was available for many samples because RGMC’s mine geology department requested re-analyses from the laboratory as a consequence of quality control failures or results that seemed inconsistent with the known geology. In all such cases, MDA relied on RGMC’s judgment as to which assay to use. A comparison of the differences shows no evidence that RGMC's selections are biased in favor of higher grades.

A few differences were consequences of record-keeping errors in the batch files, which RGMC had corrected, but which corrections were not reflected in the batch files given to MDA.

**Table 12.2 Summary of Audit of RGMC Assays**

| Drill Hole Series | Counts | | | | Percentages | | |
|---|---|---|---|---|---|---|---|
| | Records | Checks | Differences* | Significant Differences | Checked | Differences | Significant Differences |
| 2012 | 2,087 | 1990 | 3 | 1 | 95.4 | 0.2 | <0.1 |
| S-11 | 75 | nil | n/a | n/a | n/a | n/a | n/a |
| S-12 | 1,563 | 754 | 1 | nil | 48.2 | 0.1 | nil |
| P2013 | 24 | nil | n/a | n/a | n/a | n/a | n/a |
| **Total** | **3,749** | **2,744** | **4** | **1** | **73.2** | **0.1** | **<0.1** |

Notes: *Differences in counts reflect differences remaining after review by RGMC. See the discussion preceding the table.

### 12.1.2 Collar Locations

In reviewing historical documents, MDA found numerous iterations of collar-location tables, as well as reports describing campaigns of location verification. The collar locations in historical documents do not always agree exactly with those now found in the collar table of RGMC's drill-hole database. Table 12.3, from MDA's site-visit report of April 2013, shows some of the more extreme examples of the types of differences that exist between the coordinates in the database and the coordinates found in one original source, a typed list of coordinates issued by Bassham Land Surveying Company in 1981.

**Table 12.3 Coordinate Differences in SM Series Drill Holes**

| Hole Identifiers | | Coordinate Differences | | |
|---|---|---|---|---|
| Database | Source Documents | x (ft.) | y (ft.) | z (ft.) |
| SM1 | 801 or SMPD-1 | -2.94 | 2.32 | 0.03 |
| SM2 | 802 or SMPD-2 | -6.24 | 4.42 | 0.70 |
| SM3 | 803 or SMPD-3 | -2.32 | -0.26 | -2.37 |
| SM4 | 804 or SMPD-4 | -0.16 | 4.78 | 4.86 |
| SM5 | 805 or SMPD-5 | -1.58 | -0.18 | 3.00 |
| SM6 | 806 or SMPD-6 | 5.54 | -6.48 | 1.00 |
| SM7 | 807 or SMPD-7 | 1.00 | -0.59 | 7.52 |
| SM8 | 808 or SMPD-8 | 1.56 | 10.28 | 3.47 |
| SM9 | 809 or SMPD-9 | -1.84 | 0.24 | 3.14 |
| SM10 | 810 or SMPD-10 | 4.07 | 6.4 | -5.00 |
| SM11 | 811 or SMPD-11 | 1.78 | 2.84 | -1.58 |
| SM12 | 812 or SMPD-12 | 1.21 | -4.19 | -1.95 |
| SM13 | 813 or SMPD-13 | -1.42 | -3.21 | 1.47 |
| SM14 | 814 or SMPD-14 | 0.94 | -3.02 | -4.24 |
| SM15 | 815 or SMPD-15 | 3.11 | 0.59 | 0.41 |
| SM16 | 816 or SMPD-16 | 2.26 | -0.50 | 0.50 |
| SM17 | 817 or SMPD-17 | -11.94 | 4.68 | 0.61 |
| SM18 | 818 or SMPD-18 | 2.14 | -2.21 | 0.56 |
| SM19 | 819 or SMPD-19 | -3.12 | 4.26 | 2.78 |
| SM20 | 820 or SMPD-20 | -3.00 | 1.80 | 1.09 |
| SM21 | 821 or SMPD-21 | -2.73 | 4.75 | 2.76 |
| SM22 | 822 or SMPD-22 | 4.10 | 3.78 | -4.32 |

The differences listed in Table 12.3 are, as stated, among the more extreme examples of differences. MDA has no means to judge the relative merits of any particular sets of coordinates. MDA did have a conversation with the person responsible for the coordinates in the 1981 list, who is now employed by RGMC as a surveyor and who has a long history with the Shafter operation. Based in part on this discussion, MDA believes that the collar coordinates in the current database provide a sound basis for the resource estimate. The comparison in Table 12.3 is presented only to illustrate the issue.

### 12.1.3 Historical Drill Data Added to Database

The existing project database did not include data on many of the Amax drill holes found on the geologic cross-sections and/or plan maps. These drill holes had not been in the original collar or assay table that MDA received from RGMC. MDA and RGMC worked together to add these holes, getting locations and geology, if available, from the cross-sections and related plan views and getting the assays, if available, from the tables on the cross-sections. A total of 589 underground holes and 56 surface core holes were added to the database. Of this total, 464 of the Amax drill holes had no recorded assay data within the cross-section assay tables. In a similar manner as MDA treated the unsampled intervals in those Amax holes which had partial assay data, the unsampled drill holes were considered unmineralized in the database and in the resource estimate.

In addition to the Amax drilling, 10 Gold Fields surface core holes, all within or adjacent to the current resource, were also added to the database.

### 12.1.4 Verification of Historical Amax Drill Data

There are no original collar surveys or assay certificates for the historical Amax core drilling which makes up about 60 percent of the total project drill holes and about 45 percent of the samples used in the current resource estimate. To provide confidence in the drill data, during the audit process the drill holes were checked against the hand-drawn cross-sections and plan maps which provide locations and downhole survey information relative to known underground workings and development drifts. The sections and maps also have the historical mine grid so collar locations can be checked to within a 5 to 10 ft accuracy. MDA reviewed the Amax hole locations and made some minor edits so that the hole locations correlate in space with the underground workings.

To provide confidence in the use of the Amax assay data, MDA audited a large portion of the sample data and also statistically compared the Amax composites used in the resource estimate against similar Gold Fields and Aurcana composite data. Only Gold Fields and Aurcana composites located within the historical Presidio mine area was used in the analyses so they would be generally spatially coincident with the Amax data. The analyses indicate that the Amax composites are about 13% higher in mean silver grade versus the more recent drill data but the median silver value is within 5%. Graphs of the population plots closely track each other with the higher difference in mean silver grade being a result of higher extreme silver values (>20oz Aug/ton) within the upper 2% of the composite data. It is not surprising that the Amax data would contain a larger proportion of higher grade samples since much of the Amax drilling is adjoining the historical mine stopes while the more recent drilling targeted areas between the historical workings or along possible extensions of mineralization away from the known areas of mineralization.

The hole location verification and sample data comparisons provides confidence in the use of the Amax data. It also must be recognized that Amax was a large mining company with productive mining operations and it is expected that their drilling, sampling and assay procedures were of high quality.

## 12.2 Data Verification Summary and Conclusions

MDA is of the opinion that the data verification procedures support the geologic interpretations and confirm the database quality. Therefore, the Shafter database is suitable for use in estimating and classifying a Mineral Resource. Principal findings from the data verification are:

- About 40 percent of the assay data was verified by MDA. Any errors found were corrected for use in the resource estimate.
- The use of hand-drawn cross-sections and maps was a limitation on verifying the Amax drill data while there was a failure to audit some of the Gold Fields drill data due to a lack of source material.
- A significant number of historical Amax drill holes were added to the project database as a result of MDA's audit. Research efforts to ensure all Amax drill data is added to the database should be continued.
- Confidence in the use of the Amax assay data was provided after MDA audited a large portion of the sample data and also statistically compared the Amax composites used in the resource estimate against similar Gold Fields and Aurcana composite data. No material concerns were noted.

# 13.0 MINERAL PROCESSING AND METALLURGICAL TESTWORK

This section was prepared by George Burgermeister of Samuel Engineering, Inc., located in Denver, Colorado. The term "ore" is used in this section only in a metallurgical sense, to indicate mineralized material processed.

The Shafter mine has a history of operations and testwork that prove the mineralization is amenable to several techniques of beneficiation and extraction. Though slight improvements in recovery can be achieved through concentration of the mill feed and focused leaching, the main factors for achieving desirable recovery is affected by grinding and cyanide leaching.

Recovery predictions are dependent on the head grade due to a relatively constant tails grade. The consistency of the tails grade is due to occluded silver and silver minerals, locked in quartz or jarosite grains at or smaller than the 10 micron range. This renders that portion of the silver inaccessible to cyanide leach without extensive and expensive grinding. Practically all the non-encapsulated Ag appears to be recoverable, making the recovery prediction highly dependent on the mill feed head grade:

*Recovery = (Head grade-Tails grade)/Head grade*.

## 13.1 History of Operations

The Shafter Silver deposit, located in Presidio County, Texas was discovered in 1880. In 1883 the Presidio Mining Company began operations and worked the property until 1926. In 1927, American Metals Company of Texas updated the mill and mine and operated it until 1942 when operations ceased due to shortages in equipment and labor brought on by the Second World War. At the end of American Metals Company of Texas' operations, in 1942, the average mill head grade was about 8oz Ag/ton with an average mill silver recovery of about 81 percent.

In 1977 Gold Fields Mining (then Azcon Mining and Exploration Division) entered into an agreement with Amax (successor to American Metals Company of Texas) leading to an exploration drilling campaign which indicated an extension to the old Presidio Mine.

Rio Grande Mining Company took ownership of the property in 1993. Aurcana acquired Rio Grande Mining as a US based subsidiary and, thereby, ownership of the Shafter property in July of 2008.

In December 2012, the Aurcana Mill was brought on line utilizing whole-ore leach to process 1,500 tpd of ore. However, after the about a year of operation, the project was placed on care and maintenance and the mill was shut down in December 2013, when design silver production rates were not met. During the operation the mine produced an average head grade of about 6oz Ag/ton at less than 1,000 tons per day, and with an average silver recovery of about 75 percent. Though these values did not meet the design parameters, the extraction performance was consistent with the recovery prediction based on a constant tails grade of 1.5oz Ag/ton.

## 13.2 Metallurgical Testwork

### 13.2.1 Historical Testwork

Metallurgical testwork for the Shafter property is extensive and includes work done by Gold Fields, Colorado School of Mine Research Institute ("CSMRI"), Allis Chalmers, Hazen Research ("Hazen"), Kappes, Cassiday & Associates ("KCA"), Kerley Chemical Corporation, Warren Spring Laboratories, Inspectorate Mining and Mineral Services Ltd ("Inspectorate"), Pocock Industrial, Inc., and SGS Metcon/KD Engineering. The testwork combined with operating data from the historical workings, as well as recent operations in 2012 and 2013, form a good basis for the current flowsheet criteria.

In 1978, Gold Fields began mineralogical and metallurgical testwork on the then new composite drill core samples, the old Presidio Mine ore, and mill tailings. Testwork for Gold Fields was performed by several laboratories described in the following paragraphs.

CSMRI conducted testwork for Gold Fields between 1979 and 1982. They conducted leach testwork as well as gravity separation of silver, lead, and zinc minerals. In addition they studied the mineralogy and concluded that the old Presidio Mine ore and the core composites from the newly discovered extension had comparable properties.

IN 1980 to 1982, Gold Fields Research Laboratories Limited ("GFRLL") researched leach versus grind size. Results suggested that the optimal grind size would be approximately 30 percent passing 45 microns (P80 = 74 microns) with a grinding residence time of 24 hours. They also determined that a very fine dispersion that was not amenable to cyanide dissolution was present. GFRLL also investigated the effect of lime addition on silver dissolution and concluded that best results were obtained at a CaO addition of 2 kg/tonne.

Allis Chalmers conducted abrasion index and bond mill work indices tests in 1982 determining the AI range of 0.115 to 0.4795 (grams) and Bond Ball Mill Work Index range between 12.4 and 12.7 kWh/ton.

In 1982 Hazen was contracted to confirm the Gold Fields testwork as well as investigate the use of sodium carbonate as a substitute for lime. Hazen was successful in reproducing some of the previous leach recoveries at the 24 hour leach times, generating recoveries that pointed to an approach to a constant tails grade, shown in Table 13.1.

At higher head grades, recoveries were reduced, but most likely due to the limited leach times. The tests did not prove sodium carbonate as a promising substitute for lime.

Hazen also performed gravity and flotation testing as well as mineralogical examinations of the tailings. Flotation and gravity testing did not yield promising results as the overall recoveries were not significantly different from whole-ore leach and did not merit the added complication of the flowsheet. Hazen also identified that silver was locked in the tailings as silver bearing jarosite and as occlusions in quartz at size ranges between 2 and 10 microns.

**Table 13.1 Hazen 1982 Whole-Ore Leach Test**

| Hazen 1982 Whole-Ore Leach Testing Results | | | | | |
|---|---|---|---|---|---|
| Sample | Leach Time Hours | P80 microns | Head opt | Tails opt | Extraction % |
| HRI-23506 | 24 | 90 | 7.15 | 1.96 | 72.6% |
| | 24 | 60 | 7.08 | 1.70 | 76.0% |
| | 24 | 90 | 5.85 | 1.77 | 69.7% |
| | 24 | 90 | 6.53 | 1.78 | 72.7% |
| | 24 | 50 | 7.02 | 1.72 | 75.5% |
| | 24 | 60 | 6.83 | 1.62 | 76.3% |
| | 24 | 40 | 7.05 | 1.39 | 80.3% |
| | 24 | 43 | 6.88 | 1.43 | 79.2% |
| | 24 | 165 | 6.8 | 2.31 | 66.0% |
| | 24 | 40 | 6.66 | 1.49 | 77.6% |
| | 24 | 100 | 7.32 | 1.81 | 75.3% |
| | 24 | 43 | 7.01 | 1.48 | 78.9% |
| | 24 | 60 | 10.63 | 2.22 | 79.1% |
| | 24 | 50 | 13.28 | 2.13 | 84.0% |
| | 24 | 89 | 13.15 | 3.55 | 73.0% |
| | 24 | 100 | 10.56 | 3.16 | 70.1% |

In 1998 KCA performed tests on 20 samples from 18 locations, including from underground workings. Their tests included head analyses, screen analyses, wet gravity separation, heavy media separation, flotation, and bottle-roll leach tests.

In 2004 KCA issued a scoping study concluding that neither gravity separation nor flotation yielded desirable silver recoveries and proposed a whole-ore leach approach to silver extraction. A summary of the KCA results is shown in Table 13.2.

**Table 13.2 KCA 1998 Whole-Ore Leach**

| KCA 1998 Whole-Ore Leach Results | | | | | |
|---|---|---|---|---|---|
| Sample | Leach Time Hours | P80 microns | Head opt | Tails opt | Extraction % |
| 26352 | 96 | 900 | 14.71 | 3.14 | 78.7% |
| | 96 | 165 | 15.40 | 2.15 | 86.1% |
| | 96 | 80 | 15.15 | 1.66 | 89.1% |
| | 96 | 104 | 13.94 | 1.98 | 85.8% |
| | 96 | 62 | 16.54 | 1.36 | 91.8% |
| | 96 | 42 | 15.88 | 1.36 | 91.4% |
| | 96 | 35 | 14.96 | 1.05 | 93.0% |
| 26502 | 96 | 50 | 4.24 | 0.89 | 79.0% |
| | 96 | 125 | 37.05 | 2.52 | 93.2% |
| 26535 | 96 | 88 | 45.10 | 1.89 | 95.8% |
| | 96 | 65 | 42.89 | 1.46 | 96.6% |
| | 96 | 58 | 43.34 | 2.72 | 93.7% |
| | 96 | 55 | 41.67 | 2.00 | 95.2% |
| | 96 | 52 | 44.84 | 2.71 | 93.9% |

### 13.2.2 Testwork Commissioned by Aurcana

In May, 2010, Pocock performed a set of tests aimed at determining the optimal liquid/solid separation parameters for the Shafter mineralization, mainly focusing on material as would be treated with the KCA proposed whole-ore leach flowsheet. The result of these tests showed that the Shafter material was highly amenable to both filtration techniques as well as thickening. Thickening achieved underflow densities of between 65 percent to 70 percent solids, while vacuum filtration achieved between 16 and 18 percent cake moisture, and pressure filtration achieved between 9 and 12 percent cake moisture.

In 2012 and 2013, Aurcana sent composite samples to SGS Metcon for testing with the goal of optimizing the process flowsheet for silver recovery. SGS performed comminution testwork, gravity concentration, flotation tests, whole-ore leach, as well as other tests focused on galena and copper sulfate minerals. The SGS report data suggest that flotation is not a viable option as the concentrate neither leached well nor was of high enough grade to sell. Additionally, the flotation tails recovery did not improve significantly over other whole-ore, agitated cyanide-leach results.

In the SGS report dated in March of 2013, whole-ore leach tests were run on mill feed from the mine during operations. These leach tests proved consistent with the history of the mine operations and lab work performed to that date. In October of 2013, SGS submitted a report titled "*Metallurgical Study on Composite Samples (Shafter Project)*", with a more complete set of tests on composite samples from the projected mine plan. This test work involved gravity concentration, and flotation testing with cyanidation of tails from each, and a third set of leach tests on whole-ore. The mill feed from the actual operation performed as expected from the March 2013 report, as shown in the Table 13.3.

**Table 13.3 SGS 2013 Whole-Ore Leach**

| SGS March 2013 Whole-Ore Leach Testing Results | | | | | |
|---|---|---|---|---|---|
| Sample | Leach Time Hours | P80 microns | Head opt | Tails opt | Extraction % |
| 12001 | 72 | 74 | 16.29 | 1.72 | 89.4% |
| 12002 | 72 | 74 | 3.82 | 0.56 | 85.3% |
| 12003 | 72 | 74 | 6.57 | 0.68 | 89.6% |

Testwork observation reported in October 2013 on whole-ore composite samples for agitate cyanide leaching indicated lower recoveries than had been achieved in the past at similar grind sizes. Tails grades in these tests were significantly higher than what was witnessed at the mill during the old milling operations prior to the 1942 shutdown, as well as what was observed in the 2011 through 2013 operations. Additionally, the October 2013 SGS whole-ore leach results do not appear to be consistent with much of the previous testwork. The results of the leach tests performed on the flotation tails; however, did appear to achieve tails grades more consistent with other studies, shown in Table 13.4 below. These tests were run at varying grind size distributions with P80s ranging from 37 to 74 microns and showed no significant changes in recoveries due to grind variation, shown in Table 13.4.

**Table 13.4 Whole-Ore Leach vs Grind Size**

| Agitated Cyanide Leach on Overall Composite (Whole-ore) Grind Size Series Summary of Results | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grind Size P80 (micron) | Products | Grade (g/t) | | | Distribution (%) | | |
| | | Au | Ag | Pb (%) | Au | Ag | Pb |
| 74 | 72 Hours Pregnant Solution | 0.06 | 168 | 0.00 | 77.03 | 78.46 | 0.05 |
| 53 | 72 Hours Pregnant Solution | 0.08 | 168 | 0.00 | 81.47 | 80.77 | 0.05 |
| 37 | 72 Hours Pregnant Solution | 0.06 | 167 | 0.00 | 77.10 | 81.66 | 0.07 |

Since the SGS October 2013 work is inconsistent with the past experience with Shafter mineralization, it is recommended that another testwork campaign focusing on composite samples that represent the most recent mine plan be run to optimize and confirm whole-ore leach recoveries at a grind size of P80=74 microns.

After the completion of the SGS study, a flowsheet was developed that continued with the whole-ore leach configuration of the existing operations and added a counter current decantation ("CCD") wash circuit prior to deaeration and zinc precipitation.

## 13.3 PEA Flowsheet Development

The current PEA is based on a whole-ore leach flowsheet with CCD wash for recovery of silver in solution and the use of Merrill Crowe to recover the silver precipitate for smelting. Whole-ore leach testing by several labs and results from operations in 2011 through 2013 at the proposed grind size of 74 microns have an extraction percentage range from the low 70s to the high 90s. The range is primarily from tailings grade remaining relatively constant while head grades vary significantly. Given the current mine plan and the consistency of the leach residue grade from both early and most recent operations, as well as previous and recent testwork, the following general design criteria was used in this economic evaluation.

| | |
|---|---|
| Plant Throughput: | 600 short tons per day |
| Mine Plan Average Silver Head Grade: | 8.56 troy ounces per ton |
| Target Grind: | P80 = 74 micron |
| Leach Residency: | 72 hours |
| Leach Extraction: | 82.5 percent |
| Overall Recovery | 81.7 percent (99.1% of leach extraction) |
| NaCN Consumption: | 1.58 lb/ton |
| Lime Consumption: | 5.0 lb/ton |

Whole-ore leach at a grind of 74 microns for 72 hours was determined to be the best approach for economic extraction of the Shafter mine silver. The flowsheet will use a jaw crusher for primary crushing followed by cone crushing. Crusher product will feed a single ball mill in closed circuit with cyclones to produce the final grind size of P80= 74 microns. Pre-leach thickening followed by a 72 hour leach will achieve the desired extraction. CCD wash will recover the solubilized Ag, overflow from which will report to deaeration and zinc precipitation in a standard Merrill Crowe circuit. Precipitated silver will be filtered, dried and smelted with flux to produce silver doré. Tailings from the CCD circuit will be filtered and dry stacked at the tailings storage facility or mixed with cement for delivery to mine operations as feed to the backfill paste plant.

# 14.0 MINERAL RESOURCE ESTIMATE

This section is taken from Tietz and MacFarlane (2016). The effective date of the database used for the mineral resource estimate is October 15, 2013. The effective date of the mineral resource estimate is December 11, 2015, and the current estimate reported herein is that which was presented by Tietz and MacFarlane (2016).

## 14.1 Introduction

The modeling and estimation of silver resources were done under the supervision of Paul G. Tietz. Mr. Tietz is independent of Aurcana and there is no affiliation between Mr. Tietz and Aurcana except that of an independent consultant/client relationship. Mr. Tietz had prior experience with the Shafter project in the early 1980s while an employee of a previous operator (Gold Fields).

Although MDA is not an expert with respect to any of the following aspects of the project, MDA is not aware of any unusual environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that may materially affect the Shafter mineral resources as of the date of this report.

MDA classifies resources in order of increasing geological and quantitative confidence into Inferred, Indicated, and Measured categories to be in compliance with the "CIM Definition Standards - For Mineral Resources and Mineral Reserves" (2014). CIM mineral resource definitions are given below, with CIM's explanatory material shown in italics:

**Mineral Resource**

*Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.*

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

*Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.*

*The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect* *of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cutoff grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is based on any direct evidence and testing.*

*Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.*

**Inferred Mineral Resource**

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

*An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.*

*There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource.*

**Indicated Mineral Resource**

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

*Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.*

**Measured Mineral Resource**

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

*Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.*

**Modifying Factors**

Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

MDA reports resources at cutoffs that are reasonable for deposits of this nature given anticipated mining methods and plant processing costs, while also considering economic conditions, because of the regulatory requirements that a resource exists "in such form and quantity and of such a grade or quality that it has reasonable prospects for eventual economic extraction."

## 14.2 Database

The Shafter database used in the current resource estimate contains 1,694 drill holes with a total footage of 466,288.5ft. Of these, 1,606 are diamond core holes, and 88 are RC holes. A summary of the drilling conducted by the various companies is shown in Table 10.1. The majority of drill holes (992 holes) are underground core holes completed by Amax in the 1940s.

Since publication of the previous technical reports in 2008, approximately 800 holes have been added to the database, including a considerable number of underground and surface holes drilled by Amax as well as new holes drilled by Aurcana (RGMC 2011-2013 on Table 10.1) and a few additional Gold Fields holes.

The Shafter drill-hole assay database contains 20,006 silver assays, 8,144 lead assays, and 5,584 zinc assays. Both lead and zinc are associated with the silver mineralization, though only silver was estimated due to the relative lack of lead and zinc data.

The database contains down-hole survey information only for the recent RGMC surface and underground drilling. Drill-hole locations for the Amax drilling are approximate locations derived from both plan maps and underground cross-sections. The lack of down-hole survey data and the possible inaccuracies in the Amax hole locations create some risks in the current resource estimate.

The project coordinates, including topography, are in a (50,000E, 50,000N) local grid using Imperial units (ft).

## 14.3 Geologic Background and Modeling

Silver mineralization at Shafter occurs as a sub-horizontal *manto* within variably silicified Mina Grande limestone at or just below the Cretaceous/Permian unconformity. Mineralization occurs over a 13,000ft east-northeast strike length, is up to 1,200ft across, and is generally 10 to 20ft thick. The resource is at a depth of less than 100ft in the west-central portion of the deposit and then gradually deepens to a depth of over 1000ft within the eastern end of the deposit following the general stratigraphic dip. *Manto* thickness and silver grades can be highly variable, often related to near-vertical structures that served as fluid conduits and/or structural traps.

Upon completion of the database validation process, MDA constructed 150 cross sections spaced 50ft to 100ft apart and looking northeast at 70°. The sections were spaced to best fit the existing drilling with the tighter spacing within the center of the deposit in the area of the recent RGMC underground development and drilling.

One set of sections was made for lithology and then another for silver. Drill-hole information, including rock type and silver grades, along with the topographic surface were plotted on the cross sections. The lithology cross sections were constructed with RGMC and MDA working in tandem, whereas the silver cross sections were constructed by MDA using the lithology sections as a guide.

The lithology cross-sectional model includes the Cretaceous/Permian unconformity, the Mina Grande Formation/Ross Mine Formation contact, the dominant faults, the Herculano intrusive dike and associated intrusive dikes, the strong clay/rubble alteration along the unconformity, and the zones of silicified limestone. These modeled surfaces and rock types were used to guide the silver domain model and, in the case of the clay/rubble zones, assign densities into the block model.

Quantile plots of silver were made to help define the natural populations of silver grades to be shown on the silver-domain sections. The analytical population breaks indicated on the quantile plots were used to guide the creation of distinct low- and high-grade mineral domains. The silver domains as modeled and drawn on the cross sections are not strict grade shells but were created using geologic information such as orientation, geometry, lithologic contacts, and continuity. Each of these domains represents a distinct style of mineralization. The low-grade domain is associated with weakly fractured and silicified limestone characterized by silver grades between 0.8oz Ag/ton and 5.0oz Ag/ton (domain code 100). The high-grade domain (>5.0oz Ag/ton) is associated with strongly silicified, fracture/brecciated limestone that can contain a few percent lead and zinc (domain code 200).

The cross-sectional geology and silver domains were rectified three-dimensionally to long-sections on 10ft intervals that coincide with the mid-width of the model blocks. The long sections of the clay/rubble zones and silver were used to code the block model to percent of block by lithology and silver domain.

The underground workings were imported into the block model as a solid, and blocks were coded by volume percentage within the underground solid. As described in Section 14.7, those blocks coded at 5 percent or greater underground workings were considered "mined out" and removed from the classified mineral resource.

## 14.4 Density

The Shafter density database consists of 59 specific gravity measurements on Gold Fields drill core. The analyses were completed by Kappes, Cassiday & Associates ("KCA") in 1998 using the water-immersion method to calculate the specific gravity value. The core samples collected for testing were from moderately to strongly mineralized material predominantly within the eastern half of the deposit.

In addition to the individual measurements on core, specific gravity and bulk density analyses were completed by SGS lab in 2013 on four composite samples of mineralized core collected by Aurcana. The composite samples were from both Gold Fields and Aurcana core holes in the vicinity and to the immediate east of Aurcana's underground development.

Four density (tonnage factor) values were used in the resource model as shown in Table 14.1. MDA's analysis of all of the specific gravity data was done in the context of the geologic model, and a specific rock type and silver grade were assigned to each KCA density value. This analysis indicated that all of the density data are from within the modeled silver domains with no density data from the unmineralized limestone or from within the generally weakly mineralized, clay-dominant rubble zones. Due to the occasionally fractured nature of the deposit and to account for the unavoidable sample-selection bias, the measured density values were factored down by 1 percent to 2 percent. The factored data, shown in Table 14.1, reflect the tonnage factor values assigned to the Shafter block model.

**Table 14.1 Shafter Tonnage Factors by Rock Type**

| Rock Type | TF (cuft/ton) |
|---|---|
| outside Ag domains | 12* |
| low-grade Ag (domain 100) | 12.7 |
| high-grade Ag (domain 200) | 13.1 |
| clay/rubble | 14** |

* no data; unmineralized tonnage factor uses general limestone value.
** no data; clay/rubble value is an estimate based on field observations

A single tonnage factor of 11.65 cubic feet/ton for all mineralized material was used by Gold Fields in their economic evaluation during the 1980s. This tonnage factor was determined from an underground bulk sample, but MDA has no knowledge of the material source or the type of analysis. This tonnage factor is significantly lower than all subsequent measurements and was not used in the current analysis.

The relative lack of density data and the use of estimated values within the model introduce some risk into the resource estimate. MDA recommends that significantly more density data be collected and the density variability be better characterized, both spatially and by rock type.

## 14.5 Sample Coding and Composites

The cross-sectional silver domains were used to code samples in the drill database. Quantile plots were made to assess validity of these domains and to determine capping levels. As a result, MDA chose to cap 12 silver assays: two in the low-grade domain and 10 in the high-grade domain. Assay statistics, including the capping grade, for the silver domains used in the resource estimate are presented in Table 14.2.

**Table 14.2 Shafter Silver Mineral Domain Descriptive Statistics - Assays**

| Domain | Assays | Count | Mean (oz Ag/ton) | Median (oz Ag/ton) | Std. Dev. | CV | Min. (oz Ag/ton) | Max. (oz Ag/ton) |
|---|---|---|---|---|---|---|---|---|
| 100 | Ag | 6191 | 2.04 | 1.52 | 1.80 | 0.88 | 0.00 | 63.58 |
| | Ag Cap | 6191 | 2.04 | 1.52 | 1.66 | 0.81 | 0.00 | 20.00 |
| 200 | Ag | 2196 | 13.70 | 9.23 | 16.76 | 1.22 | 0.00 | 310.44 |
| | Ag Cap | 2196 | 13.45 | 9.23 | 13.93 | 1.04 | 0.00 | 120.00 |
| *All* | *Ag* | *8387* | *4.62* | *2.00* | *9.38* | *2.03* | *0.00* | *310.44* |
| | *Ag Cap* | *8387* | *4.56* | *2.00* | *8.21* | *1.80* | *0.00* | *120.00* |

Compositing was done to 4ft down-hole lengths (the model block size), honoring all mineral-domain boundaries. The composites were coded by the mineral-domain interpretations, and length-weighted composites were used in the block-model grade estimation. The volume inside each mineral domain was estimated using only composites from inside that domain. Composite descriptive statistics are presented in Table 14.3.

**Table 14.3 Shafter Silver Mineral Domain Descriptive Statistics – Composites**

| Domain | Count | Mean (oz Ag/ton) | Median (oz Ag/ton) | Std. Dev. | CV | Min. (oz Ag/ton) | Max. (oz Ag/ton) |
|---|---|---|---|---|---|---|---|
| 100 | 4161 | 2.04 | 1.69 | 1.38 | 0.68 | 0.00 | 16.88 |
| 200 | 1240 | 13.45 | 9.91 | 11.87 | 0.88 | 1.16 | 120.00 |
| *All* | 5401 | 4.56 | 2.14 | 7.42 | 1.63 | 0.00 | 120.00 |

## 14.6 Estimation

The resource block model reflects the general east-northeast trend and sub-horizontal nature of the Shafter *manto*-hosted silver mineralization. A variographic study was performed using the silver composites from each mineral domain, collectively and separately, at various azimuths, dips, and lags. Acceptable variogram models were obtained from composites from silver domain 100, as well as both silver domains together. A maximum range of about 90ft was obtained in the horizontal strike (azimuth 70°) and dip (azimuth 150°) directions; these are geologically reasonable orientations for the global strike and dip of the mineralization, respectively. Parameters obtained from the variography study were used in an ordinary-kriging interpolation and also provided information relevant to both the estimation parameters used in an inverse-distance interpolation and resource classification.

The estimation parameters applied at Shafter are summarized in Table 14.4. The estimation used three search passes with successive passes not overwriting previous estimation passes. The first-pass search distances take into consideration the results of both the variography and drill-hole spacing. The second and third passes were designed to estimate grade into all blocks coded to the mineral domains that were not estimated in the first pass.

The estimation passes were performed independently for each of the mineral domains, so that only composites coded to a particular domain were used to estimate grade into blocks coded by that domain. The estimated grades were coupled with the partial percentages of the mineral domains to enable the calculation of a single weight-averaged block-diluted grade for each block.

To reflect the change in *manto* orientation observed along the strike of the deposit, three search ellipse orientations, all based on the local mine grid Eastings, were used to control the resource estimate. See Table 14.5 for search ellipse parameters.

Silver grades were interpolated using inverse distance to the third power, ordinary-kriging, and nearest-neighbor methods. The mineral resources reported herein were estimated by inverse-distance interpolation, as this technique was judged to provide results superior to those obtained by ordinary kriging. The nearest-neighbor estimation was also completed as a check on the other interpolations.

Silver grades were estimated into all blocks coded by the silver mineral domains, including those blocks coded as “mined out” (greater than 5 percent of block volume within underground workings).

**Table 14.4 Shafter Estimation Parameters**

| All Mineral Domains | |
|---|---|
| **Description** | **Parameter** |
| First Pass Samples: minimum/maximum/maximum per hole | 2 / 9 / 3 |
| First Pass Search (ft): major/semi-major/minor | 75 / 75 / 37.5 |
| | |
| Second Pass Samples: minimum/maximum/maximum per hole | 1 / 12 / 3 |
| Second Pass Search (ft): major/semi-major/minor | 300 / 150 / 100 |
| | |
| Third Pass Samples: minimum/maximum/maximum per hole | 1 / 18/ 3 |
| Third Pass Search (ft): major/semi-major/minor | Fill domain / isotropic |
| | |
| Rotation/Dip/Tilt (all searches) | See below |
| Inverse distance power | 3 |

**Table 14.5 Shafter Search Ellipse Orientations**

| Estimation Area | Major Bearing | Plunge | Tilt |
|---|---|---|---|
| Area 10; <51100 East | 70° | 0° | -5° |
| Area 20; 51100 East to 54250 East | 70° | -10° | -10° |
| Area 30; >54250 East | 70° | 0° | 0° |

## 14.7 Mineral Resources

MDA classified the Shafter silver resources by a combination of distance to the nearest sample and the number of samples, while at the same time taking into account reliability of underlying data and understanding and use of the geology. The samples used for the classification criteria stated above are independent of the modeled domains. The criteria for resource classification are given in Table 14.6. There are Measured, Indicated, and Inferred resources within the Shafter deposit. There are no Measured resources associated with the Amax historic drilling due to a) some uncertainty in the drill-hole locations; b) a lack of QA/QC data; and c) no original laboratory assay data. None of these detract from the overall confidence in the global project resource estimate, but they do detract from confidence in some of the accuracy which MDA requires for a Measured resource.

**Table 14.6 Criteria for Shafter Resource Classification**

| Measured (RGMC and Gold Fields drill holes only) | |
|---|---|
| Minimum no. of samples /minimum no. of holes / maximum distance (ft) | 3 / 2 / 30 |
| | |
| **Indicated** | |
| Minimum no. of samples /minimum no. of holes / maximum distance (ft) | 2 / 1 / 50<br>or<br>2 / 2 / 75 |
| | |
| All material not classified above but lying within the modeled mineralized domains is Inferred | |

An assigning of an Indicated classification for resources associated with the Amax drilling is a result of the subsequent underground development, both historical and recent, and surface and underground drilling activities that serve to confirm the general tenor of mineralization observed within the Amax drilling. Hole location verification and sample data comparisons discussed in Sections 12.1.4 provides confidence in the use of the Amax data. It also must be recognized that Amax was a large mining company with productive mining operations and it is expected that their drilling, sampling and assay procedures were of high quality.

To account for the historic mining, all blocks coded at five percent or greater underground workings were considered "mined out" and removed from the classified mineral resource.

Because of the requirement that the resource exists "in such form and quantity and of such a grade or quality that it has reasonable prospects for eventual economic extraction," MDA is reporting the resources at a cutoff grade that is reasonable for deposits of this nature that will be mined by underground methods. As such, some economic considerations, based on past and projected Shafter costs, were used to determine the cutoff grade at which the resource is presented. MDA considered a reasonable metal price ($20 Ag), extraction (mining and processing) and administrative costs of about $75/ton to $80/ton, and recoveries in the 80% to 85% range. The calculated cutoff is then lowered somewhat to reflect an internal cutoff for those blocks which would be mined to provide access to higher grade blocks, and, since mining costs are now sunk, would be sent for processing and would provide a positive economic return.

The Shafter total reported resources are tabulated in Table 14.7. The stated resource is fully diluted to 10ft by 10ft by 4ft blocks and is tabulated on a silver cutoff grade of 4.0oz Ag/ton. The block-diluted resources are also tabulated at additional cutoffs in Table 14.8 and Table 14.9 in order to provide grade-distribution information.

**Table 14.7 Shafter Reported Resources**

**Shafter Reported Resource:**

| Class | Cutoff (oz Ag/ton) | Tons | oz Ag/ton | oz Ag |
|---|---|---|---|---|
| Measured | 4.00 | 100,000 | 8.73 | 888,000 |
| Indicated | 4.00 | 1,110,000 | 9.15 | 10,171,000 |
| Meas. + Ind. | 4.00 | 1,210,000 | 9.14 | 11,059,000 |
| Inferred | 4.00 | 870,000 | 7.47 | 6,511,000 |

1 Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2 Mineral Resources are reported at a 4 oz Ag/ton cut-off in consideration of potential underground mining and conventional mill processing.
3 Rounding may result in apparent discrepancies between tons, grade and contained metal content.

## Table 14.8 Shafter Mineral Resource

| Shafter Measured Resource | | | |
|---|---|---|---|
| Cutoff (oz Ag/ton) | Tons | oz Ag/ton | oz Ag |
| 2.0 | 220,000 | 5.55 | 1,200,000 |
| 3.0 | 170,000 | 7.39 | 1,006,000 |
| **4.0** | **100,000** | **8.73** | **888,000** |
| 5.0 | 80,000 | 9.77 | 799,000 |
| 6.0 | 70,000 | 10.70 | 719,000 |
| 7.0 | 60,000 | 11.68 | 637,000 |
| 8.0 | 50,000 | 12.53 | 567,000 |
| 9.0 | 40,000 | 13.49 | 494,000 |
| 10.0 | 30,000 | 14.48 | 426,000 |
| 12.0 | 20,000 | 16.84 | 299,000 |
| 15.0 | 10,000 | 20.14 | 185,000 |
| 20.0 | 3,000 | 25.71 | 80,000 |

| Shafter Indicated Resource | | | |
|---|---|---|---|
| Cutoff (oz Ag/ton) | Tons | oz Ag/ton | oz Ag |
| 2.0 | 2,490,000 | 5.60 | 13,967,000 |
| 3.0 | 1,940,000 | 7.56 | 11,646,000 |
| **4.0** | **1,110,000** | **9.15** | **10,171,000** |
| 5.0 | 880,000 | 10.41 | 9,114,000 |
| 6.0 | 710,000 | 11.53 | 8,230,000 |
| 7.0 | 580,000 | 12.69 | 7,363,000 |
| 8.0 | 470,000 | 13.89 | 6,550,000 |
| 9.0 | 380,000 | 15.22 | 5,757,000 |
| 10.0 | 310,000 | 16.47 | 5,122,000 |
| 12.0 | 210,000 | 19.07 | 4,039,000 |
| 15.0 | 130,000 | 22.67 | 2,954,000 |
| 20.0 | 60,000 | 28.71 | 1,772,000 |

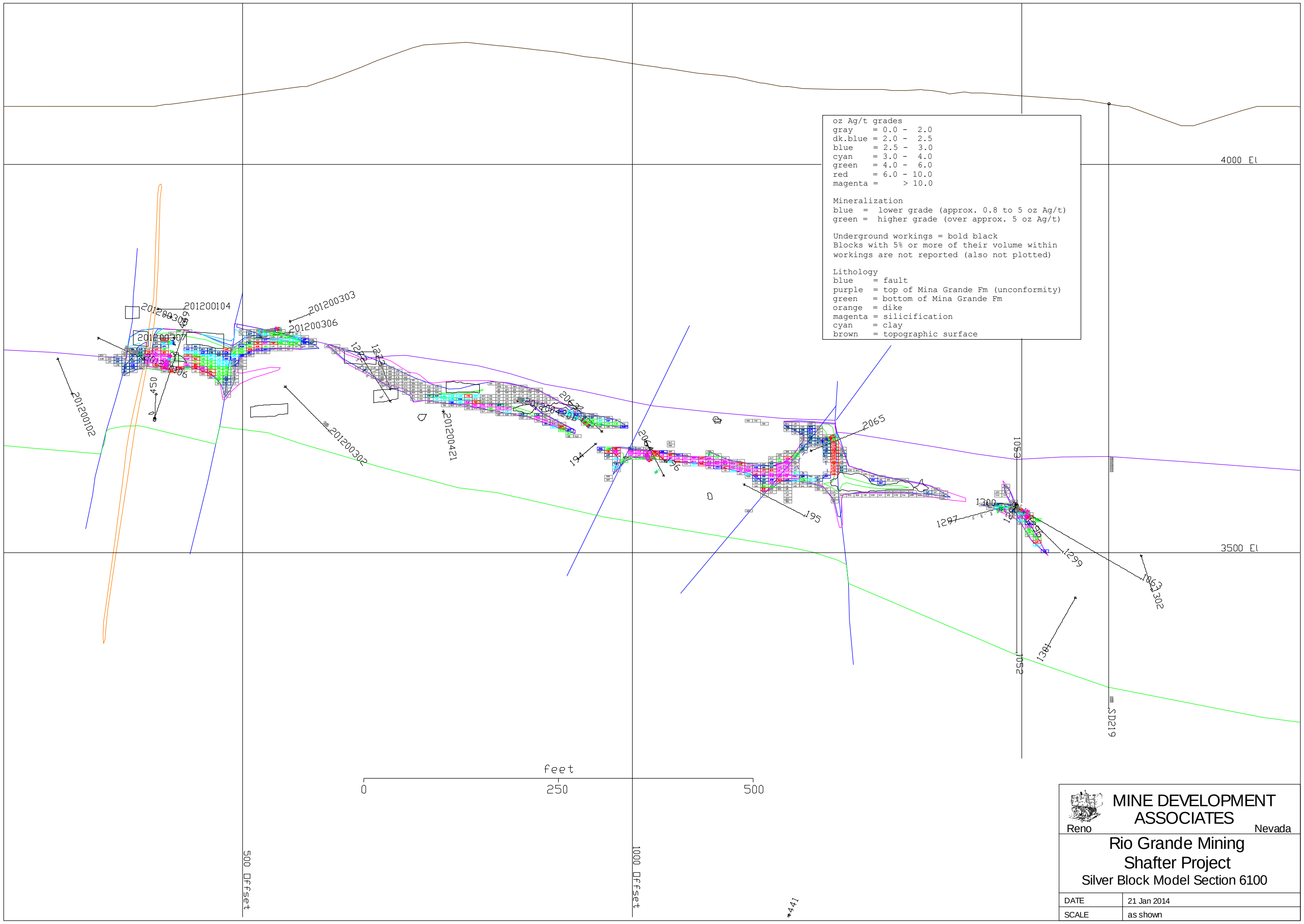
| Shafter Measured and Indicated Resource | | | |
|---|---|---|---|
| Cutoff (oz Ag/ton) | Tons | oz Ag/ton | oz Ag |
| 2.0 | 2,710,000 | 5.60 | 15,167,000 |
| 3.0 | 2,110,000 | 6.00 | 12,652,000 |
| **4.0** | 1,210,000 | **9.14** | 11,059,000 |
| 5.0 | 960,000 | 10.33 | 9,913,000 |
| 6.0 | 780,000 | 11.47 | 8,949,000 |
| 7.0 | 640,000 | 12.50 | 8,000,000 |
| 8.0 | 520,000 | 13.69 | 7,117,000 |
| 9.0 | 420,000 | 14.88 | 6,251,000 |
| 10.0 | 340,000 | 16.32 | 5,548,000 |
| 12.0 | 230,000 | 18.86 | 4,338,000 |
| 15.0 | 140,000 | 22.42 | 3,139,000 |
| 20.0 | 63,000 | 29.40 | 1,852,000 |

**Table 14.9 Inferred Resources**

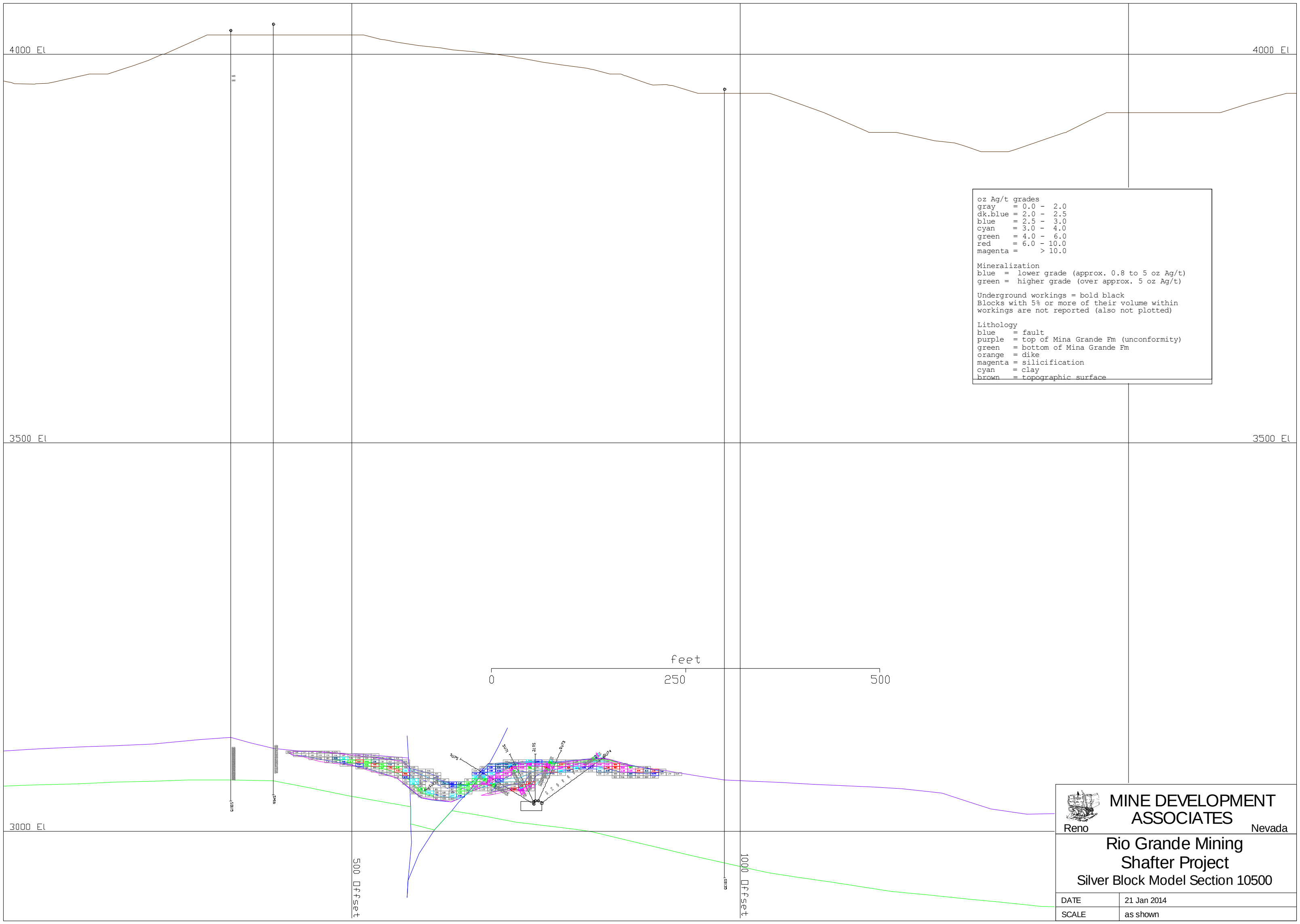
| Shafter Inferred Resource | | | |
|---|---|---|---|
| **Cutoff (oz Ag/ton)** | **Tons** | **oz Ag/ton** | **oz Ag** |
| 2.0 | 2,610,000 | 4.29 | 11,189,000 |
| 3.0 | 1,370,000 | 6.00 | 8,193,000 |
| **4.0** | **870,000** | **7.47** | **6,511,000** |
| 5.0 | 650,000 | 8.49 | 5,518,000 |
| 6.0 | 490,000 | 9.47 | 4,649,000 |
| 7.0 | 370,000 | 10.41 | 3,887,000 |
| 8.0 | 280,000 | 11.45 | 3,160,000 |
| 9.0 | 200,000 | 12.50 | 2,549,000 |
| 10.0 | 150,000 | 13.57 | 2,044,000 |
| 12.0 | 70,000 | 16.25 | 1,207,000 |
| 15.0 | 40,000 | 19.28 | 712,000 |
| 20.0 | 10,000 | 24.34 | 267,000 |

Typical cross sections of the Shafter block model are shown in Figure 14.1 (Cross section 6100) and Figure 14.2 (Cross section 10500). Locations of the cross-sections are shown in Figure 10.1. Cross-section 6100 is within the historic Presidio mine in the area of the recent RGMC development, while cross-section 10500 is to the east in the down-dip extension drill defined by Gold Fields.

**Figure 14.1 Shafter Block Model with Silver Grades– Cross-Section 6100**



# Figure 14.2 Shafter Block Model with Silver Grades– Cross-Section 10500



Checks were made on the Shafter resource model in the following manner:

- Block-model information, such as mineral domains, metal grade, geology coding, and number of samples, was checked visually on the computer on sections and long-sections;
- Cross-section volumes to level-plan volumes to block-model volumes were checked;
- Nearest-neighbor and ordinary-kriging models were made for statistical and visual comparison;
- A simple polygonal model was made with the original modeled section domains; and
- Normal quantile distribution plots of assays, composites, and block-model grades were made to evaluate differences in distributions of silver grades.

## 14.8 Discussion of Resources

The Shafter mineral resource estimate honors the drill-hole geology and assay data and is supported by the geologic model. Silver mineralization occurs as a sub-horizontal *manto* within variably silicified limestone at, or just below, the Cretaceous/Permian unconformity. The Shafter resource occurs over a 13,000ft east-northeast strike length, is up to 1,200ft wide, and is generally 10 to 20ft thick. The resource is at a depth of less than 100ft in the west-central portion of the deposit and then gradually deepens to a depth of over 1000ft within the eastern end of the deposit following the general stratigraphic dip. *Manto* thickness and silver grades can be highly variable, often related to near-vertical structures that served as conduits for mineralizing fluids and/or structural traps.

Silver mineralization is generally continuous along the length of the deposit, though at the 4.0oz Ag/ton cutoff, the resource becomes fragmented to the west of the historic Presidio mine workings. The removal of the "mined out" material spatially associated with the underground workings also contributes to the fragmentary nature of the resource within the historic Presidio mine area.

The use of the historic Amax drill data and the associated uncertainties in Amax's drill locations and assay quality bring some risk to the resource estimate. This risk is somewhat ameliorated by the presence of the underground workings, which helps spatially define the mineralization, and the similar tenor of the more recent RGMC and Gold Fields assay data.

Additional infill drilling, increased underground mapping and sampling, and significantly more density measurements are recommended to bring greater confidence to the current mineral resource estimate.

## 15.0 MINERAL RESERVE ESTIMATES

No estimate of mineral reserves based on the current mineral resource described in Section 14.0 has been made for this report.

## 16.0 MINING METHODS

As described in section 14.2, silver mineralization at Shafter occurs as a sub-horizontal *manto* within variably silicified Mina Grande limestone at or just below the Cretaceous/Permian unconformity. Mineralization occurs over a 13,000ft east-northeast strike length, is up to 1,200ft across, and is generally 10 to 20ft thick. The resource is at a depth of less than 100ft in the west-central portion of the deposit and then gradually deepens to a depth of more than 1,000ft within the eastern end of the deposit following the general stratigraphic dip. *Manto* thickness and silver grades can be highly variable, often related to near-vertical structures that served as fluid conduits and/or structural traps.

Although silver mineralization is generally continuous along the 13,000ft length of the deposit, the resource is fragmentary in the vicinity of the historic Presidio mine due to the removal of mined-out material, as well of west of the historic Presidio mine in the area more recently mined by Aurcana.

A resource model with block-diluted metal grades and block dimension of 10ft by 10ft in easting and northing, by 4ft in vertical direction was used to define resources and outline the mining locations. A minimum mining height of 8 feet was used to define the areas considered for mining.

The relatively sub-horizontal geometry and the thickness of the mineralization suggested the use of variations of room-and-pillar and cut-and-fill mining methods with a minimum height of 8 feet to allow sufficient height for personnel and equipment. Areas with thickness over than 15 feet can be mined in two or more passes, or could be mined using post room-and-pillar mining, or another variation of the conventional room-and-pillar mining.

For the purpose of design and scheduling, the model was coded with five zones:

- Presidio West (“West”);
- Presidio Main (“Presidio”);
- Presidio Lower (“Lower”);
- Shafter West and
- Shafter Main

These zones represent mineralization decreasing in elevation from the West to Shafter. The Presidio areas have existing underground openings where mining has occurred in the past and these areas are accessible by a ramp and drift systems. The ramp varies in size from 15ft x 15ft near the portal to about 12ft x 14ft near the end of the ramp. Approximately 2,100ft of development is needed to connect the Shafter area with the Presidio ramp system.

The Shafter area has access through an approximately 1,000ft deep shaft that was prepared by Goldfields in the early 1980s to enable close spaced drilling, test mining, and obtaining additional samples for metallurgical testing. Figure 16.1 shows the Presidio and the Shafter areas in the resource model. Note that no mining was considered in the Presidio West area as part of this PEA, other than rehabilitation of existing workings.

**Figure 16.1 Presidio and Shafter Underground Areas**

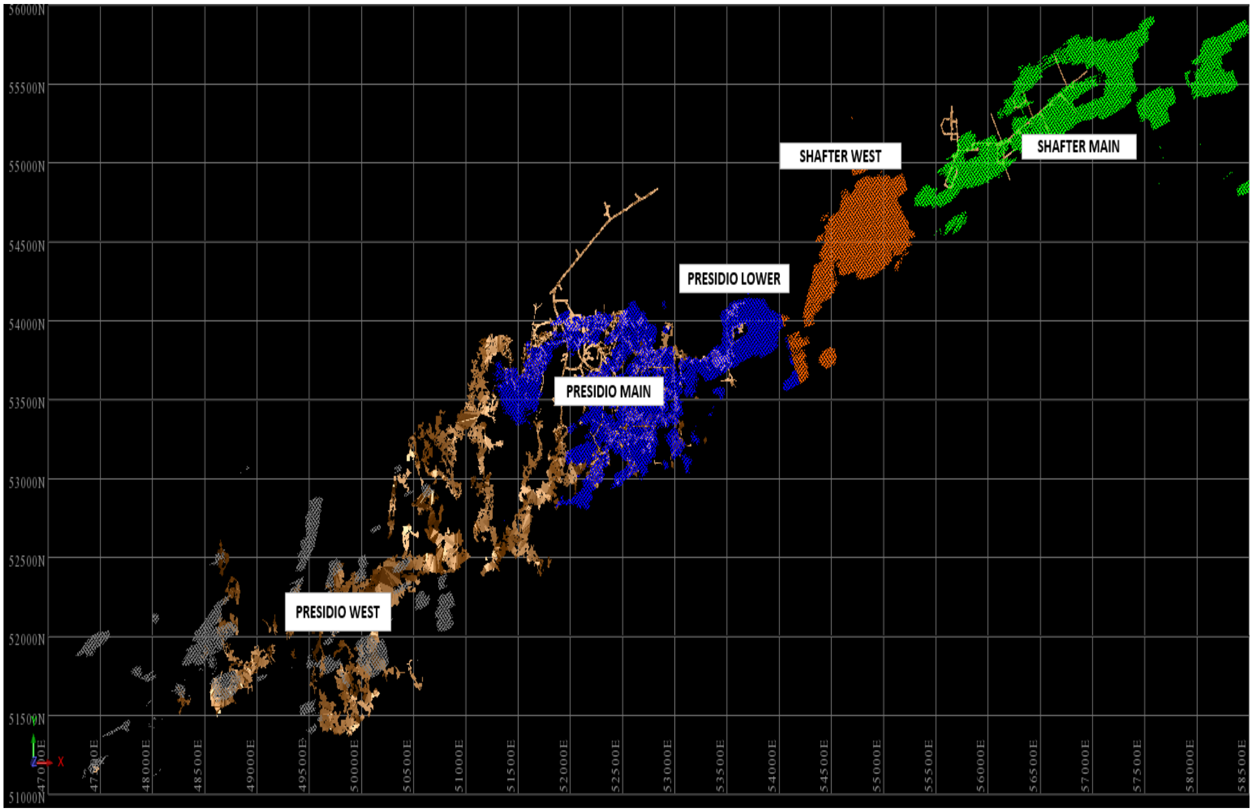



Table 16.1 summarizes the reported resources and the resource blocks at a 4oz Ag/ton cutoff grade considered in this study.

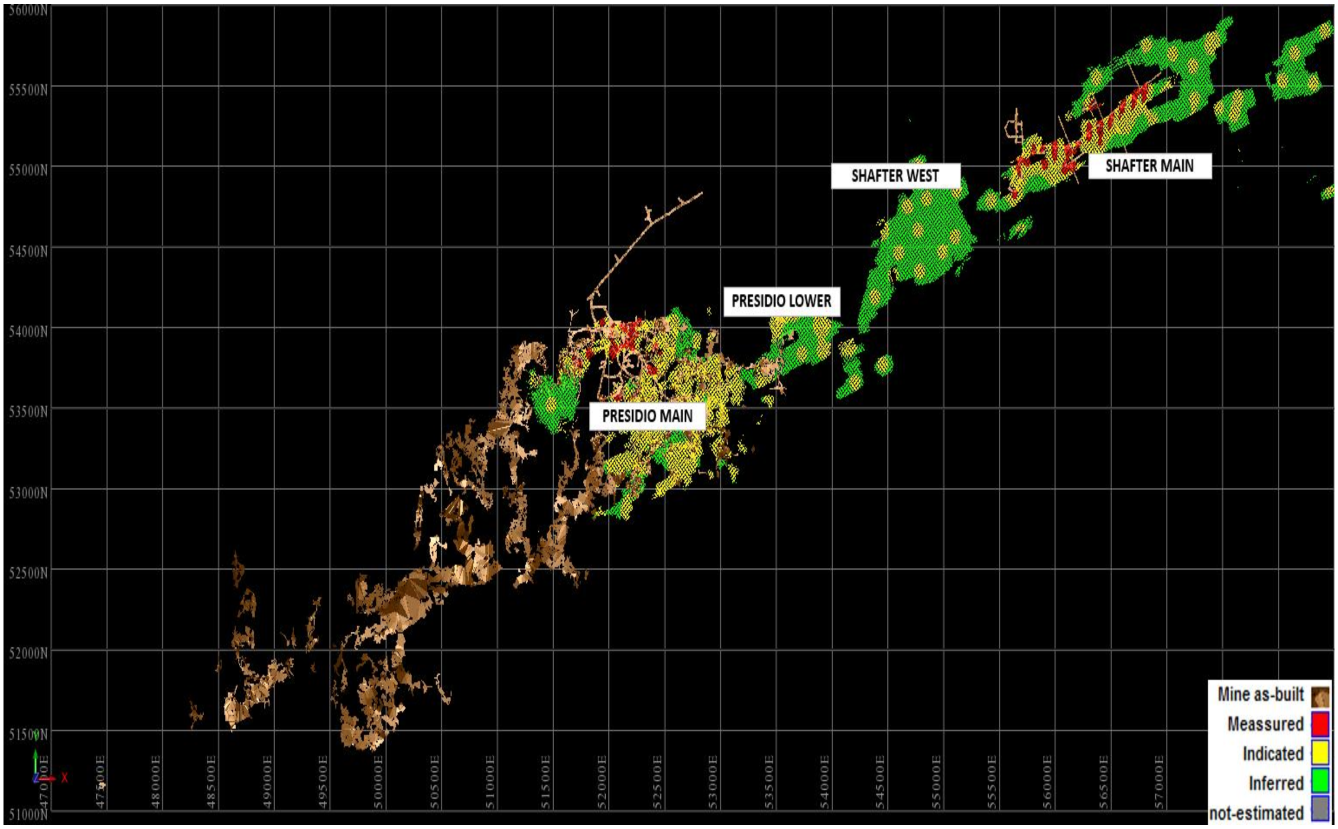
**Table 16.1 Block Model Resource Summary**

| | Cutoff | Reported Resources Summary (2015) | | | Resource Blocks for 2016 PEA Study* | | |
|---|---|---|---|---|---|---|---|
| Class | (oz Ag/ton) | Tons | oz Ag/ton | oz Ag | Tons | oz Ag/ton | oz Ag |
| Measured | 4.00 | 100,000 | 8.73 | 888,000 | 97,200 | 8.74 | 849,500 |
| Indicated | 4.00 | 1,110,000 | 9.15 | 10,171,000 | 888,900 | 9.21 | 8,186,500 |
| Meas. + Ind. | 4.00 | 1,210,000 | 9.14 | 11,059,000 | 986,100 | 9.16 | 9,036,000 |
| Inferred | 4.00 | 870,000 | 7.47 | 6,511,000 | 803,500 | 7.50 | 6,025,700 |

**Presidio, Lower and Shafter areas only*

Measured, Indicated and Inferred material were used in the estimation of the mineral inventory. Figure 16.2 shows the blocks of the resource model at 4oz Ag/ton cutoff.

**Figure 16.2 Resource Blocks Considered for Mine Design and Schedule**




## 16.1 Mine Design Criteria

### 16.1.1 Mine Start-Up Area

Criteria for design of the headings and mining locations were based primarily on the geometry of the deposit as well as the existing drifts, ramps, and raises. Starting the mine from the shaft and decline were initially considered, however, due to the capital cost of rehabilitating the existing hoist, shaft, and ventilation system required, it is more attractive to start mining utilizing the ramp system. This however, may be somewhat more risky than starting to mine at the Shafter area due to the more fragmented nature of the mineralization in the Upper Presidio area.

### 16.1.2 Cutoff Grade

Silver recovery is variable, but is based on a constant tail of 1.5oz Ag/ton. The cut-off grade calculation is summarized in Table 16.2.

**Table 16.2 Cut-off Grade Calculation**

| Item | Units | Preliminary Estimate |
|---|---|---|
| Operating Costs | | |
| Mining | $/ton | $40.00 |
| Surface Haulage | $/ton | $1.25 |
| Cement for Paste | $/ton | $3.56 |
| Paste Plant & Distribution | $/ton | $1.65 |
| Processing & Refining | $/ton | $26.53 |
| General & Administrative | $/ton | $8.50 |
| Totals | $/ton | $81.49 |
| Silver Recovery | % | 82.50% |
| Mining Assumptions | | |
| Stope Dimensions | ft | 20.00 x22.00 |
| Stope Height | ft | 8.00 |
| Development "ore" Height | ft | 8.00 |
| Development dimensions | ft | 12.00 x 15.00 |
| Ramp Gradient | % | 12 |
| Production Rate | tons/year | 210,000 |
| Cutoff Grade | oz Ag/ton | 5.00 |

Using the parameters shown in Table 16.2, a cutoff grade of 4.94oz Ag/ton was calculated and rounded to 5.0oz Ag/ton to be used to define and design the stopes.

### 16.1.3 Mine Production

The mining rate is planned to be 600 tons of mill feed per day, 350 days per year, or 210,000 tons per year.

### 16.1.4 Mine Haulage Ramp, Drifts and Stope Access Design

Mine haulage ramps, haulage drifts, and stope access to mining locations were designed as centerlines. Gradient for main ramps and access to mining locations were limited to a maximum of 12 percent with a cross-section area of 12ft by 15ft. Existing mine as-built designs were also used to estimate the footage of rehabilitation needed at main ramps, drifts and ventilations raises in the Presidio and Shafter areas. These centerlines were also used to produce the development schedule. The current as-built and the new mine designs are shown below in a long-section view in Figure 16.3 and in a plan view in Figure 16.4.

**Figure 16.3 Mine As-built and New Development Designs Long Section**

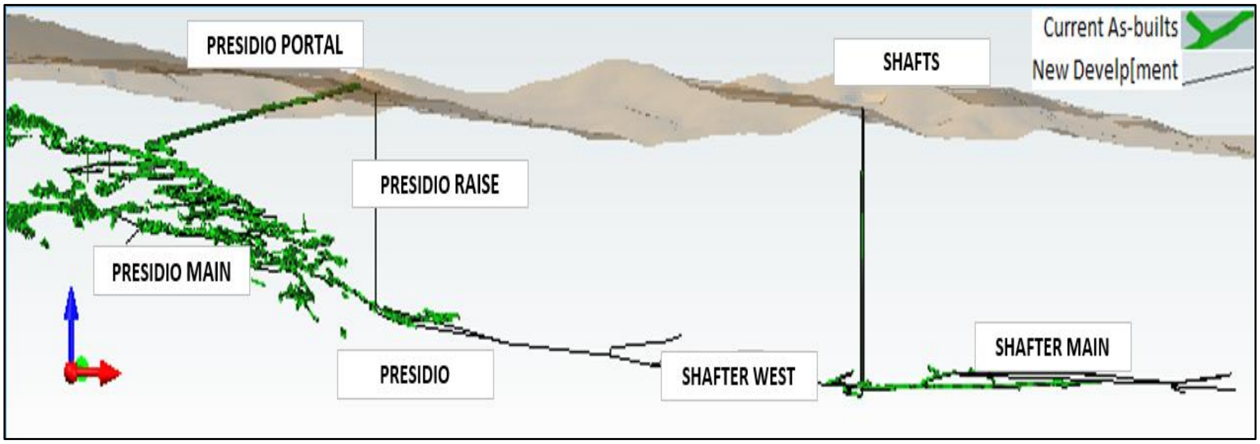
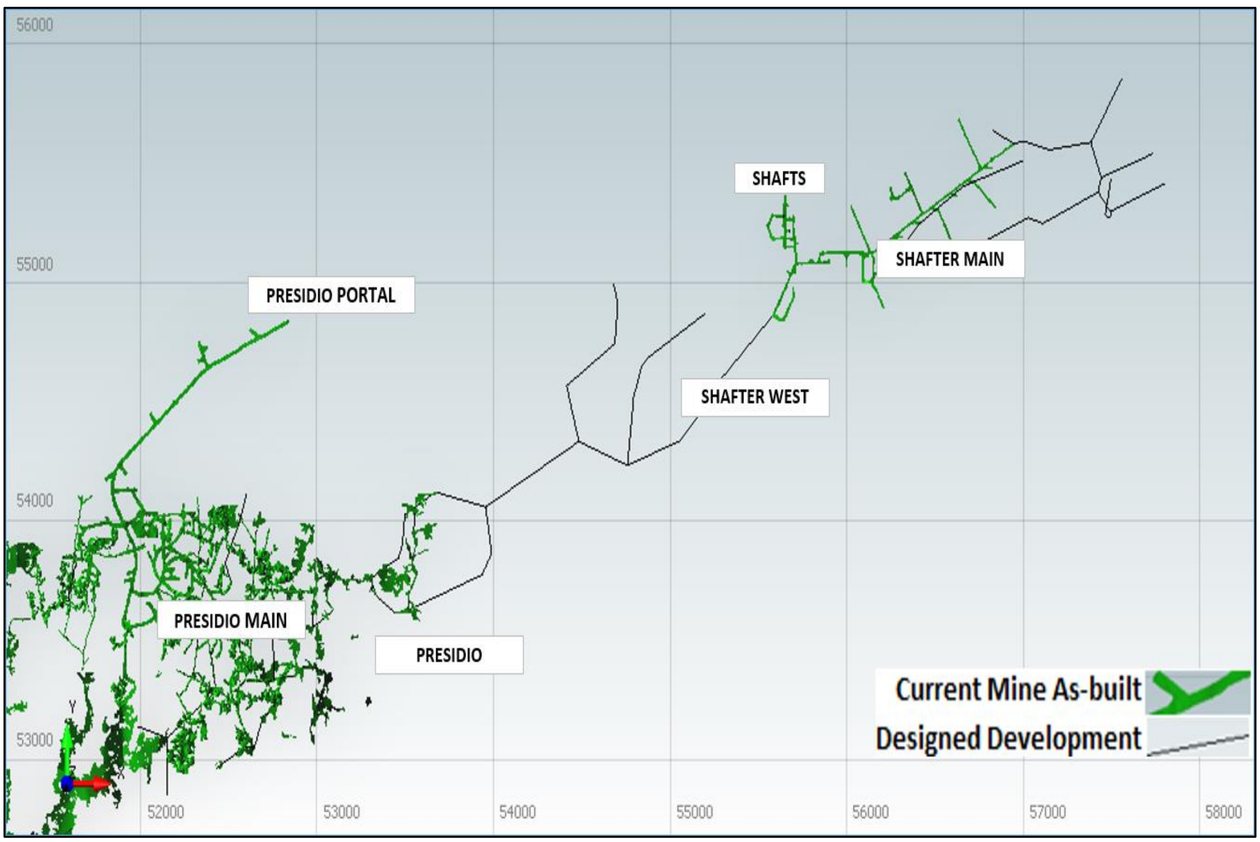



**Figure 16.4 Mine As-built and New Development Designs Plan View**




## 16.1.5 Mining Location Design Method

Surpac mining software was used to outline and design the mining locations. The outlines were done in plan views at 8ft mid-block elevation intervals of the block-diluted resource model. The minimum mining height of 8ft was used to allow mechanized mining. The outlines include all internal dilution material (i.e. material less than 5oz Ag/ton). Areas with significant amounts of internal dilution were excluded to minimize dilution. Dilution can be further minimized by mining more selectively in multiple passes or mining with conventional jackleg drills.

The process of designing the extent of mining locations is described in the following steps.:

1. Constrain the resource block model with a 5oz Ag/ton silver grade cutoff;
2. Slice the constrained block model in 8ft intervals to generate block outlines at mid-block elevations and 8ft intervals;
3. Draw outlines around areas in plan that are potentially minable by the selected mining methods; and
4. Extrude the mid-block polygons to construct solids.

Estimated material inside the solids, representing the mining locations, was then reported and used to produce the mining schedules. Figure 16.5 shows a plan view location for Figure 16.6 and Figure 16.7. Figure 16.6 is from the Presidio Main area, while Figure 16.7 is from the Shafter Main area.

**Figure 16.5 Locations of Figures 16.4 (Presidio) and 16.5 (Shafter)**

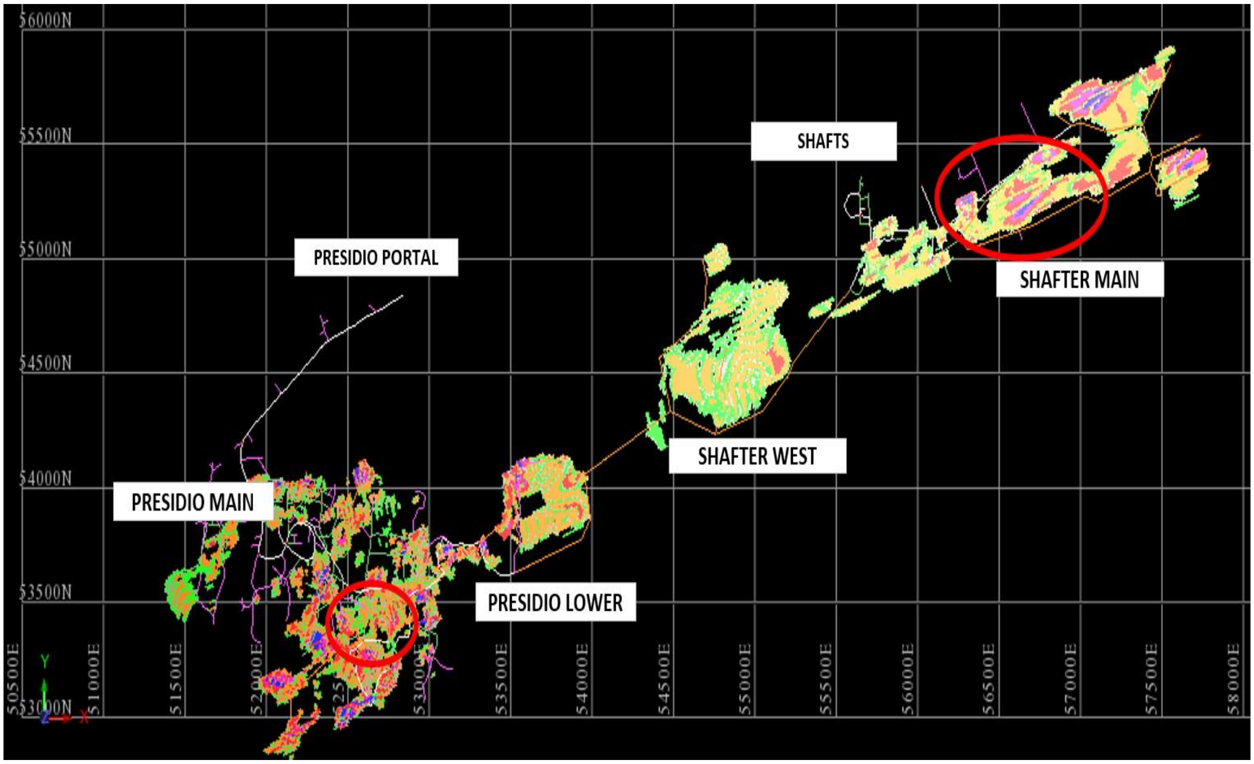
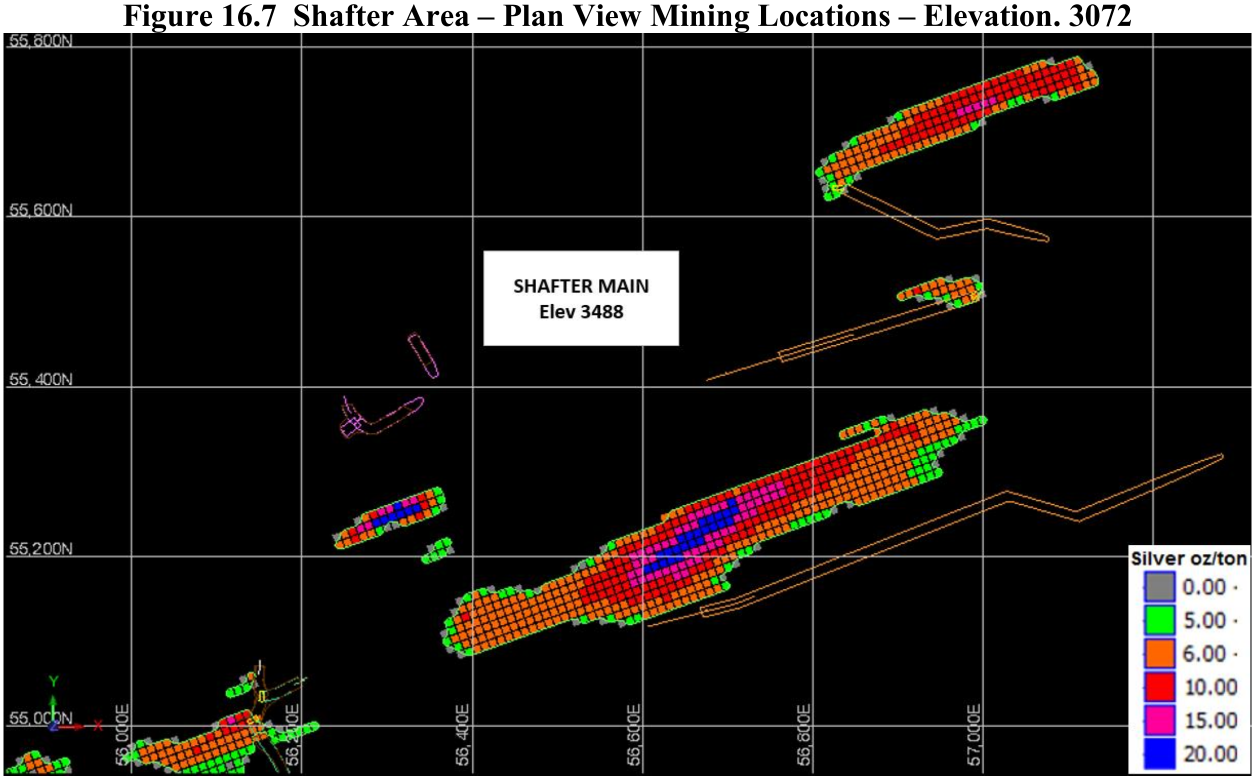


Figure 16.6 shows a typical plan view level at the Presidio area showing the resource blocks within the outlined mining locations. Figure 16.7 shows a typical plan at the Shafter area.

**Figure 16.6 Presidio Area – Plan View Mining Locations – Elevation 3488**


**Figure 16.7 Shafter Area – Plan View Mining Locations – Elevation. 3072**



## 16.2 Mine Development

The estimate of mine development required is based on rehabilitating the existing portal and ramp system and using the rehabilitated ramp system to gain access to the upper Presidio mineralization. This area and the lower Presidio mineralization will be mined using the ramp system. The Shafter mineralization can be mined by connecting the ramp system with the Shafter area mine workings or by rehabilitating the existing shaft and hoist. This study assumes both will be completed to allow flexibility, and to maintain two means of escape from the Shafter area. Mill feed and waste materials from the Shafter area are assumed to be transported to the surface by the shaft.

A mine development schedule was developed based on maintaining plant production of 600 tons of material per day, 350 days per year. Stope access and haulage drifts and ramps are designed to be 13ft. by 15ft. The mine development schedule is summarized in Table 16.3.

**Table 16.3 Mine Development Summary**

| Heading Type | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | | Total ft |
|---|---|---|---|---|---|---|---|---|
| Presidio Rehab. | 3,876 | 4,596 | 4,059 | 922 | 0 | 0 | | **13,453** |
| Shafter Shaft Rehab. | 0 | 0 | 1,913 | 0 | 0 | 0 | | **1,913** |
| Shafter Rehab. | 0 | 0 | 246 | 2,124 | 1,604 | 0 | | **3,974** |
| | | | | | | | | |
| Total Rehab | 3,876 | 4,596 | 6,218 | 3,046 | 1,604 | 0 | | **19,340** |
| Presidio Development | 0 | 1,338 | 1,059 | 1,773 | 2,118 | 1,186 | | **7,475** |
| Shafter Development | 0 | 0 | 0 | 0 | 1,065 | 3,087 | | **4,152** |
| Vent Raise | 0 | 744 | 0 | 0 | 0 | 0 | | **744** |
| Stope Access | 0 | 320 | 305 | 145 | 10 | 55 | | **835** |
| | | | | | | | | |
| Total Development | 0 | 2,402 | 1,364 | 1,918 | 3,193 | 4,328 | | **13,205** |
| Total Rehab + Development | 3,876 | 6,998 | 7,582 | 4,964 | 4,798 | 4,328 | | **32,545** |

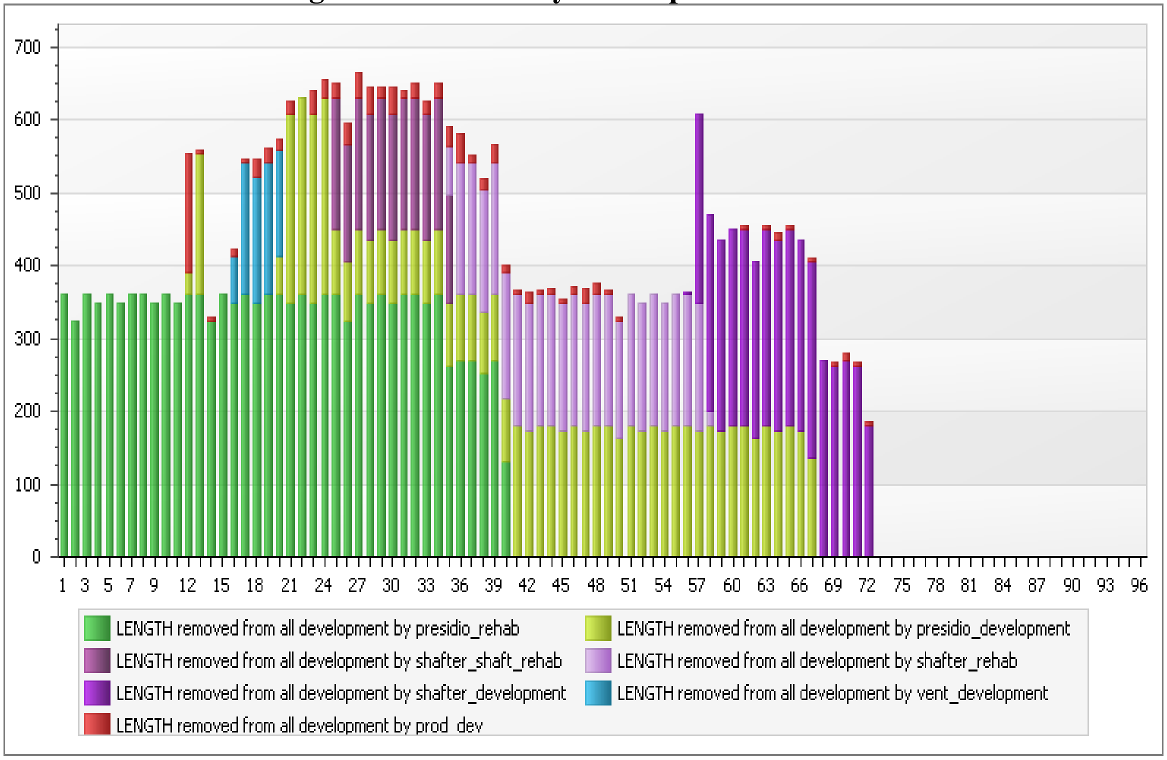
MDA assumed that the rehabilitation would remove an average of 3 tons of waste material per foot of rehabilitation. Table 16.4 summarizes the waste material removed by rehabilitation or development. This material may be used to backfill areas as required or removed from the mine.

**Table 16.4 Mine Development Summary – Waste Tons**

| Material Source | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | | Total Tons |
|---|---|---|---|---|---|---|---|---|
| Tons from Rehab | 11,628 | 13,788 | 17,915 | 2,766 | 0 | 0 | | **46,097** |
| Tons from Development | 0 | 24,874 | 24,149 | 60,630 | 71,966 | 64,923 | | **246,542** |
| **Total waste Tons** | **11,628** | **38,662** | **42,064** | **63,396** | **71,966** | **64,923** | | **292,639** |

Mining during the first two years of production occurs in the higher grade zones. Mined material will be hauled out the portal using 20-ton trucks through the main haulage ramp system and dumped in a stockpile near the crushing plant. The Presidio area contains about 38 percent of the mineralization above cutoff grade, while the Shafter area contains about 62 percent. Figure 16.8 shows the development schedule in monthly periods graphically, with the first 12 months being preproduction.

**Figure 16.8 Monthly Development Schedule**




## 16.3 Mine Production

The mine production schedule was developed based on producing 210,000 tons per year and operating 350 days per year. The Presidio area required 7 stopes to be available for scheduling production, while the Shafter area required 3 stopes to be available. The mineralization in the Shafter area appears to be more continuous than the Presidio area, and the stopes from the Shafter area should be able to maintain a higher production rate. The measured, indicated and inferred material is shown in Table 16.5a, while Table 16.5b shows the summary by year.

**Table 16.5a Material Scheduled For Mining**

| Summary of Scheduled for Mining Material | | | | Mined Material ** | | |
|---|---|---|---|---|---|---|
| Planned Material | | Model* | | (with 95% mining recovery) | | |
| Class | Tons | Ag Oz/t | Ounces | Tons | Ag Oz/t | Ounces |
| measured mineralized | 49,738 | 11.67 | 580,282 | 47,251 | 11.67 | 551,268 |
| measured dilution | 4,450 | 3.66 | 16,299 | 4,238 | 3.66 | 15,523 |
| indicated mineralized | 469,961 | 12.34 | 5,798,335 | 446,463 | 12.34 | 5,508,418 |
| indicated dilution | 210,852 | 4.40 | 927,353 | 200,812 | 4.40 | 883,194 |
| | | | | | | |
| Total Measured+Indicated | 735,001 | 9.96 | 7,322,269 | 698,764 | 9.96 | 6,958,402 |
| | | | | | | |
| inferred mineralized | 329,202 | 10.28 | 3,385,459 | 312,742 | 10.28 | 3,216,186 |
| inferred dilution | 332,780 | 3.74 | 1,245,983 | 315,628 | 3.74 | 1,181,437 |
| | | | | | | |
| Total Inferred Material | 661,982 | 7.00 | 4,631,442 | 628,370 | 7.00 | 4,397,623 |
| ** Silver grades from Block Model* | | | | | | |
| *** Mined tons using 95% mine recovery* | | | | | | |

## Table 16.5b Production Schedule

| MATERIAL SENT TO PROCESS - Measured, Indicated and Inferred | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **MEASURED** | **YR -1** | **YR 1** | **YR 2** | **YR 3** | **YR 4** | **YR 5** | **YR 6** | **YR 7** | **Total** |
| Tonnes | 0 | 2,095 | 15,495 | 3,475 | 0 | 3,877 | 9,232 | 13,077 | **47,251** |
| Ag Oz/t | 0.00 | 9.40 | 10.93 | 12.01 | 0.00 | 12.00 | 12.61 | 12.06 | **11.67** |
| Silver ounces | 0 | 19,698 | 169,291 | 41,732 | 0 | 46,507 | 116,382 | 157,658 | **551,268** |
| **MEASURED DILUTION** | | | | | | | | | |
| Tonnes | 0 | 47 | 1,932 | 400 | 0 | 199 | 800 | 859 | **4,238** |
| Ag Oz/t | 0.00 | 3.96 | 3.86 | 4.83 | 0.00 | 3.12 | 3.02 | 3.39 | **3.66** |
| Silver ounces | 0 | 186 | 7,457 | 1,934 | 0 | 621 | 2,415 | 2,910 | **15,523** |
| **TOTAL MEASURED** | | | | | | | | | |
| Tonnes | 0 | 2,142 | 17,427 | 3,875 | 0 | 4,076 | 10,033 | 13,936 | **51,489** |
| Ag Oz/t | 0.00 | 9.28 | 10.14 | 11.27 | 0.00 | 11.56 | 11.84 | 11.52 | 11.01 |
| Silver ounces | 0 | 19,884 | 176,747 | 43,666 | 0 | 47,128 | 118,797 | 160,568 | **566,791** |
| **INDICATED** | **YR -1** | **YR 1** | **YR 2** | **YR 3** | **YR 4** | **YR 5** | **YR 6** | **YR 7** | **Total** |
| Tonnes | 0 | 114,763 | 100,555 | 70,088 | 31,668 | 49,983 | 51,667 | 27,739 | **446,463** |
| Ag Oz/t | 0.00 | 13.34 | 13.58 | 11.94 | 10.26 | 10.38 | 12.06 | 11.15 | **12.34** |
| Silver ounces | 0 | 1,530,487 | 1,365,261 | 837,093 | 324,775 | 518,575 | 622,915 | 309,310 | **5,508,418** |
| **INDICATED DILUTION** | | | | | | | | | |
| Tonnes | 0 | 55,429 | 63,723 | 27,632 | 2,308 | 9,475 | 23,235 | 19,010 | **200,812** |
| Ag Oz/t | 0.00 | 4.74 | 4.79 | 5.12 | 4.05 | 3.13 | 3.21 | 3.16 | **4.40** |
| Silver ounces | 0 | 262,656 | 305,370 | 141,585 | 9,357 | 29,640 | 74,508 | 60,079 | **883,194** |
| **TOTAL INDICATED** | | | | | | | | | |
| Tonnes | 0 | 170,192 | 164,278 | 97,720 | 33,976 | 59,457 | 74,902 | 46,748 | **647,275** |
| Ag Oz/t | 0.00 | 10.54 | 10.17 | 10.02 | 9.83 | 9.22 | 9.31 | 7.90 | **9.87** |
| Silver ounces | 0 | 1,793,143 | 1,670,631 | 978,678 | 334,132 | 548,215 | 697,423 | 369,389 | **6,391,611** |
| **INFERRED** | **YR -1** | **YR 1** | **YR 2** | **YR 3** | **YR 4** | **YR 5** | **YR 6** | **YR 7** | **Total** |
| Tonnes | 0 | 14,277 | 10,070 | 49,368 | 76,334 | 82,989 | 77,254 | 2,449 | **312,742** |
| Ag Oz/t | 0.00 | 10.81 | 12.70 | 9.61 | 9.09 | 9.96 | 11.85 | 9.71 | **10.28** |
| Silver ounces | 0 | 154,408 | 127,852 | 474,471 | 693,660 | 826,627 | 915,397 | 23,770 | **3,216,186** |
| **INFERRED DILUTION** | | | | | | | | | |
| Tonnes | 0 | 23,351 | 18,187 | 59,548 | 99,652 | 63,441 | 47,774 | 3,677 | **315,628** |
| Ag Oz/t | 0.00 | 5.05 | 3.76 | 4.07 | 3.73 | 3.59 | 2.95 | 3.32 | **3.74** |
| Silver ounces | 0 | 117,979 | 68,401 | 242,627 | 371,382 | 227,688 | 141,171 | 12,189 | **1,181,437** |
| **TOTAL INFERRED** | | | | | | | | | |
| Tonnes | 0 | 37,628 | 28,258 | 108,916 | 175,986 | 146,429 | 125,028 | 6,126 | **628,370** |
| Ag Oz/t | 0.00 | 7.24 | 6.95 | 6.58 | 6.05 | 7.20 | 8.45 | 5.87 | **7.00** |
| Silver ounces | 0 | 272,387 | 196,254 | 717,098 | 1,065,042 | 1,054,315 | 1,056,568 | 35,959 | **4,397,623** |

Table 16.5c shows the production schedule by area.

**Table 16.5c Mine Production Schedule**

| Presidio Area | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | YR 6 | YR 7 | Total |
|---|---|---|---|---|---|---|---|---|
| Tons | 209,963 | 209,963 | 80,308 | 0 | 0 | 0 | 0 | **500,234** |
| Ag Oz/t | 9.93 | 9.73 | 8.36 | 0.00 | 0.00 | 0.00 | 0.00 | **9.60** |
| Silver ounces | 2,085,414 | 2,043,632 | 671,170 | 0 | 0 | 0 | 0 | **4,800,216** |
| Shafter Area | | | | | | | | |
| Tons | 0 | 0 | 130,203 | 209,963 | 209,963 | 209,963 | 66,810 | **826,901** |
| Ag Oz/t | 0.00 | 0.00 | 8.20 | 6.66 | 7.86 | 8.92 | 8.47 | **7.93** |
| Silver ounces | 0 | 0 | 1,068,272 | 1,399,175 | 1,649,658 | 1,872,788 | 565,916 | **6,555,809** |

Annual maps are shown for the first 6 years of mining. The end of period maps show the material that is planned to be mined and that is remaining at the end of each year. Figure 16.9 shows all of the material that is planned to be mined. Figure 16.10 shows the material remaining at the end of year 1, Figure 16.11 the material remaining at the end of year 2, Figure 16.14 the material remaining at the end of year 3, Figure 16.15 the material remaining at the end of year 4, Figure 16.16 the material remaining at the end of year 5 and Figure 16.17 the material remaining at the end of year 6.

**Figure 16.9 All Material Planned to be Mined and Developed**

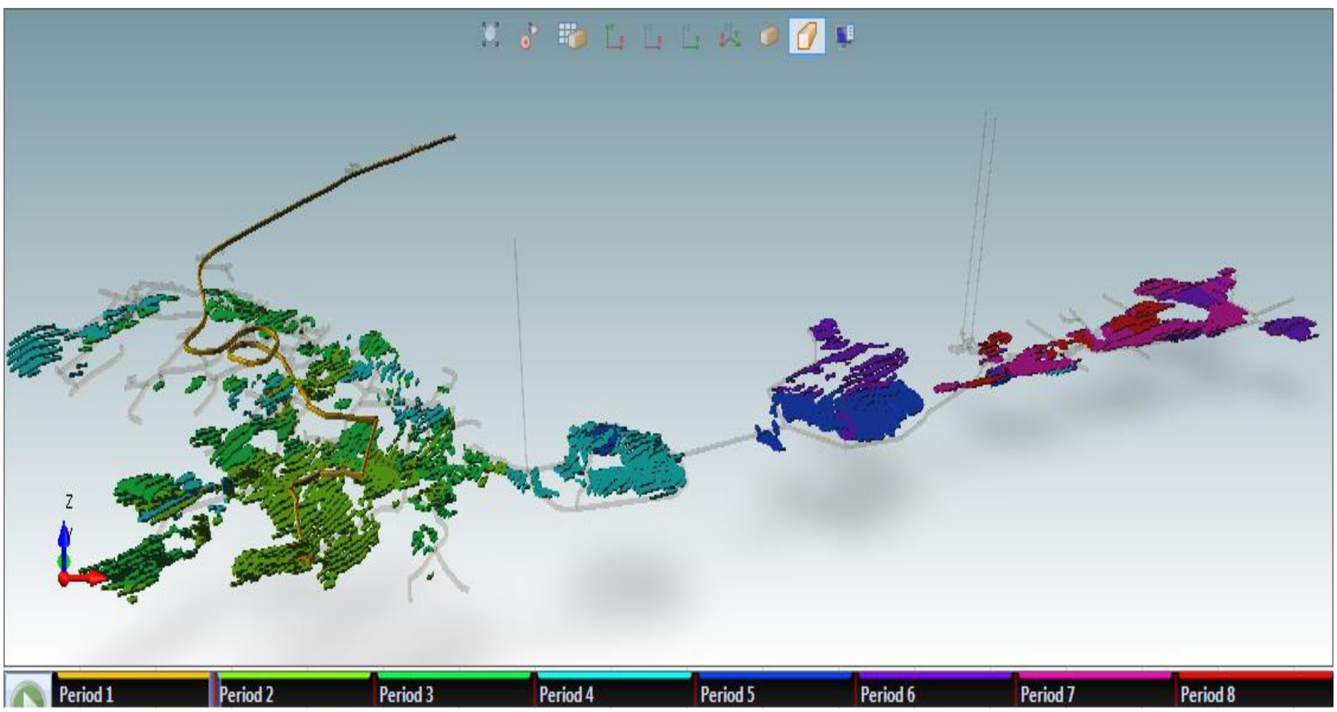


**Figure 16.10 Material Planned to be Mined and Developed at the End of Year 1**

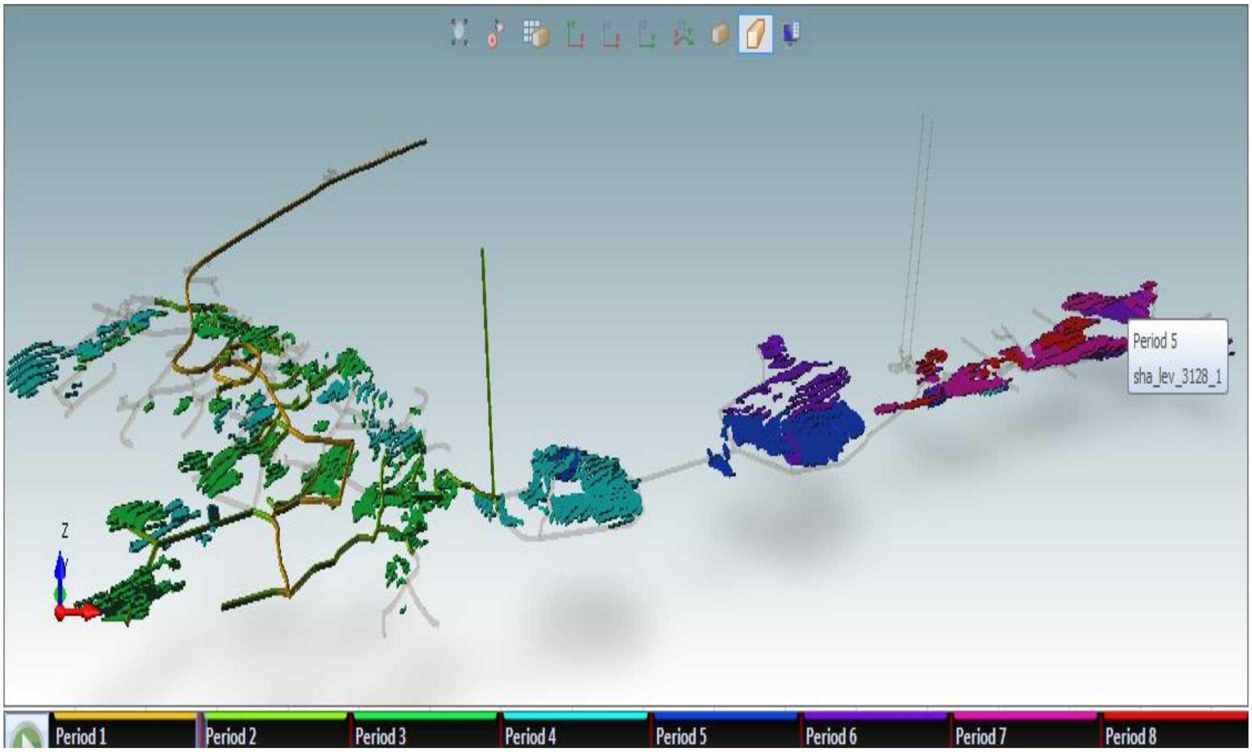



**Figure 16.11 Material Planned to be Mined and Developed at the End of Year 2**

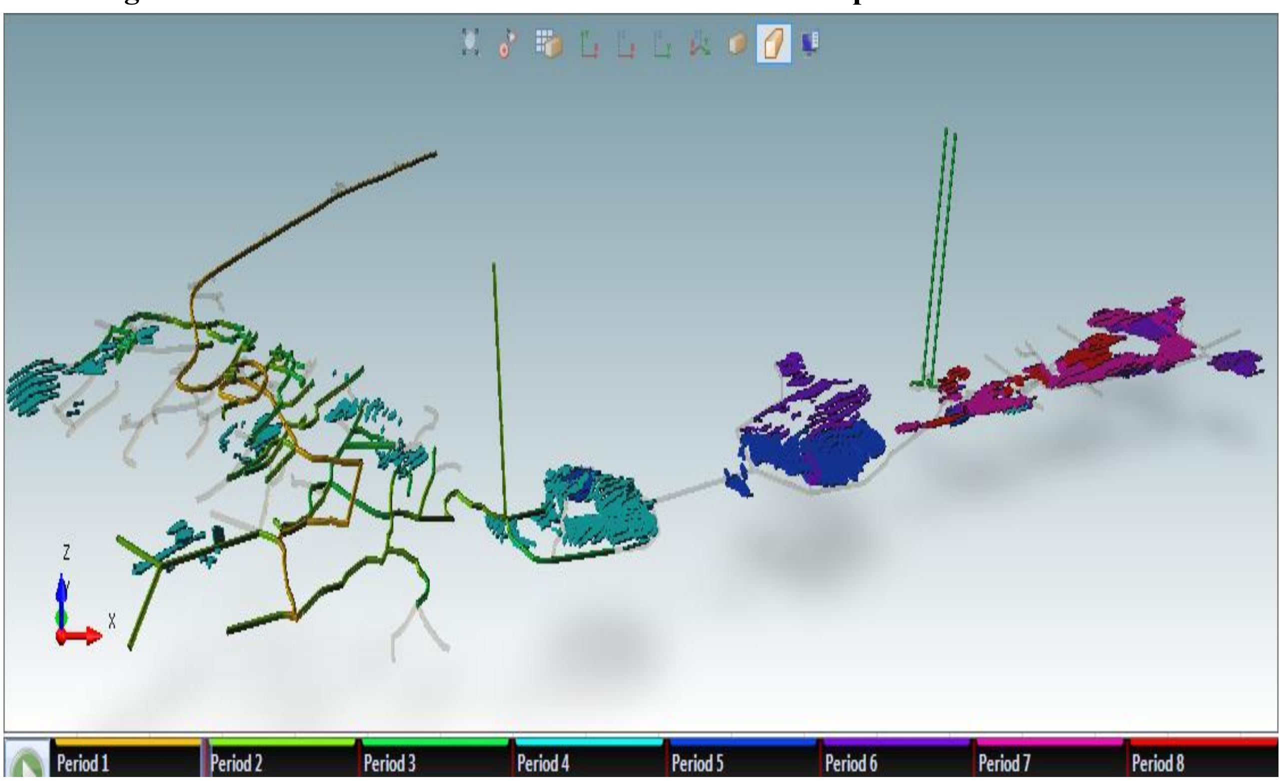


**Figure 16.12 Material Planned to be Mined and Developed at the End of Year 3**

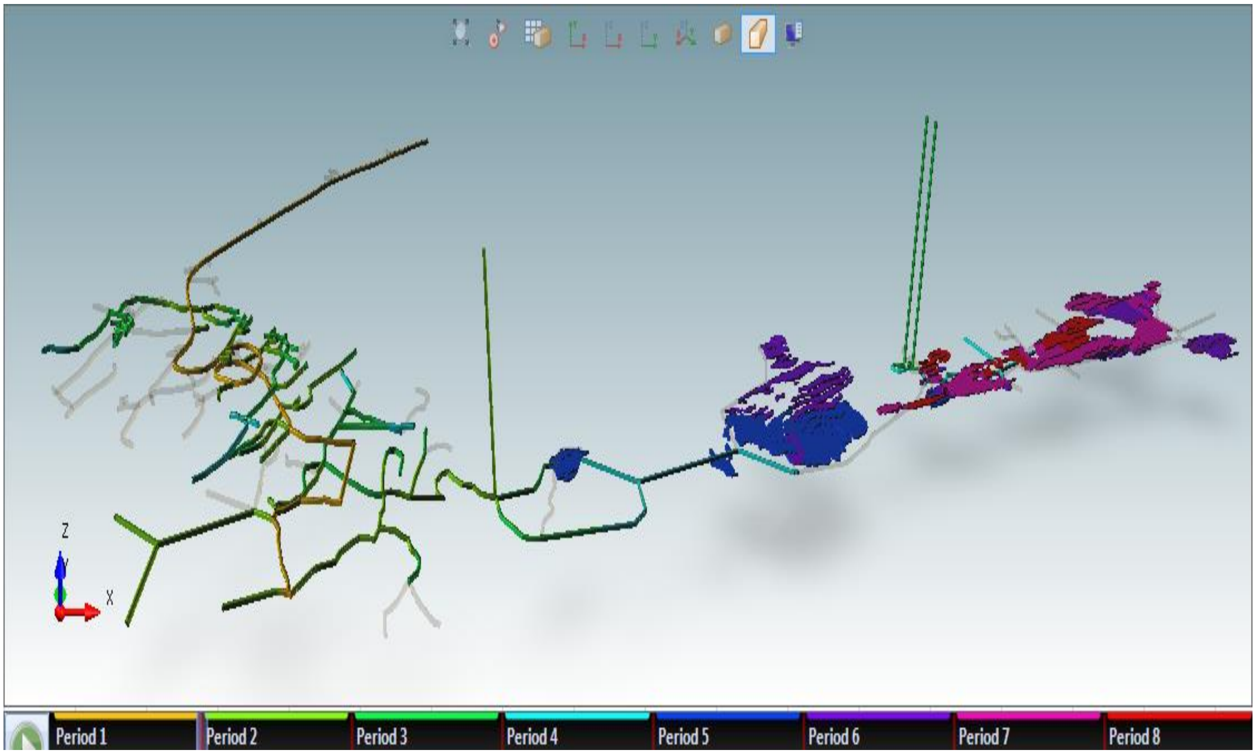



**Figure 16.13 Material Planned to be Mined and Developed at the End of Year 4**

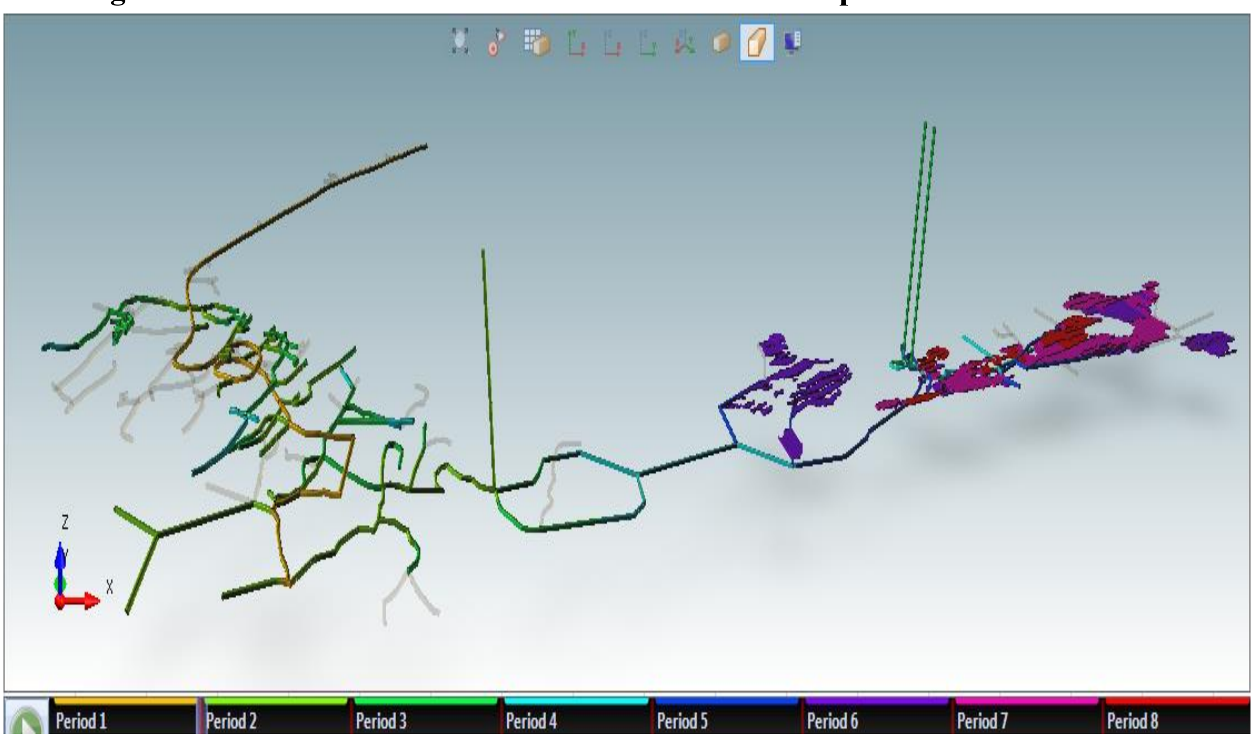


**Figure 16.14 Material Planned to be Mined and Developed at the End of Year 5**

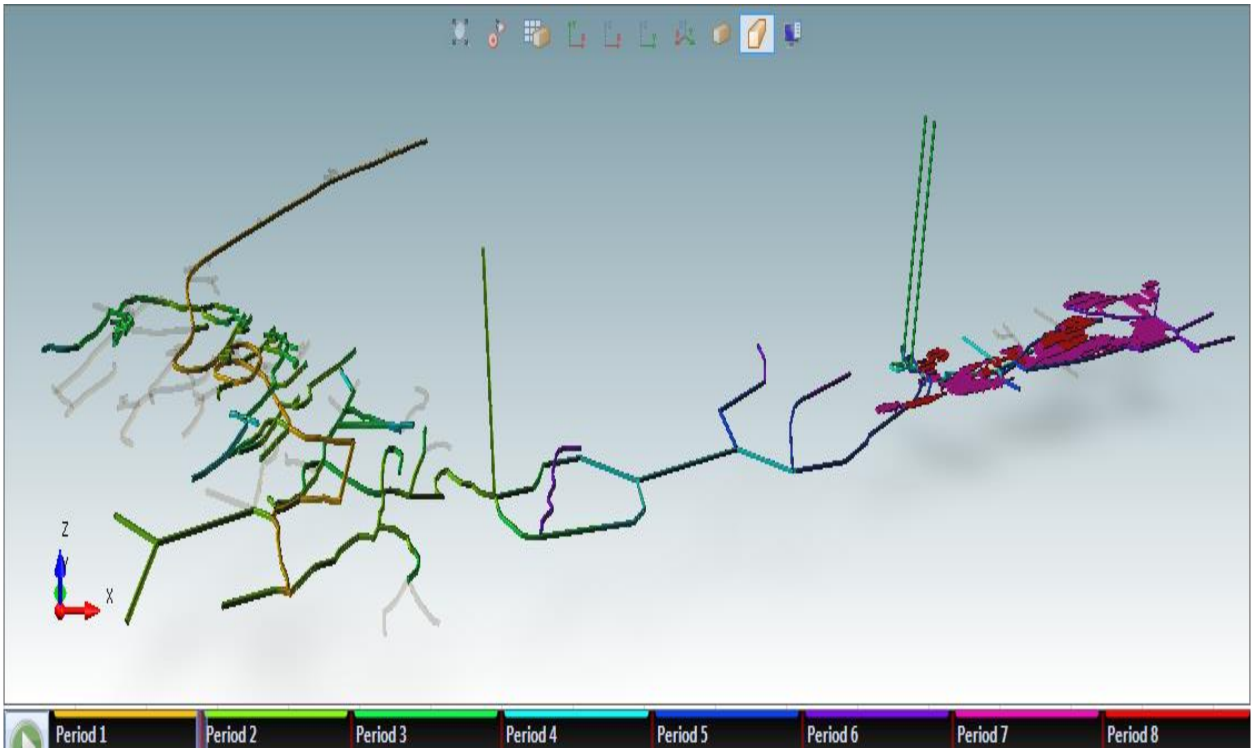
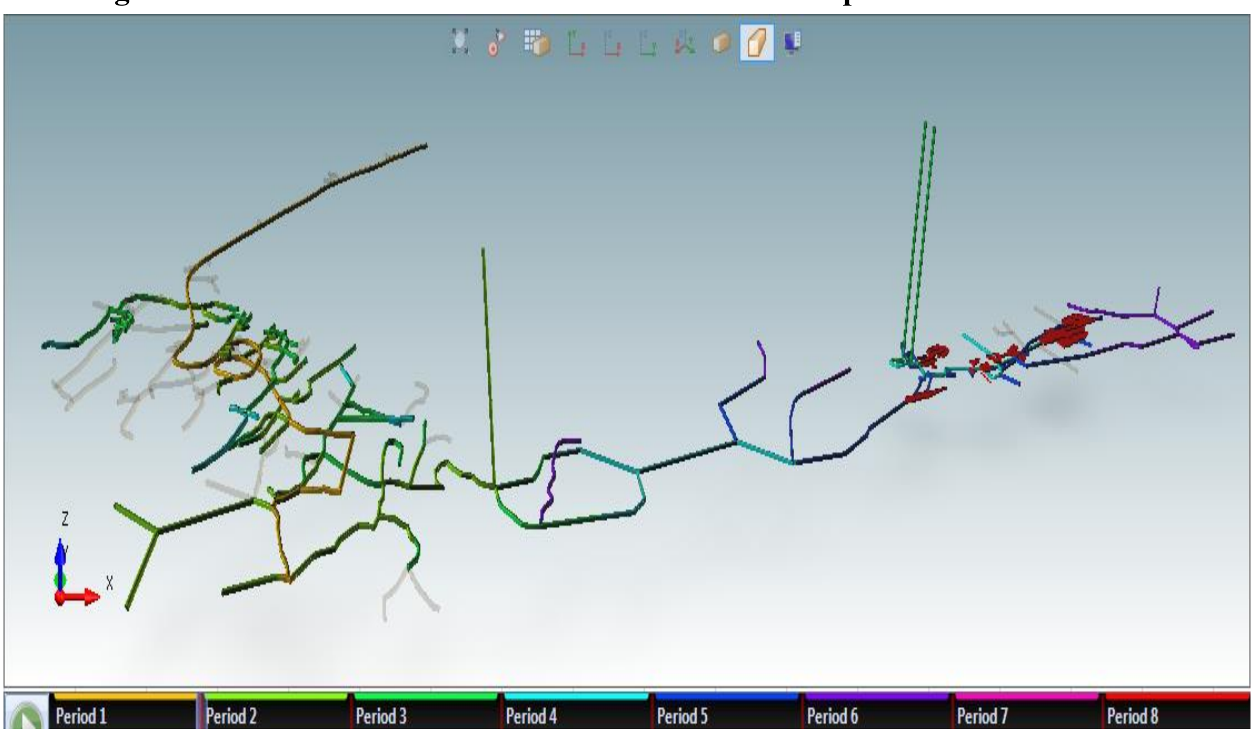



**Figure 16.15 Material Planned to be Mined and Developed at the End of Year 6**



## 16.4 Paste Backfill

MDA assumed that the Shafter area would require backfilling of the mined areas to obtain a reasonable extraction rate, while the Presidio area mineralization would not require backfilled stopes, due to the less continuous nature of the mineralization. Because the plant was planned to prepare dry filtered tailings for disposal, a paste backfill product was planned to be used as backfill material after mining. The Shafter material will be hauled to the plant from the shaft by a surface contractor, with dry filtered tailings back-hauled to the shaft. A paste plant will be constructed near the shaft to mix the filtered tailings with 8 percent cement, and water and prepare a paste product to be pumped to the stopes requiring backfill via mine ventilation raises, or the shaft, or boreholes. Table 16.6 shows the paste backfill requirements over the life of the mine.

**Table 16.6 Paste Backfill Requirements**

| Backfill Requirements | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | YR 6 | YR 7 | Totals |
|---|---|---|---|---|---|---|---|---|
| Shafter Area Backfill % | | | 55% | 55% | 55% | 55% | 30% | 53.0% |
| Backfill Tons | | | 71,600 | 115,500 | 115,500 | 115,500 | 20,000 | 438,100 |

## 16.5 Ventilation

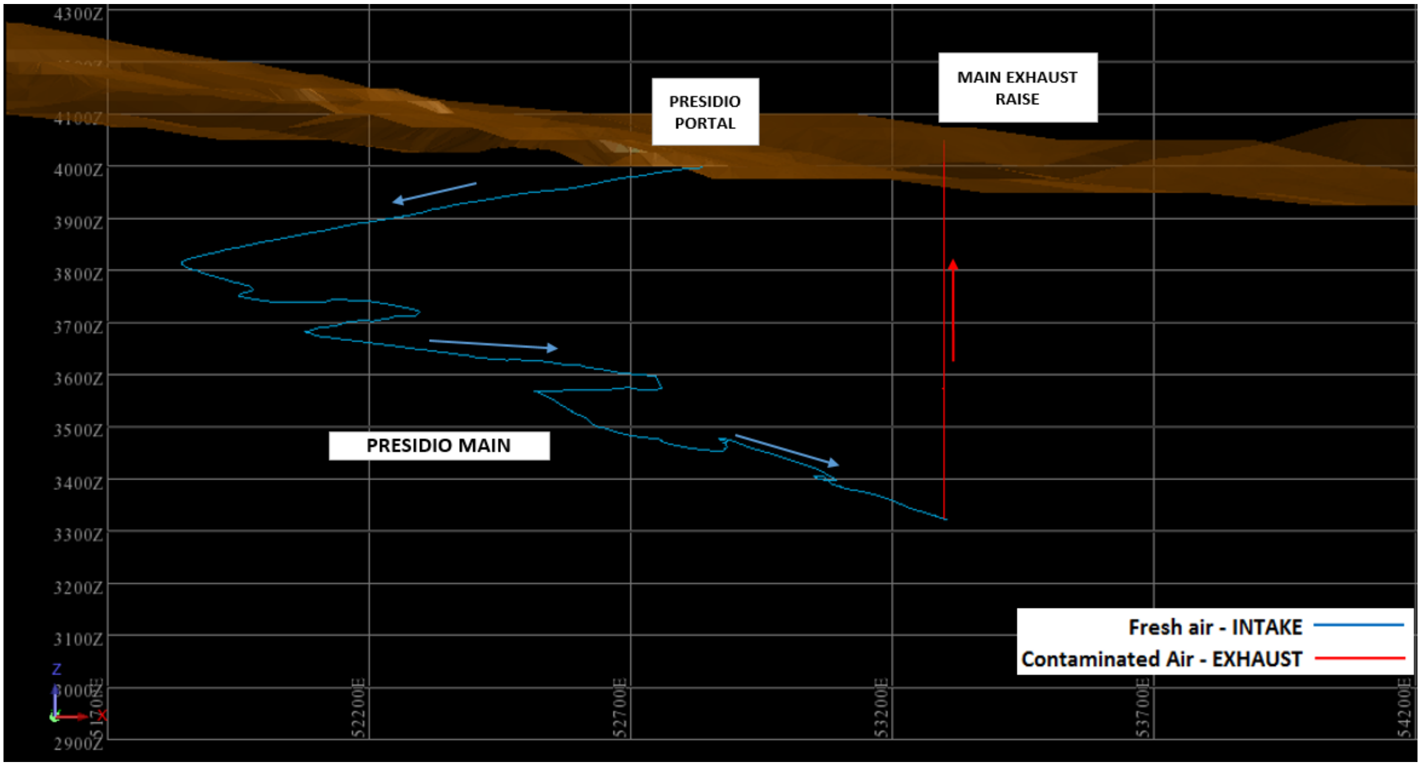
A conceptual ventilation analysis was done based on estimated underground personnel and equipment requirements. It is estimated that approximately 200,000 cfm of fresh air will be necessary for the production heading as well as headings in preparation for mining while in full production. The ventilation system at the Shafter project can be divided in three phases as mining progresses through the life of mine: Phase 1, mining at the Presidio Main area; Phase 2, mining at the Presidio Lower; and Phase 3 mining at the Shafter areas.

### Phase 1 – Initial Mining at the Presidio Main Area

During this phase, fresh air will be supplied through the Presidio mine portal. Air-doors and stoppings might be required in order to control more efficiently the flow of fresh and used or contaminated air.

Figure 16.16 shows a schematic of the air circuit for Phase 1.

**Figure 16.16 Phase 1, Ventilation Schematic - Presidio Main Area**

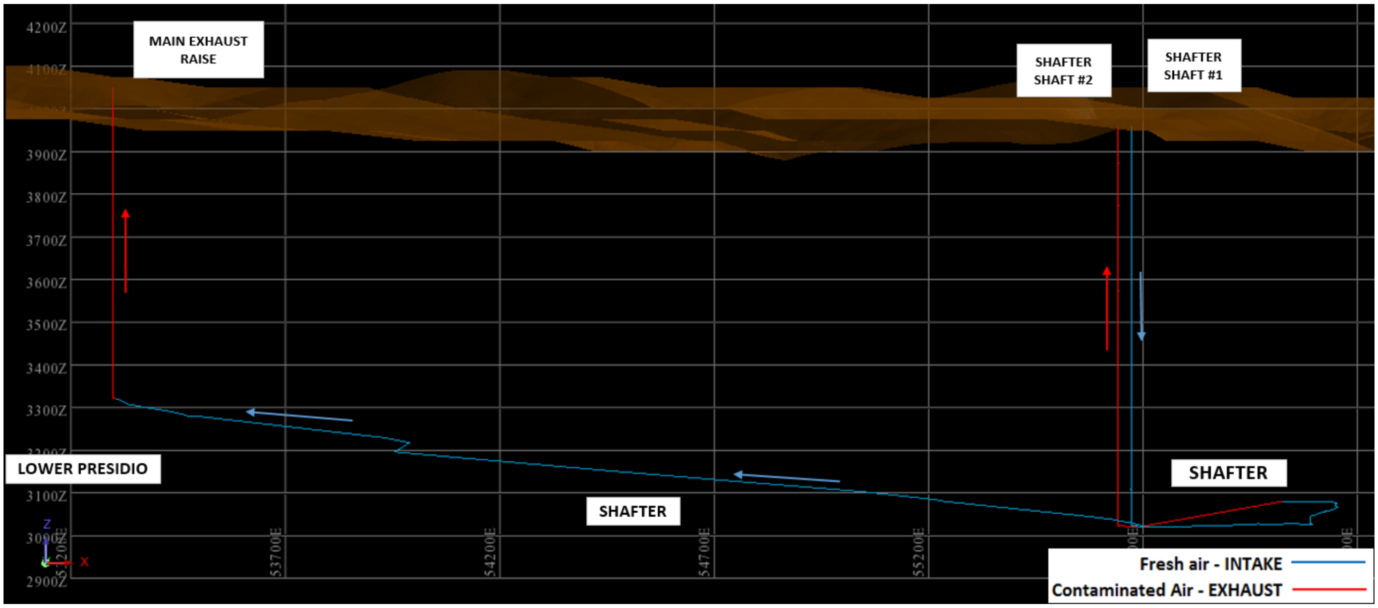



## Phase 2 – Mining at the Presidio Lower and Shafter Areas

Phase 2 includes both the Presidio Lower and Shafter areas. Fresh air will be supplied to the Presidio Lower area through the Main ramp until development connects to with the Shafter area. Although Shafter Shaft #1 will be primarily used as a fresh-air intake for the Shafter area, this also could be used to supply additional fresh air to the Presidio Lower area. Contaminated air in the Shafter area will be exhausted through Shaft #2, which will need to be widened to keep air velocities below the required limits.

Figure 16.17 shows the schematic of the ventilation circuit during Phase 2.

**Figure 16.17 Phase 2, Ventilation Schematic – Presidio Lower and Shafter Areas**




To minimize fan operating cost, the fans can be equipped with variable frequency motors. Noise contamination around the surface fans does not seem to be a major issue at the project.

## 17.0 RECOVERY METHODS

George Burgermeister with Samuel Engineering in Denver, Colorado, prepared this section. The term "ore" is used in this section only in a metallurgical sense, to indicate mineralized material processed.

The Shafter mine processing facility proposed in this study will use whole-ore cyanide leaching to extract silver from the mineralization. Metal recovery will be accomplished using a standard Merrill Crowe CCD zinc precipitation method. Run-of-mine ("ROM") material will be crushed to a nominal 1 inch size using a single jaw crusher for primary crushing and a cone crusher in closed circuit with a product screen. The crushing plant will operate on a single 12 hour shift, seven days a week, to replenish the crushed mill feed stockpile. The stockpile will have enough capacity to feed the milling operations, which will operate with two, twelve-hour shifts to continuously operate 24 hours/day and 7 days a week.

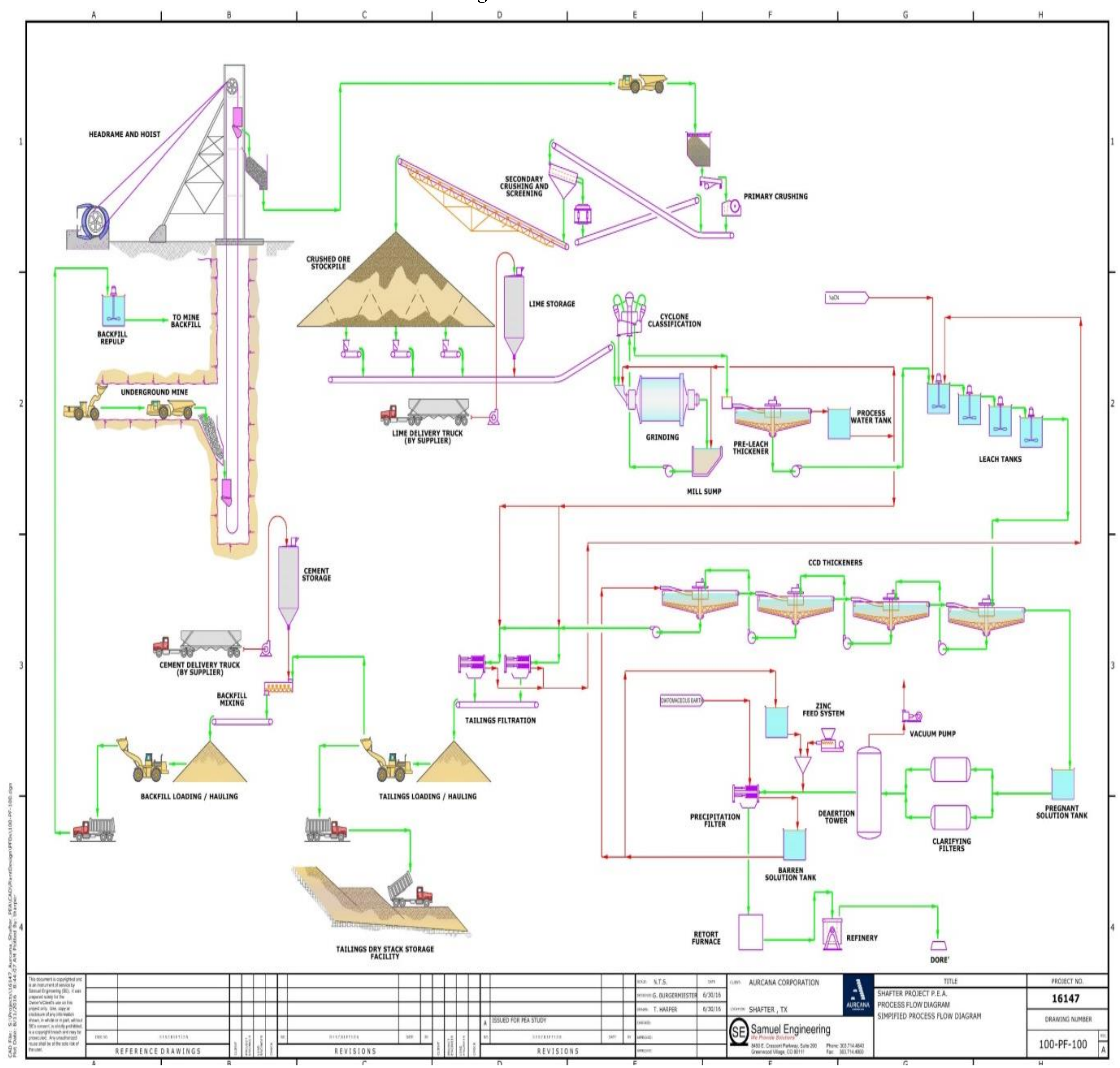
Milling to the final leach feed product size of 80 percent passing 74 microns will be achieved by a single ball mill in closed circuit with cyclones for classification. Cyclone overflow will feed into a pre-leach thickener. Thickened slurry, at 68 percent solids, will flow to the leach circuit where it will be diluted with returned filtrate from the zinc precipitation circuit and make up process water to a solids weight of 45 percent. The pre-leach thickener overflow will report to the process water tank for use in the grinding circuit and as wash water for the tailings filter.

The leach tanks are designed for 72 hour retention to achieve an extraction of silver at 82.4 percent. The slurry from the leach circuit will report to the CCD circuit using four thickeners for cleaning of the slurry of pregnant leach solution at an anticipated wash efficiency of 96.0 percent. The pregnant solution from the CCD circuit will flow by pumps to the deaeration vessel and then to the zinc precipitation circuit. Cleaned residue from the CCD circuit will be pumped to the tailings plate and frame filters for one final wash before the residue cake is conveyed to a tailings load out area where it will be hauled to a lined, dry-stacked tailings storage facility. (Note: Tailings handling is not part the scope of this estimate. Filtered tailings cake will be conveyed to a tailings load out area to be hauled to the tailings storage facility or trucks for delivery to the mine operations as backfill feed. The battery limit for this estimate is the discharge end of the filter discharge conveyor).

The zinc precipitation circuit will mix zinc with silver-bearing pregnant solution causing the silver to precipitate from solution. The silver precipitated slurry will be pumped through the zinc precipitation filters to capture the silver as a cake. The silver precipitated cake will be transferred to a retort for drying and to remove any contained mercury which will be collected for removal off site. The dried cake from the retort will then be mixed with flux and smelted in a gas fired furnace for pouring in silver doré. The silver doré will be stored in a safe until it is shipped off site to a refiner.

A simplified flowsheet and criteria for the process are presented on the following pages. Figure 17.1 illustrates the Shafter flowsheet. A discussion with more detail of the process follows.

**Figure 17.1 Shafter PEA Flowsheet**



## 17.1 Plant Operating Design Parameters

Table 17.1 lists the design criteria for the Shafter processing facility.

**Table 17.1 Processing Facility Design Criteria**

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| **General** | | | | |
| Site Data | | | | |
| Location | Presidio County, Texas, USA | | | |
| Coordinates | | 29° 49' N | 104°19.5' W | Client |
| | | | | |
| Elevation | ft | 4,066 | | Client |
| Precipitation | In | TBD | | |
| | | | | |
| **Production Rates** | | | | |
| Annual | tpy | 210,000 | | MDA |
| Daily | tpd | 600 | | MDA |
| Mine Life | years | 6.3 | | MDA |
| | | | | |
| Operating Schedule | | | | |
| Crushing Operations | | | | |
| Operating Days Per Year | days | 350 | | SE |
| Hours per Day | h | 12 | | Client |
| Plant Availability | % | 85 | | SE |
| Availability | hours | 3,570 | | Calculation |
| Operating Hour per day | hours/day | 10.2 | | Calculation |
| Crushing Hourly Rate | tph | 58.8 | | Calculation |
| Mill Operations | hours | 24 | | Client |
| Days per year | days | 360 | | SE |
| Availability | % | 93 | | SE |
| Hours per year | hours | 8,035 | | Calculation |
| Operating Hours per day | hours/day | 22.3 | | Calculation |
| Mill Hourly Rate | tph | 26.9 | | Calculation |
| | | | | |
| **Material Characteristics** | | | | |
| Feed Grade | | | | |
| Silver Grade | Oz Ag/t | 8.56 | | MDA |
| | OzT/day | 5,136 | | Calculation |
| | OzT/year | 1,797,600 | | Calculation |
| Leach Extraction | % | 82.4 | | Testwork/History |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Ag Recovery (Overall) | % | 81.7 | | SE |
| Recovered | OzT/day | 4,198 | | Calculation |
| | OzT/year | 1,468,629 | | Calculation |
| Ag to Tails | | 937.8 | | Calculation |
| | | 328,217 | | Calculation |
| Tails Ag Grade | Oz Ag/t | 1.50 | | Testwork/History |
| Specific Gravity | | 2.77 | | Testwork |
| Bulk Density (for Mass) | $lb/ft^3$ | 156.7 | 172.4 | SE |
| Bulk Density (for Volume) | $lb/ft^3$ | 144.8 | 130.3 | SE |
| Bond Ball Mill Work Index | | 12.7 | | Testwork |
| Abrasion Index | lb | 0.0011 | | Testwork |
| **Crushing** | | | | |
| Design Factor | | | 1.1 | SE |
| Jaw Grizzly | | | | |
| Feed (solids) | dtph | 58.8 | 64.7 | METSIM |
| % Moisture | % | 5.0 | 5.0 | METSIM |
| P80 | in | 6.0 | 6.0 | METSIM |
| Grizzly Spacing | in | 2.5 | 2.5 | SE |
| Grizzyl Undersize | dtph | 19.2 | 21.1 | METSIM |
| Undersize P80 | in | 1.7 | 1.7 | METSIM |
| Jaw Crusher | | | | |
| Feed Solids | dtph | 39.6 | 43.6 | METSIM |
| % Moisture | % | 5.0 | 5.0 | METSIM |
| P80 | in | 8.3 | 8.3 | METSIM |
| Discharge | | | | |
| P80 | in | 2.0 | 2.0 | METSIM |
| Jaw Discharge Conveyor | | | | |
| Feed Solids | dtph | 58.8 | 64.7 | Calculated |
| % Moisture | % | 5.0 | 5.0 | METSIM |
| P80 | in | 1.9 | 1.9 | Calculated |
| Product Screen | | | | |
| Feed Solids | dtph | 93.4 | 102.8 | METSIM |
| % Moisture | % | 5.0 | 5.0 | METSIM |
| P80 | in | 1.4 | 1.4 | METSIM |
| Screen Opening | in | 1.5 | 1.5 | SE |
| Undersize | dtph | 58.8 | 64.7 | METSIM |
| Undersize P80 | in | 0.7 | 0.7 | METSIM |
| Cone Crusher | | | | |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Feed Solids | dtph | 34.6 | 238.1 | METSIM |
| Moisture | % | 5.0 | 5.0 | METSIM |
| P80 | in | 2.3 | 2.3 | METSIM |
| Discharge | | | | |
| P80 | in | 1.0 | 1.0 | METSIM |
| Crushed Mill Feed Stockpile | | | | |
| Stockpile Surge Capacity (live) | hours | 24.0 | 24.0 | SE |
| | tons | 2,242 | 2,467 | SE |
| Volume | $ft^3$ | 30,966 | 37,847 | SE |
| | | | | |
| **Grinding** | | | | |
| | | | | |
| Ball Mill | | | | |
| Design Factor for mill | | | 1.0 | SE |
| Stockpile Feed to Mill | | | | |
| Solids | dtph | 26.9 | 26.9 | METSIM |
| Aqueous | tph | 1.4 | 1.4 | METSIM |
| Percent Solids | % | 95.0 | 95.0 | METSIM |
| Slurry Specific Gravity | | 2.5 | 2.5 | METSIM |
| Volumetric Flow | gpm | 44.4 | 44.4 | METSIM |
| P80 | µm | 18,171 | 18,171 | METSIM |
| Mill Feed (Including Recycle and Dilution) | | | | |
| Solids | dtph | 93.4 | 93.4 | METSIM |
| Aqueous | tph | 50.3 | 50.3 | METSIM |
| Percent Solids | % | 65.0 | 65.0 | Calculated |
| P80 | µm | 5,554 | 5,554 | METSIM |
| Circulating Load | % | 247.1 | 247.1 | Calculated |
| Mill Parameters | | | | |
| Mill Inside Length | ft | 14.0 | 14.0 | SE |
| Mill Inside Diameter | ft | 9.0 | 9.0 | SE |
| Mechanical Power Draw | kW | 550.0 | 550.0 | SE |
| Motor/Drive Efficiency Factor | | 1.15 | 1.15 | SE |
| Mill Power | hp | 900.0 | 900.0 | SE |
| Discharge P80 | µm | 406.7 | 406.7 | SE |
| Cyclone Feed Box | | | | |
| Slurry Feed | tph | 143.6 | 158.0 | METSIM |
| Percent Solids | % | 65.0 | 65.0 | METSIM |
| Slurry Feed Rate | gpm | 335.0 | 368.5 | METSIM |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Process Water Added | gpm | 219.4 | 241.3 | METSIM |
| Slurry Discharge | tph | 198.6 | 218.5 | METSIM |
| Percent Solids | % | 47.0 | 47.0 | METSIM |
| Discharge Flow Rate | gpm | 554.4 | 609.8 | METSIM |
| Residence Time | min | 5.0 | 5.0 | SE |
| Volume | $ft^3$ | 370.6 | 407.6 | Calculated |
| Cyclones | | | | |
| Size | in | 20.0 | 20.0 | SE |
| Number | | 2 | 2 | SE |
| Operating | | 1 | 1 | SE |
| Standby | | 1 | 1 | SE |
| Operating Pressure | psi | 6.0 | 6.0 | SE |
| Cyclone Feed | | | | |
| Solids | dtph | 93.4 | 102.7 | METSIM |
| Aqueous | tph | 105.3 | 115.8 | METSIM |
| Percent Solids | % | 47.0 | 47.0 | METSIM |
| Volumetric Flow | gpm | 554.4 | 609.8 | METSIM |
| P80 | µm | 406.7 | 406.7 | METSIM |
| Cyclone Underflow | | | | |
| Solids | dtph | 66.5 | 73.1 | METSIM |
| Aqueous | tph | 35.8 | 39.4 | METSIM |
| Percent Solids | % | 65.0 | 65.0 | METSIM |
| Volumetric Flow | gpm | 238.5 | 262.3 | METSIM |
| P80 | µm | 573.6 | 573.6 | METSIM |
| Cyclone Overflow | | | | |
| Solids | dtph | 26.9 | 29.6 | METSIM |
| Aqueous | tph | 69.5 | 76.4 | METSIM |
| Percent Solids | % | 27.9 | 27.9 | METSIM |
| Volumetric Flow | gpm | 315.9 | 347.5 | METSIM |
| P80 | µm | 74.0 | 74.0 | METSIM |
| Circulating Load | % | 247.1 | 247.1 | Calculated |
| **Leach Circuit** | | | | |
| **Pre-Leach Thickener** | | | | |
| Design Factor | | | 1.3 | SE |
| Type | | Conventional | | |
| Unit Area | $m^2$/MTPD | 0.13 | 0.13 | Testwork |
| | $ft^2$/tpd | 1.22 | 1.22 | Calculated |
| Thickener Area | $ft^2$ | 788.0 | 1024.4 | Calculated |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Thickener Diameter | ft | 31.7 | 36.1 | Calculated |
| Flocculant | Hychem AF 303 (or Equivalent) | | | |
| Dose | g/ton | 22.7 | 22.7 | Testwork |
| Flocculant Concentration | g/l | 0.1-0.2 | | |
| Feed | | | | |
| Solids | dtph | 26.9 | 35.0 | METSIM |
| Aqueous | tph | 69.5 | 90.3 | METSIM |
| Percent Solids | % | 27.9 | 27.9 | METSIM |
| Volumetric Flow | gpm | 315.9 | 410.7 | METSIM |
| Underflow | | | | |
| Solids | dtph | 26.9 | 35.0 | METSIM |
| Aqueous | tph | 12.7 | 16.5 | METSIM |
| Percent Solids | % | 68.0 | 68.0 | METSIM |
| Volumetric Flow | gpm | 89.2 | 116.0 | METSIM |
| Overflow | | | | |
| Aqueous | tph | 56.8 | 73.9 | METSIM |
| Volumetric Flow | gpm | 226.6 | 294.6 | METSIM |
| **Process Water Tank** | | | | |
| Design Factor | | | 1.15 | SE |
| Inflow Streams | | | | |
| Raw Water | gpm | 13.1 | 15.1 | METSIM |
| Zinc Precip Filtrate | gpm | 70.5 | 81.1 | METSIM |
| Pre Leach Thickener Overflow | gpm | 226.6 | 260.6 | METSIM |
| Total | gpm | 310.2 | 356.8 | Calculated |
| Outflow Streams | | | | |
| Mill Water | gpm | 52.1 | 59.9 | METSIM |
| Cyclone Feed Water | gpm | 219.4 | 252.3 | METSIM |
| Tailings Filter Wash Water | gpm | 44.6 | 37.1 | METSIM |
| Total | gpm | 310.2 | 356.8 | Calculated |
| Residence Time | min | 30.0 | 30.0 | SE |
| Volume | $ft^3$ | 1,244.3 | 1,431.0 | Calculated |
| Diameter | ft | 11.7 | 12.2 | Calculated |
| Height | ft | 13.7 | 14.2 | Calculated |
| **Leach Tanks** | | | | |
| Design Factor | | | 1.15 | SE |
| Initial Cyanide Concentration | ppm | 2,000 | 2,000 | Testwork |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Final Cyanide Concentration | ppm | 100 | 100 | Testwork |
| Cyanide Consumption | lb/ton | 1.6 | 1.6 | Testwork |
| Leach Duration | hours | 72 | 72 | Testwork |
| Number of tanks | | 6 | 6 | SE |
| Aeration Factor | % | 85 | 85 | SE |
| Required Leach Volume | $ft^2$ | 115,311 | 126,842 | Calculated |
| Per Tank | $ft^2$ | 28,828 | 31,710 | Calculated |
| Leach Tanks | | | | |
| Leach Feed | | | | |
| Solids | dtph | 26.9 | 30.9 | METSIM |
| Ag Grade | oz/ton | 8.6 | 8.6 | |
| Aqueous | tph | 12.7 | 14.6 | METSIM |
| Ag | ppm | | | |
| Total | tph | 39.6 | 45.5 | Calculated |
| Percent Solids | % | 68.0 | 68.0 | METSIM |
| Slurry Specific Gravity | | 1.8 | 1.8 | METSIM |
| Volumetric Flow | gpm | 89.3 | 102.6 | METSIM |
| P80 | µm | 74.0 | 74.0 | METSIM |
| Solids Ag Grade | oz /ton | 8.6 | 8.6 | METSIM |
| Aqueous Ag Tenor | ppm | 0.0 | 0.0 | METSIM |
| Solids Ag | Oz/h | 230.3 | 264.8 | METSIM |
| Aqueous Ag | Oz/h | 0.0 | 0.0 | METSIM |
| Leach Slurry | | | | |
| Solids | dtph | 26.9 | 30.9 | METSIM |
| Aqueous | tph | 32.9 | 37.8 | METSIM |
| Total | tph | 59.8 | 68.7 | Calculated |
| Solids Ag Grade | Opt | 1.5 | 1.5 | METSIM |
| Aqueous Ag Tenor | ppm | 205.1 | 205.1 | METSIM |
| Solids Ag | Oz/h | 40.3 | 46.4 | METSIM |
| Aqueous Ag | Oz/h | 196.1 | 225.5 | METSIM |
| Extraction | % | 82.5 | 82.5 | Calculated |
| Recycle water Addition (From Precip Filter) | | | | METSIM |
| From Zinc Precipitation | gpm | 10.0 | 11.5 | METSIM |
| From Tailing Filtration | gpm | 70.3 | 80.8 | METSIM |
| **CCD Circuit** | | | | |
| Design Factor | | | 1.1 | SE |
| Number of CCD Thickeners | | 4.0 | 4.0 | SE |
| Type | | Conventional | | |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Flocculant | Hychem AF 303 (or Equivalent) | | | |
| Dose (each thickener) | g/ton | 22.7 | 22.7 | Testwork |
| Flocculant Concentration | g/l | 0.1-0.2 | 0.1-0.2 | SE |
| Feed Solids (recommended) | % | 20-25 | 20-25 | SE |
| Unit Area | $m^2$/MTPD | 0.1 | 0.1 | Testwork |
| | $ft^2$/tpd | 1.2 | 1.2 | Calculated |
| Thickener Area | $ft^2$ | 787.9 | 866.7 | Calculated |
| Thickener Diameter | ft | 31.7 | 33.2 | Calculated |
| CCD #1 | | | | |
| Feed | | | | |
| Solids | dtph | 26.9 | 29.6 | METSIM |
| Aqueous | tph | 32.9 | 36.2 | METSIM |
| Total | tph | 59.8 | 65.7 | Calculated |
| Percent Solids | % | 45.0 | 45.0 | METSIM |
| Volumetric Flow | gpm | 169.7 | 186.7 | METSIM |
| Silver | | | | |
| Solids Ag Grade | oz/ton | 1.5 | 1.5 | METSIM |
| Aqueous Ag Tenor | ppm | 205.1 | 205.1 | METSIM |
| Underflow | | | | |
| Solids | dtph | 26.9 | 29.6 | METSIM |
| Aqueous | tph | 12.7 | 13.9 | METSIM |
| Total | tph | 39.6 | 43.5 | Calculated |
| Percent Solids | % | 68.0 | 68.0 | METSIM |
| Volumetric Flow | gpm | 89.2 | 98.1 | METSIM |
| Silver | | | | |
| Overflow (CCD#1) | | | | |
| Aqueous | tph | 39.7 | 43.6 | METSIM |
| Volumetric Flow | gpm | 158.0 | 173.8 | METSIM |
| Silver | | | | |
| Aqueous Ag Tenor | ppm | 163.1 | 163.1 | METSIM |
| Zinc Precipitate Filtrate to CCD #4 | gpm | 77.5 | 85.3 | METSIM |
| CCD Circuit Underflow (CCD #4) | | | | |
| Solids | dtph | 26.9 | 29.6 | METSIM |
| Aqueous | tph | 12.7 | 13.9 | METSIM |
| Total | tph | 39.6 | 43.5 | Calculated |
| Percent Solids | % | 68.0 | 68.0 | METSIM |
| Slurry Specific Gravity | | 1.8 | 1.8 | METSIM |
| Volumetric Flow | gpm | 89.2 | 98.1 | METSIM |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Silver | | | | |
| Solids Ag Grade | oz/ton | 1.5 | 1.5 | METSIM |
| Aqueous Ag Tenor | ppm | 21.3 | 21.3 | METSIM |
| Overall Wash Efficiency | | 96.0 | 96.0 | Calculated |
| **Tailings Disposal** | | | | |
| Tailings Filter | | | | |
| Design Factor | | | 1.3 | SE |
| Type | | Plate and Frame | | |
| Number | | 2 | 2 | SE |
| Specific Flow Rate | gpm/ft² | 1.9 | 1.9 | |
| Filter Cake | | | | |
| Solids | tph | 26.9 | 35.0 | METSIM |
| moisture | % | 15.0 | 15.0 | METSIM |
| Total Wet Weight | tph | 31.6 | 41.1 | METSIM |
| Specific Gravity of Cake | | 2.2 | 2.2 | METSIM |
| Solids Ag | oz/ton | 1.5 | 1.5 | METSIM |
| Ag | Oz/h | 40.3 | 52.5 | METSIM |
| Aqueous Ag | ppm | 12.1 | 12.1 | METSIM |
| Ag | Oz/h | 1.7 | 2.2 | METSIM |
| Total Ag to tails | Oz/h | 42.0 | 54.6 | Calculated |
| % of Ag in Mill Feed | % | 18.2 | 18.2 | Calculated |
| Tailings Backfill | | | | |
| Handling | Filter Cake hauled to mine for paste backfill operation | | | |
| **Merrill Crowe** | | | | |
| Design Factor | | | 1.15 | SE |
| Pregnant Solution Storage Tank | | | | |
| Capacity | hr | 4.0 | 4.0 | SE |
| Volume | ft³ | 5,070.9 | 5,831.6 | Calculated |
| Clarification | | | | |
| Filter Type | | Leaf | | |
| Number of Filters | | 4 | 4 | SE |
| Operating/Standby | | 2/2 | 2/2 | SE |
| Filter Cloth Type | | Polypropylene | | |
| Filter Aid | | Diatomaceous Earth | | |
| Specific Solution Flowrate | gpm/ft² | 0.6 | 0.8 | SE |
| Area Required | ft² | 192.7 | 302.9 | Calculated |
| Suspended Solids (Feed) | ppm | 100.0 | 300.0 | SE |
| Suspended Solid (Discharge) | ppm | 1.0 | 1.0 | SE |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Volumetric Flow | gpm | 158.0 | 181.8 | METSIM |
| Deaeration | | | | |
| Vessel Type | | Packed Tower | | |
| Packing Types | | TBD | | |
| Tower Specific Flowrate | gpm/ft² | 20.0 | 28.5 | SE |
| Tower Aspect Ratio | | 2:1-3:1 | 2:1-3:1 | SE |
| Cross sectional Area | ft² | 7.9 | 6.4 | Calculated |
| | ft | 3.7 | 2.8 | Calculated |
| Vacuum Required for Deaeration | psi | 9.7 | 9.7 | SE |
| O2 in Pregnant solution | ppm | 6.0 | 6.0 | SE |
| O2 in Barren Solution | ppm | 1.0 | 1.0 | SE |
| Zinc Precipitation | | | | |
| Precipitation Filter Feed Pump Type | | vertical Centrifugal | | |
| Zinc Feed Type | | Variable Speed Auger | | |
| Zinc Addition Rate | lbZn/lbAg | 0.6 | 0.6 | Calculated |
| Excess Zinc Addition | % | 150.0 | 150.0 | Calculated |
| Design Zinc Addition Rate | lbZn/lbAg | 0.9 | 1.8 | Calculated |
| Induction Method | | zinc mixing cone | | |
| Zinc Solution Concentration | ppm | 300.0 | 300.0 | SE |
| Precipitation Filter | | | | |
| Type | | Plate and Frame | | |
| Specific Flow Rate | gpm/ft² | 1.9 | 1.9 | SE |
| Precipitate Composition | | | | |
| Ag | % | 71.0 | 71.0 | SE |
| Zn | % | 29.0 | 29.0 | SE |
| Barren Set Point | ppm | 12.1 | 12.1 | METSIM |
| Precipitate Cake | | | | |
| Solids | lb/h | 20,9 | 24.1 | METSIM |
| | lb/ton processed | 0.8 | 0.9 | Calculated |
| Moisture | % | 0.1 | 0.1 | METSIM |
| Total Wet Weight | lb/h | 24.6 | 28.3 | METSIM |
| Ag | Oz/h | 172.0 | 197.8 | METSIM |
| %Ag in Cake Solids | % | 61.7 | 61.7 | Calculated |
| **Retort** | | | | |
| Cake (wet) | lb/day | 591 | 600 | Calculated |
| Cycle | Batch per Day | 1 | 1 | SE |
| Duration | hours | 16 | 16 | SE |
| Temperature | °F | 1,350 | 1,350 | SE |

| Shafter Silver Mine 600 tpd Process Design Criteria | | | | |
|---|---|---|---|---|
| | **Units** | **Nominal** | **Design** | **Source** |
| Retort Dry Product | lb (batch) | 463 | 470 | SE |
| **Refinery** | | | | |
| Flux | | | | |
| Mixture | | | | |
| Silica Sand | % | 40.0 | 40.0 | SE |
| Sodium Nitrate | % | 30.0 | 30.0 | SE |
| Soda Ash | % | 10.0 | 10.0 | SE |
| Borax | % | 20.0 | 20.0 | SE |
| Flux to Dry Precipitate | Ratio | 1 : 1 | 1 : 1 | SE |
| Total Mix weight | lbs | 925.7 | 939.8 | Calculated |
| Furnace | | | | |
| Type | | Gas Fired | | |
| Capacity | lbs | 925.7 | 939.8 | Calculated |
| | $ft^3$ | 3.5 | 3.5 | SE |
| Heat Input | BTU/hr | 2,700,000 | 2,700,000 | SE |
| Ag | OzT | 4517.9 | 5195.6 | Calculated |
| Ag Volume | in3 | 816.7 | 939.2 | Calculated |
| Ag Rate | Oz/h | 188.7 | 207.1 | METSIM |

## 17.2 Comminution

Mineralized material from the mine will be processed through two stages of crushing to achieve a crush size of 80 percent passing 1.0 inch. The crusher unit operations include primary jaw crusher, and secondary cone crushing. The crushed mill feed stockpile provides surge capacity for the facility.

### 17.2.1 Crushing

ROM material will be transported to the primary crushing area by haul truck and dumped onto the grizzly feeder. Grizzly oversize will feed the primary jaw crusher to reduce the ROM mill feed from an anticipated size distribution of 80 percent passing 8.3 inch, to nominally 80 percent passing 2.0 inch. Grizzly undersize will join the primary crusher discharge and be conveyed to the secondary crushing screen.

Secondary crushing screen undersize will be fed to the crushed mill feed stockpile via conveyor. Screen oversize will be fed to the secondary cone crusher for reduction from 80 percent passing 2.3 inch to 80 percent passing 1.0 inch. Cone crusher discharge will be returned to the secondary crushing screen. The crushed mill feed stockpile has a 24 hr live capacity, or roughly 1,900 tons.

### 17.2.2 Grinding

The crushed material at the crushed mill feed stockpile will be reclaimed by three pan feeders underneath the stockpile which will transfer the material to the grinding circuit. Pebble lime will be added to the crushed material by a screw feeder from the lime silo as the mill feed is conveyed to the grinding area.

Crushed material will be fed to the ball mill for reduction to 80 percent passing 504 microns. Mill discharge falls to the mill sump where it will be pumped to the cyclones. Cyclone underflow, at 80 percent passing 670 microns and 65 percent solids, will be returned to the ball mill feed. Cyclone overflow, at 80 percent passing 74 microns and 24.5 percent solids, will be fed to the pre-leach thickener.

## 17.3 Leach

Cyclone overflow will be pumped to the conventional pre-leach thickener. Thickener overflow will flow to the process water tank, which will distribute water back to the grinding circuit for dilution at the mill and the cyclone feed tank, and for final leach residue wash at the tailing filters. Thickener underflow, at 68 percent solids, will be pumped to the cyanide leach circuit. Dilution to the design 45 percent solids will be achieved primarily by filtrate returned from the tailings filters. Four existing leach tanks will provide for the total design, 72 hour leach time. The cyanide ion (“CN”) concentration will be 2,000 ppm in the first tank, with anticipated consumption to bring the CN concentration to approximately 100 ppm in the final tank. The leach circuit is planned to achieve 82 percent silver extraction. Leach slurry exiting the final leach tank will flow to the CCD circuit.

## 17.4 Counter Current Decantation (CCD)

The CCD wash will recover the solubilized silver from the leach circuit at an expected efficiency of 96.0 percent. Slurry from the leach circuit will combine with the overflow from CCD #2 to feed CCD #1 with the overflow going to the pregnant solution tank. Underflow from CCD #1 will combine with overflow from CCD #3 to feed CCD #2. This mixing and thickening will continue with the slurry solution becoming more dilute as it passes from CCD #1 in sequence to CCD #4.

The CCD wash solution will be provided by barren filtrate from the precipitation filter and introduced to the CCD circuit at CCD #4. Wash solution from the precipitate filters will be combined with slurry from the underflow of CCD #4 to dilute the slurry prior to being thickened and sent to the tailings filters. The overflow from CCD #4 will combine with underflow slurry from CCD #2 to feed CCD #3, diluting the slurry prior to being thickened and pumped to CCD #4. This process will continue increasing the silver concentration in the overflow until the solution overflow from CCD #1 carries approximately 99.1 percent of the solubilized silver. Final pregnant solution leaving the CDD circuit will depend on the rate of wash solution and the grade of mill feed processed, and should be around the design tenor of 200 ppm Ag.

A final wash and capture of leached silver will be achieved at the tailings filter where barren fresh water will be combined with the underflow from CCD #4 to provided final dilution before the final press reduces the tailings cake moisture to 15 percent, in preparation for hauling to the dry tailings storage facility. Final washed tenor of the moisture in tailings cake will be around 11 ppm silver. Approximately one half (1/2) of the tailings will be delivered to the mine, where it will be re-pulped with cement and used as paste backfill.

## 17.5 Merrill Crowe

After the CCD circuit, the pregnant overflow from CCD #1 will flow to a pregnant solution tank for surge capacity. The pregnant solution will then be clarified using leaf type filters. After clarification the pregnant solution will be deaerated in the packed tower deaeration vessel where the dissolved oxygen concentration will be brought to below 6 ppm. The solution will then pumped to the precipitate filters. Between the filter feed pumps and the filters a zinc eductor will be used to introduce low solids zinc slurry (300 ppm zinc) to the deaerated pregnant solution. Inline mixers will insure adequate contact for the cementation process where silver will be precipitated as a solid while the fluid is transported to the filters.

## 17.6 Refinery

The two precipitate filters are each designed to accommodate 24 hours' worth of precipitate. The precipitate filters will be pre-coated with diatomaceous earth prior to the introduction of the precipitate slurry. Filtrate will be contained for surge after the filter cycle in the barren solution tank. Barren solution will then be used as wash water for the CCD circuit and as mix water for the zinc mixing system. Precipitate filter cake will drop from the filters into pans and be transferred to the mercury retort where it will be dried in a vacuum at about 1350 °F for about 16 hours. The off gas will be cooled to allow any mercury to precipitate and be contained before the gas is vented to atmosphere.

# 18.0 PROJECT INFRASTRUCTURE

The Shafter Project is in Presidio County, the two principal towns of which are Marfa and Presidio. Marfa, (population 1,800) is a local administrative center that relies on arts and culture, ranching, and tourism. Southeast of Marfa are several bentonite mines and numerous abandoned mercury and fluorite mines. Presidio (population 4,100) is an important administrative center for the U.S. Border Patrol, agriculture, ranching, tourism, and transportation. It is located across the Rio Grande River from Ojinaga, Chihuahua, Mexico (population 23,000).

Because Shafter has been in operation recently (2011-2013), the existing infrastructure for the project is extensive and will require relatively little cost to return to operational readiness. The infrastructure for the Shafter project includes:

- Local resources for labor and housing;
- Access and internal roadways;
- Buildings including maintenance shops, warehouses, offices, laboratory;
- Power supply and distribution;
- Utilities including water, sewage and garbage disposal; and
- Fencing and security systems.

## 18.1 Local Resources

During the recent development activities at Shafter (2010 to 2013), employees resided in either Presidio, Marfa or Alpine, Texas, and commuted to the site daily. Experienced underground miners and mill operators were sourced mainly from outside the area, particularly Nevada, New Mexico, Canada, and Chihuahua. It is expected that this would also be the case for a restart of operations.

## 18.2 Roads and Earthwork

Paved U.S. Highway 67 runs through the property between the mine facilities and the town of Shafter itself (population <20). Access to the project site from U.S. 67 is by gravel road, which is currently gated to limit access shown in Figure 18.1.

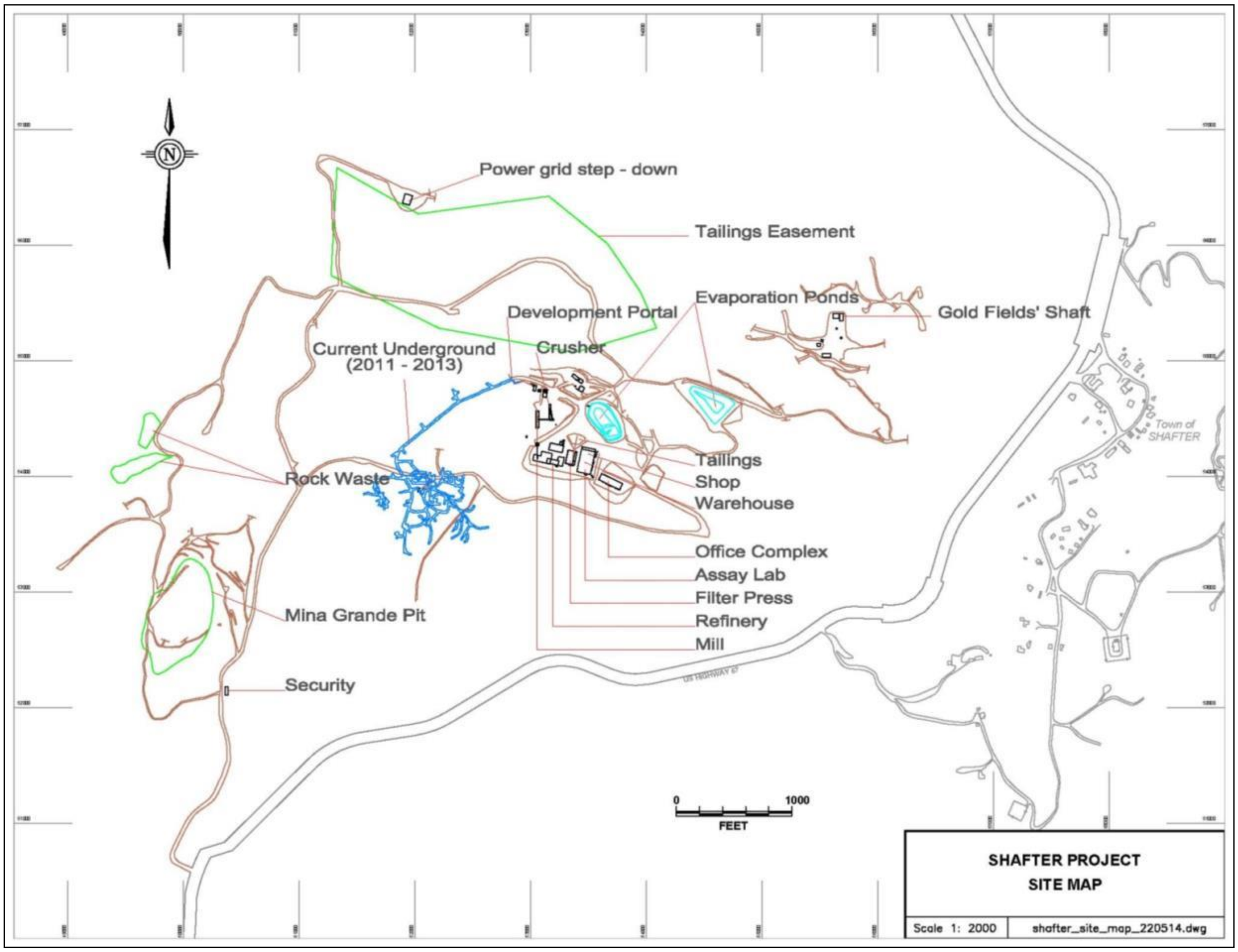
**Figure 18.1 Highway US 67 Near the Shafter Project**

Site roads are adequately maintained for access to the administrative building, the warehouse, the process facilities, and the mine portal and shaft. The road to the tailing storage facility is in need of some general maintenance, such as grading and some berm repair, before accepting haul truck traffic.

The tailings facility is permitted to hold up to 3.2 million total tons of dry stacked tailings. The 2012 to 2013 operations deposited about 180,000 tons of tails. The planned tailings deposition required for this study totals about 900,000 tons. The tailings facility is not expected to require any earthwork or further permitting to accommodate the remaining life of mine tailings.

Figure 18.2 shows the Shafter mine site with most of the current site infrastructure.

**Figure 18.2 Shafter Project site map**

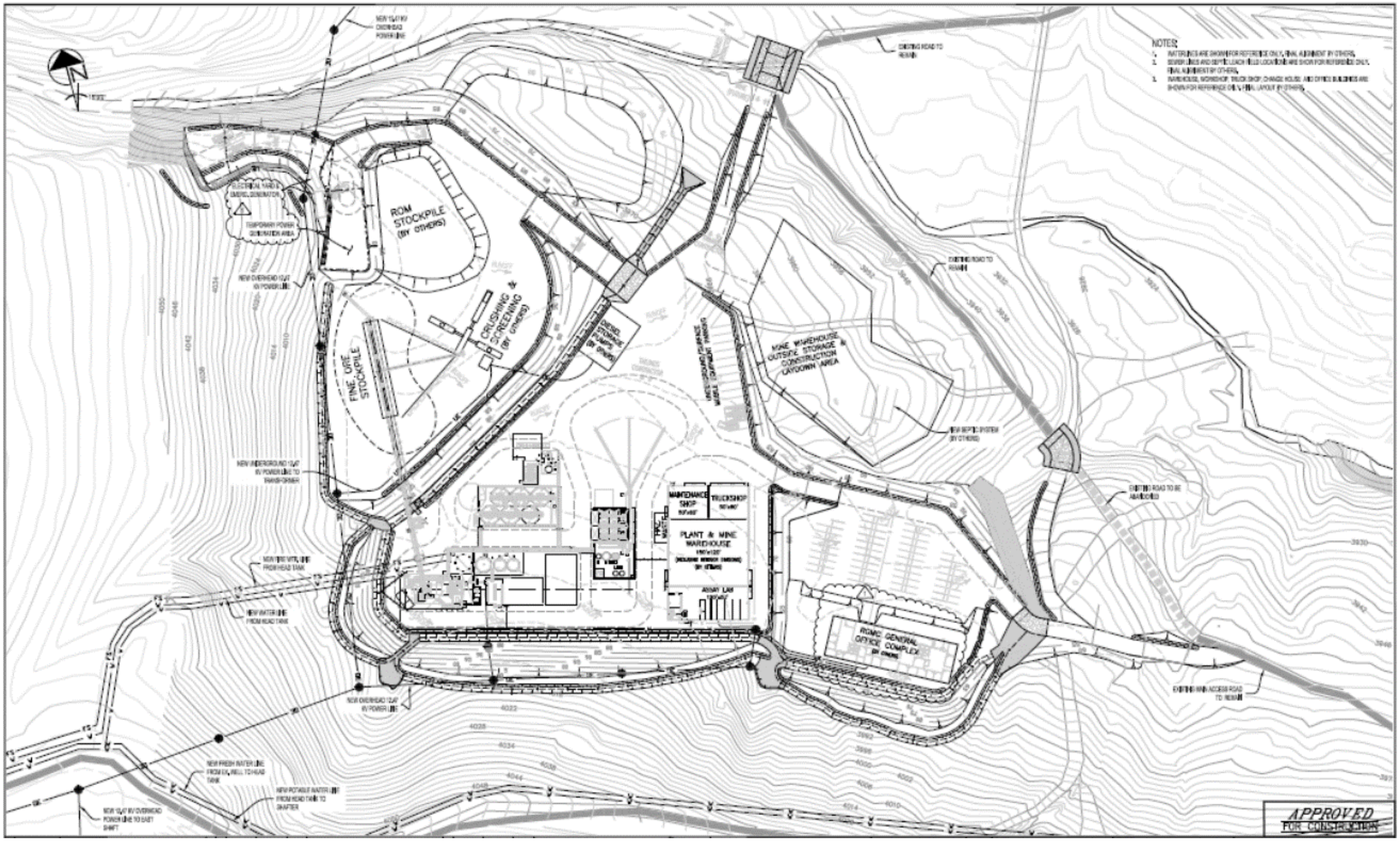



## 18.3 Buildings

All buildings, including furnishings, remain from the 2012 to 2013 operations, with most of the original furnishing and accommodations from when the plant last operated in 2013. These buildings include:

- A 24,000 ft² warehouse complex, which houses the maintenance and truck shop (6,000 ft²), the warehouse (12,000 ft²), and the assay laboratory (6,000 ft²);
- A 10,560 ft² administrative building, which house the offices, first aid and training room, as well as a data room to compile operations records;
- A 1,4750 ft² mill process unit;
- A 2,691 ft² Merrill-Crowe recovery plant and refinery; and
- A hoist building and two core sheds near the Gold Fields shaft in good usable condition (not shown within Figure 18.3) which shows a more detailed view of the processing area).

## Figure 18.3 Infrastructure Detail near the Process Plant



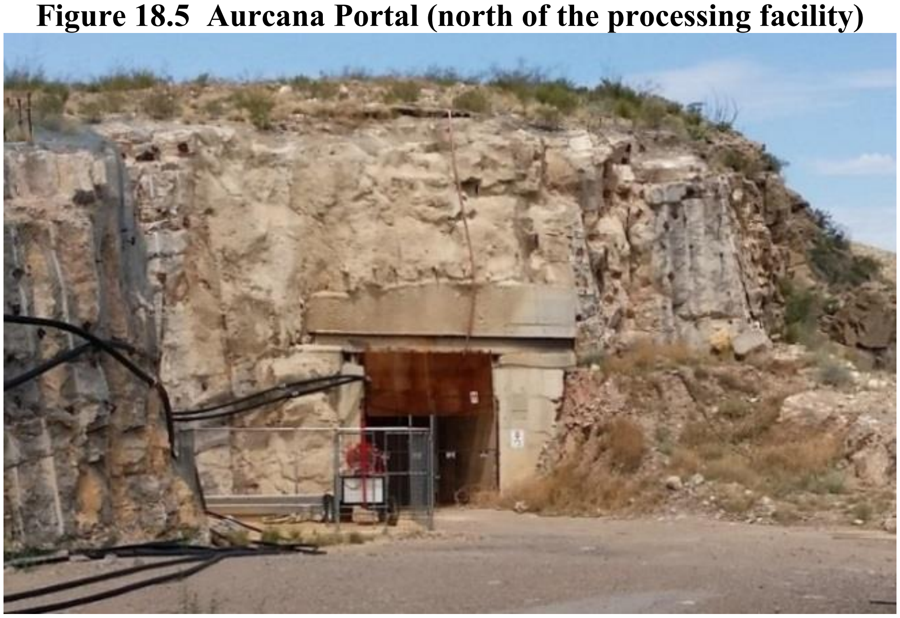
## 18.4 Mining Infrastructure

Gold Fields installed a 7ft diameter production shaft and a second rescue ventilation shaft, two hoists, and shop building at Shafter. Mine pumps and an air compressor are also located at the site. Figure 18.4 shows the Gold Fields shaft headframe, hoist building and the compressor building. Also visible in the area of the orange crane is a 4 ft diameter shaft that was sunk for ventilation of the Shafter workings.

**Figure 18.4 Gold Fields Headframe and Shaft Area**

Aurcana used a haulage decline to gain access to underground mineralization when the mine was in production during 2012-2013. This haulage decline was started to the southwest of the Gold Fields shaft and extends a distance of 3,800 feet with slopes and raises in eight areas of development for a total of over 4,100 feet of mining development. Figure 18.5 shows the portal of the decline haulage ramp.

**Figure 18.5 Aurcana Portal (north of the processing facility)**



## 18.5 Power

A regional 69 kV utility-owned power line connects to the on-site substation and power is distributed to various points on the property via 11 kV overhead power lines where it will be stepped down to 4,160 VAC and lower voltages as required.

Historically, the power provided to the site between 2011 and 2013 was sufficient for operations and generally uninterrupted. The proposed Shafter project will require less power than was previously used and will operate below the rated demand of the current distribution network. Figure 18.6 shows the existing Shafter sub-station near the plant area. A sub-station will be required near the Shafter shaft when it will be used.

**Figure 18.6 Shafter Substation**


## 18.6 Water

During the mining operations of 2012 and 2013, the process water requirements were fully met from mine dewatering. Water from the mine workings will be pumped to the existing raw water storage tank where it will provide the necessary make up water to the process facility as well as serve for dust control.

Potable water will be supplied from an existing water well that was used during the 2012 and 2013 mining operations.

## 18.7 Fuel

Diesel will be stored on the surface at the plant site and will be contained in existing diesel storage tanks. These were permitted during the most recent operation and should still be available for use under the permit. This facility will fuel both underground and surface mobile equipment.

Gasoline will be stored on site in above ground tanks in smaller amounts for fueling surface vehicles that typically remain on the mine property.

Propane is stored in above ground tanks at two locations – at the process plant for use in the refinery, and at the assay laboratory for the assay furnaces.

## 18.8 Fencing and Security

The fencing that was used during the 2012 to 2013 operations remains in good order and will serve its purpose. A locked gate currently limits entrance to the property to site personnel.

The refinery is set up with monitoring system, locked doors and gates at all access points. Security personnel will oversee the refinery during operations.

# 19.0 MARKET STUDIES AND CONTRACTS

The silver price of $20 per ounce of silver used in this study is based on a three year trailing average and a two year forward estimate of silver price from Haywood Metals (August 2016), as shown in Table 19.1.

**Table 19.1 Historic and Projected Silver Prices**

| **Period** | **2013** | **2014** | **2015** | **2016** | **3 Year** | **2018** | **2019** | **Average** |
|---|---|---|---|---|---|---|---|---|
| January | | $ 19.91 | $ 17.10 | $ 14.02 | **Average** | | | **3 years** |
| February | | $ 20.83 | $ 16.84 | $ 15.04 | **Silver** | | | **Previous** |
| March | | $ 20.74 | $ 16.22 | $ 15.42 | **Price** | | | **and** |
| April | | $ 19.71 | $ 16.31 | $ 16.26 | | | | **2 years** |
| May | | $ 19.36 | $ 16.80 | $ 16.89 | | | | **Forward** |
| June | | $ 19.78 | $ 16.10 | $ 17.04 | ***Source** | ***Source** | ***Source** | |
| July | $ 19.71 | $ 20.92 | $ 15.07 | | **Kitco** | **Haywood** | **Haywood** | |
| August | $ 21.84 | $ 19.80 | $ 14.94 | | | **Metals** | **Metals** | |
| September | $ 22.56 | $ 18.49 | $ 14.72 | | | | | |
| October | $ 21.92 | $ 17.19 | $ 15.71 | | | | | |
| November | $ 20.76 | $ 15.97 | $ 14.51 | | | | | |
| December | $ 19.61 | $ 16.24 | $ 14.05 | | | | | |
| | | | | | | | | |
| **Average** | **$ 21.07** | **$ 19.08** | **$ 15.70** | **$ 15.78** | **$ 17.73** | **$ 24.00** | **$ 24.00** | **$ 20.24** |
| | | | | | | | | |
| A silver price of $20 per ounce will be used in this study | | | | | | | | |

# 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

## 20.1 Introduction

The information in this section has been prepared by Stephen Glass, a consultant to Aurcana. Aurcana has extensive environmental baseline information in their possession collected by previous mine owners and their consultants. The mine was in operation between 2012 and 2014.

The Shafter project is controlled by Aurcana through their ownership of fee land and a minerals lease and exploration license from the Texas General Land Office (see Section 4). Ingress and egress to the property is from State Highway 67. While the Shafter project falls under state (Texas), county (Presidio), and limited federal agency purview with respect to environmental permits and approvals, primary permitting authority rests with the Texas Commission on Environmental Quality ("TCEQ"). The reader should note that while the Texas Natural Resource Conservation Commission ("TNRCC") is cited occasionally in the following section with reference to historical facts, TNRCC has been renamed TCEQ.

State agencies having regulatory authority over the Shafter project in addition to TCEQ include the Texas General Land Office, Texas Health Department, Texas Historical Commission, Texas Parks and Wildlife, and Texas Department of Transportation. Local agencies include the County of Presidio and the Presidio County Underground Water Conservation District.

Direct Federal regulatory programs applicable to the Shafter project include Clean Water Act requirements administered by the U.S. Army Corps of Engineers ("COE") and the U.S. Environmental Protection Agency ("EPA"), and associated compliance with the Endangered Species act and National Historic Preservation Act. These Federal requirements are described in greater detail below.

Acquisition of permits and approvals for the Shafter project has been an on-going effort since 1998. These efforts, and the body of documentation and data developed in the process, have resulted in all permits and approvals necessary to operate being current and compliant as of August 26, 2016. An annotated list of primary permits follow. A comprehensive list of acquired permits and approvals, regulatory authorities, permit status, and summary monitoring requirements is included as Table 20.1.

## 20.2 Permits and Approvals

### Clean Water Act (CWA), Section 404 Permit and Section 401 State Water Quality Certification

In 1998, RGMC applied for and was granted a Section 404 Nationwide #26 Permit and 401 Water Quality Certification to allow construction of a tailing disposal facility in Waters of the United States. In 1999-2000, disposal facility construction took place on the property pursuant to Permit guidelines, and the subject washes were consequently removed from jurisdiction. The 404 Permit formed the federal nexus for Federal compliance with the National Historic Preservation Act ("NHPA") and the Endangered Species Act ("ESA").

**National Historic Preservation Act (NHPA), Section 106**

In order to demonstrate Army Corp of Engineers (ACOE) compliance with NHPA Section 106 for the CWA 404 Permit, archaeological investigations were performed on the Area of Potential Effect ("APE"). The APE was limited to the area in which tailings are being deposited. Demonstration of archaeological clearance is evidenced by issuance of the Nationwide #26 Permit by the ACOE.

**Endangered Species Act (ESA)**

In order to demonstrate ACOE compliance with Endangered Species Act for the CWA 404 Permit, a records review and sensitive species survey was performed on the project area. No endangered species occur within the project area, and ESA compliance is evidenced by issuance of the Nationwide #26 Permit.

**Shaft Permit Waiver**

Texas regulations require a permit to construct a drilled or mined shaft. However, no permitting program was ever established in Texas to support this requirement. Because RGMC's activities are subject to ground water protection under Title 26 water quality regulations, a permit waiver was issued to RGMC by TNRCC, which later became TCEQ. This waiver remains valid.

**Underground Workings Permit**

For the small portion of the mine occurring on leased lands, the General Land Office would normally require an Underground Workings Permit. Because RGMC's activities are subject to Title 26 water quality regulations, RGMC's activities on leased lands are exempt by statute from compliance with this requirement

**New Source Review Air Quality Permit #80987**

RGMC requested and ultimately received approval from TCEQ to amend and convert their Flexible Air Permit #80987 to a New Source Review (NSR) Permit. The NSR permit is in place and in compliance.

**Permit to Discharge Waste #04297**

This permit allows RGMC to discharge excess mine de-water into a dry arroyo west of the Cibolo Creek watershed. Water pumped from the underground workings is decanted to allow removal of suspended solids. Once the solids have been removed, the water is used as make-up water in the mill, fire suppression, dust suppression, and drilling water (both surface and underground). A mine de-water distribution pond, and the mill bleed water pond are identified by TCEQ as covered in this permit.

**Notice to Dispose of Waste – Solid Waste Registration #31623**

RGMC disposed of tailing at the Shafter project via dry-stacking in an un-lined surface facility. Because the waste is not hazardous (Bevill exempted), generated by the property owner, and disposed of on-site, this disposal facility may be operated without permit under noticing requirements to TCEQ. Sediment accumulating in RGMC's mill bleed water pond is subject to the same noticing requirements. RGMC obtained concurrence from TCEQ of the Bevill exempt status of the material in both of these facilities.

**On-Site Sewage Facility (OSSF) Permit #193**

Prior to construction of the septic facility at the Shafter project, Presidio County reviewed and approved RGMC's facility design.

**Radioactive Materials License #R36454**

A Radioactive Materials License for the gauges used in the Process Plant was issued by the Texas Bureau of Health Service, Division of Radiation Control.

**Storm Water Multi-Sector General Permit #TXR05T074**

RGMC filed the required Notice-of-Intent, and a Storm Water Plan was developed pursuant to the Multi-sector General Permit. The Storm Water Plan is kept available for inspection at the mine site.

**Water Well Registration #1890018**

RGMC's water supply well, was constructed by Goldfields in 1979, and registered with TCEQ in 2010. Notification of historical well operations has been provided to the Presidio County Underground Water District.

**Public Water System (PWS)**

RGMC operates a Public Water System pursuant to Title 30 Texas Administrative Code, Sections §290.38-47. A TCEQ approved PWS is required of an entity that provides drinking water to 25 or more users. RGMC employs a licensed operator to operate and maintain the PWS.

**Mine Safety and Health Administration (MSHA) Compliance**

Prior to construction of the portal and ancillary facilities, RGMC obtained a MSHA mine identification number, submitted the required legal identity report, and obtained approval for the mine site Training Plan. With the suspension of mining in 2013, the mine is currently recognized by MSHA as "closed". The mine ID will need to be reactivated and new plans submitted and approved by MSHA prior to operation.

**Explosive User's License**

An Explosive User's License was issued to RGMC by the Bureau of Alcohol, Tobacco, Firearms and Explosives. Additionally, RGMC's contract miners maintained their own explosives licenses.

**Spill Pollution Control and Countermeasure Plan ("SPCC")**

The requirement for an SPCC is stipulated by the volume of petroleum products stored on-site. RGMC developed and maintains an SPCC for inspection on-site.

## 20.3 Social and Community Issues

There are no current community or social issues, or negotiation under way, associated with the Shafter project, that could potentially pose a material threat to operations or production from the facility.

## 20.4 Reclamation and Closure

With the exception of the tailing disposal facility and mill bleed water pond, the Shafter project is not subject to typical legislated reclamation measures found in other political jurisdictions. Consistent with supporting information submitted to TCEQ, at final cessation of mining, the tailing will be capped, contoured, and vegetated. Any water remaining in the mill bleed water pond following cessation of mining will be allowed to evaporate. Once completely dry, residual materials in the pond will be removed, and transported to a licensed facility for disposal. The pond liner will be buried in place and the pond area re-contoured.

## 20.5 Financial Assurance

Based on a March 2014 report on closure and reclamation at Shafter (Bokich, 2014), and updated by Gault Group, LLC (2016) the cost of mandated site reclamation is estimated to be approximately $644,000.

At this time, no financial assurance is required by any agency to secure financial responsibility for a compliant, long-term closure of the Shafter project. The Shafter project has no requirements for post-closure monitoring.

Federal and state laws and regulations are continually changing, and the operator at Shafter should anticipate continuing expenditures to remain in compliance, the cost of which cannot be predicted at this time.

The permit status is shown in Table 20.1.

## Table 20.1 Permit Status

| PERMIT | AGENCY | STATUS | MONITORING |
|---|---|---|---|
| Clean Water Act (CWA), Section 404 Nationwide #26 | ACOE | Closed/compliant | N/A |
| CWA Section 401 State Water Quality Certification | TCEQ | Closed/compliant | N/A |
| NHPA, Section 106 Clearance | ACOE/SHPO | Compliant | N/A |
| ESA Clearance | ACOE/USF&WS | Compliant | N/A |
| Shaft Permit Waiver | TNRCC (TCEQ) | Granted | N/A |
| Underground Workings Permit | Texas General Land Office | Exempt by statute | N/A |
| New Source Review Air Quality Permit #80987 | TCEQ | Current/compliant | · Quarterly emission inspections |
| | | | · pH monitoring |
| | | | · Monthly production report |
| | | | · Propane usage |
| | | | · Annual Emissions Report |
| Permit to Discharge Waste #04297 | TCEQ | Current/compliant | · Daily water sampling when pumping from shaft |
| | | | · Monitor pond for leaks |
| | | | · Daily sampling of pond during operation |
| | | | · Perform migratory bird mitigation |
| Solid Waste Registration #31623 | TCEQ | Current/compliant | · Daily sampling for cyanide |
| | | | · Weekly sampling |
| On-Site Sewage Facility (OSSF) Permit #193 | Presidio County | Current/compliant | |
| Radioactive Materials License #R36454 | Texas Bureau of Health Service | Active | N/A |
| | Division of Radioactive Control | | |
| Storm Water Multi-Sector General Permit #TXR05T074 | TCEQ | Current/compliant | Sampling following storm events |
| Water Well Registration #1890018 | TCEQ | Current/compliant | Standard Water Quality Sampling protocol |
| Explosive User's License | ATF | Current/compliant | Purchase, use, and inventory control reporting |
| Spill Prevention Control and Countermeasure Plan (SP( | TCEQ/EPA | Current | |

# 21.0 CAPITAL AND OPERATING COSTS

Mine capital and operating costs were compiled by MDA and the costs for the processing plant were estimated by Samuel Engineering Inc. ("SE"). The portions of this section dealing with the mine or process plant were also completed by the preparers of the above estimates, while the remainder of Section 21 was prepared by MDA.

## 21.1 Capital Cost Estimate

A summary of the capital cost estimate is shown in Table 21.1.

**Table 21.1 Shafter PEA Capital Cost Estimate**

| CAPITAL COST $000'S | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | YR 6 | YR 7 | TOTALS |
|---|---|---|---|---|---|---|---|---|---|
| Develop. Capital Cost | $ 775 | $ 4,476 | $ 3,767 | $ 3,511 | $ 4,753 | $ 5,794 | $ - | $ - | **$ 23,076** |
| Hoist, Headframe Rehab | | | $ 795 | | | | | | **$ 795** |
| Paste Plant and Pipe | | | $ 450 | $ 50 | $ 50 | $ 50 | | | **$ 600** |
| Plant Material Handling | $ 300 | | | | | | | | **$ 300** |
| Mine Dewatering | $ 200 | $ 483 | | | | | | | **$ 683** |
| Drilling | $ 290 | $ 218 | $ 218 | $ 530 | $ 398 | $ 606 | $ 156 | $ 156 | **$ 2,570** |
| Mine Equip. Capital Cost | $ 2,008 | $ 3,954 | $ 771 | $ 3,233 | $ 48 | $ - | $ - | $ - | **$ 10,014** |
| Mine Contingency | $ 399 | $ 839 | $ 587 | $ 738 | $ 560 | $ 372 | $ 16 | $ 16 | **$ 3,527** |
| Process Capital | $ 7,743 | $ 200 | $ 200 | $ 200 | $ 200 | $ 200 | $ 200 | | **$ 8,943** |
| Env & Closure | | | | | | | | $ 655 | **$ 655** |
| Owners Process Construction | $ 556 | | | | | | | | **$ 556** |
| Owners Cost | $ 893 | | | | | | | | **$ 893** |
| **Totals** | **$ 13,163** | **$ 10,170** | **$ 6,788** | **$ 8,262** | **$ 6,008** | **$ 7,021** | **$ 372** | **$ 827** | **$ 52,612** |

### 21.1.1 Introduction

Aurcana is a Vancouver-based company that owns the Shafter project through its US subsidiary, Rio Grande Mining Company (RGM). Shafter is located in located in south-central Presidio County in southwestern Texas, 44 miles south of Marfa and 21 miles northeast of Presidio, which borders the Mexican State of Chihuahua.

The Shafter project was developed by Aurcana between 2011 and 2013 with limited commercial production starting in December 2012. The mine consisted of 7,900 feet of underground development, milling process facilities, a Merrill-Crowe plant, a refinery, tailings storage and ancillary support facilities.

The Aurcana mill was operated in 2012-2013 based on a whole-ore cyanide leach circuit designed for 1,500 TPD using filtration and dry stacking of tailings. In the two years it operated, the mill failed to reach the design capacity or the projected silver recovery. After the project was placed on care and maintenance in December 2013, the mobile equipment was sold off, as well as some of the mechanical processing equipment, and the site has been since maintained by a skeleton crew.

Since the shutdown, several problems have been identified as the main sources of operational deficiencies. These issues included a resource model that was unreliable at estimating the extent, complexity and location of mineralization, and a mill that was assembled partly from used equipment that in some cases was not fully suitable for the design parameters.

New metallurgical test-work in combination with the large amount of information available on the Shafter deposit, as well the historic operation of the Presidio Mine and the more recent Aurcana operation have generated considerable information on the mining and milling at the Shafter project. This information has be utilized to prepare a new mine model for the deposit and to refine the mill feed processing flowsheet for an updated mill operation.

### 21.1.2 Mine Capital Cost Estimate

A summary of the mine capital cost estimate is shown in Table 21.2.

**Table 21.2 Shafter PEA Mine Capital Cost Estimate**

| CAPITAL COST $000'S | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | YR 6 | YR 7 | TOTALS |
|---|---|---|---|---|---|---|---|---|---|
| Develop. Capital Cost | $ 775 | $ 4,476 | $ 3,767 | $ 3,511 | $ 4,753 | $ 5,794 | $0.0 | $0.0 | $23,076.2 |
| Hoist, Headframe Rehab | | | $ 795 | | | | | | $795.0 |
| Paste Plant and Pipe | | | $ 450 | $ 50 | $ 50 | $ 50 | | | $600.0 |
| Plant Material Handling | $ 300 | | | | | | | | $300.0 |
| Mine Dewatering | $ 200 | $ 483 | | | | | | | $683.0 |
| Drilling | $ 290 | $ 218 | $ 218 | $ 530 | $ 398 | $ 606 | $156.0 | $156.0 | $2,570.0 |
| Mine Equip. Capital Cost | $ 2,008 | $ 3,954 | $ 771 | $ 3,233 | $ 48 | $ - | $0.0 | $0.0 | $10,014.1 |
| Mine Contingency | $ 399 | $ 839 | $ 587 | $ 738 | $ 560 | $ 372 | $16.0 | $16.0 | $3,527.0 |
| **Totals** | **$ 3,972** | **$ 9,970** | **$ 6,588** | **$ 8,062** | **$ 5,808** | **$ 6,821** | **$172.0** | **$172.0** | **$41,565.3** |

#### 21.1.2.1 Mine Development

The mine development plan assumes that the mine workings will require some rehabilitation, and that the operation will start mining the existing Presidio mine resources. This will require additional haulage ramp development as well as development of stope access drifts. After mining the Presidio mine resources, the Shafter area will be developed by both extending the haulage ramp system and rehabilitating the shaft access to the mine during year 2. Table 21.3 shows the planned development, while Table 21.4 shows the estimated cost of mine development.

## Table 21.3 Mine Development Footage

| Heading Type | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | | Total ft |
|---|---|---|---|---|---|---|---|---|
| Presidio Rehab. | 3,876 | 4,596 | 4,059 | 922 | 0 | 0 | | **13,453** |
| Shafter Shaft Rehab. | 0 | 0 | 1,913 | 0 | 0 | 0 | | **1,913** |
| Shafer Rehab. | 0 | 0 | 246 | 2,124 | 1,604 | 0 | | **3,974** |
| | | | | | | | | |
| Total Rehab | 3,876 | 4,596 | 6,218 | 3,046 | 1,604 | 0 | | **19,340** |
| Presidio Development | 0 | 1,338 | 1,059 | 1,773 | 2,118 | 1,186 | | **7,475** |
| Shafter Development | 0 | 0 | 0 | 0 | 1,065 | 3,087 | | **4,152** |
| Vent Raise | 0 | 744 | 0 | 0 | 0 | 0 | | **744** |
| Stope Access | 0 | 320 | 305 | 145 | 10 | 55 | | **835** |
| Other | | 500 | 500 | 500 | 500 | 500 | | **2,500** |
| | | | | | | | | |
| Total Development | 0 | 2,902 | 1,864 | 2,418 | 3,693 | 4,828 | | **15,705** |
| Rehab + Development | **3,876** | **7,498** | **8,082** | **5,464** | **5,298** | **4,828** | | **35,045** |

## Table 21.4 Mine Development Cost Estimate

| Item | Unit Cost $/ft | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | YR 5 | Totals |
|---|---|---|---|---|---|---|---|---|
| Presidio Rehabilitation | $200 | $ 775 | $ 919 | $ 812 | $ 184 | $ - | $ - | $ 2,691 |
| Presidio Development | $1,200 | $ - | $ 1,606 | $ 1,271 | $ 2,128 | $ 2,542 | $ 1,424 | $ 8,970 |
| Shafter Shaft Rehabilitation | $350 | $ - | $ - | $ 669 | $ - | $ - | $ - | $ 669 |
| Shafer Rehabilitation | $200 | $ - | $ - | $ 49 | $ 425 | $ 321 | $ - | $ 795 |
| Shafter Development | $1,200 | $ - | $ - | $ - | $ - | $ 1,279 | $ 3,704 | $ 4,983 |
| Vent Raise | $1,300 | $ - | $ 967 | $ - | $ - | $ - | $ - | $ 967 |
| Stope Access | $1,200 | $ - | $ 384 | $ 366 | $ 174 | $ 12 | $ 66 | $ 1,002 |
| Other | $1,200 | | $ 600 | $ 600 | $ 600 | $ 600 | $ 600 | $ 3,000 |
| Total Development Cost | | **$ 775** | **$ 4,476** | **$ 3,767** | **$ 3,511** | **$ 4,753** | **$ 5,794** | **$ 23,076** |

## 21.1.2.2 Mine Equipment

Table 21.5 shows the mine equipment planned for the operation. Some planned equipment considers a 25 percent down payment, with the balance due on delivery.

### Table 21.5 Underground Mine Equipment

| Mine Capital - Equipment | Description | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | Total |
|---|---|---|---|---|---|---|---|
| **Primary Production Equipment** | | | | | | | |
| Jumbo single boom | Sandvik DD210L | | | 1 | 1 | | 2 |
| Jumbo double boom | Sandvik DT611 | 0.25 | 0.75 | | | | 1 |
| LHD - 4 $cy^3$ | Sandvik LH204 | 0.5 | 1.5 | | | | 2 |
| LHD - 2.5 $yd^3$ | Sandvik LH202 | | | | 2 | | 2 |
| 20-30T truck | TH320 | 0.5 | 1.5 | | | | 2 |
| Bolter single boom | Sandvik DS311 | 1 | | | | | 1 |
| ANFO Loader | | 0.25 | 0.75 | | | | 1 |
| **Support Equipment** | | | | | | | |
| Grader | | 0.25 | 0.75 | | | | 1 |
| Telehandler | | 1 | | | | | 1 |
| Maintenance Kubota | | 1 | | | | | 1 |
| Supervisor Kubota | | 1 | | | | | 1 |
| Grade-control Kubota | | | 1 | | 1 | | 2 |
| Fuel-Lub truck | | | 1 | | | | 1 |
| Exploration drill | 1.75 in - 2.5 in ho | 1 | | | | | 1 |
| **Fixed Underground Equipment** | **Description** | **YR -1** | **YR 1** | **YR 2** | **YR 3** | **YR 4** | **Total** |
| **Compressed Air** | | | | | | | |
| Air compressor | Electric 350 cfm | 1 | | 1 | | | 2 |
| Jackleg/Stoper (with legs) | | 2 | 4 | | | 4 | 10 |
| **Mine Dewatering** | | | | | | | |
| Face pump, including cables & switchgear | 75 hp | | | | | | 0 |
| dewatering pumps | 35 hp | | | | | | 0 |
| **Drill Water** | | | | | | | |
| Fresh-water pump | 12.5 hp | 1 | | | | | 1 |
| Valves, connections | | 0 | | | 1 | | 1 |
| **Explosive Storage** | | | | | | | |
| Surface storage magazine | 30,000 lb - skid | | 1 | | | | 1 |
| Blasting equipment | | | 1 | | | 1 | 2 |
| Explosive boxes - transport and temp storage | | | 1 | | | 1 | 2 |
| **Electrical** | | | | | | | |
| Portable power center | 750 kva | 0 | | | | | 0 |
| Underground Electrical distribution | | 0 | | | 1 | | 1 |
| Surface Substation | | | | | 1 | | |
| **Communications** | | | | | | | |
| Underground communication system | voice and data | 0 | | | 1 | | 1 |
| Radios / Chargers | | 0 | | | 1 | | 1 |
| **Safety** | | | | | | | |
| Refuge chambers | 21 person | | 1 | | | | 1 |
| Mine rescue equipment | | 1 | | | | | 1 |
| First-aid equipment / Supplies | | 0.5 | | 0.5 | | 0.25 | 1.25 |
| Cap lamps | | 75 | | | 25 | | 100 |
| Respirators / Self-rescuers | | 75 | | | 25 | | 100 |
| **Mine Ventilation Equipment** | | | | | | | |
| Main fans - with accessories | 200 hp | | | | 1 | | 1 |
| Auxiliary and booster fans | 100 hp | | | | 1 | | 1 |
| Auxiliary and booster fans | 75 hp | | | | 3 | | 3 |
| Vent doors | | | | | 1 | | 1 |
| **Engineering / Surveying Equipment** | | | | | | | |
| Survey equipment | | 1 | | | | | 1 |
| Ventilation | | | 1 | | | | 1 |

The estimated mine equipment capital cost is shown in Table 21.6.

**Table 21.6 Estimated Mine Equipment Capital Cost**

| Mine Capital - Equipment | U.S $/unit | YR -1 | YR 1 | YR 2 | YR 3 | YR 4 | Total |
|---|---|---|---|---|---|---|---|
| **Primary Production Equipment** | **000's** | **000's** | **000's** | **000's** | **000's** | **000's** | **000's** |
| Jumbo single boom | $715.0 | 0.0 | 0.0 | 715.0 | 715.0 | 0.0 | 1,430.0 |
| Jumbo double boom | $1,015.0 | 253.8 | 761.3 | 0.0 | 0.0 | 0.0 | 1,015.0 |
| LHD - 4 cy3 | $821.0 | 410.5 | 1,231.5 | 0.0 | 0.0 | 0.0 | 1,642.0 |
| LHD - 2.5 yd3 | $523.0 | 0.0 | 0.0 | 0.0 | 1,046.0 | 0.0 | 1,046.0 |
| 20-30T truck | $626.9 | 313.5 | 940.4 | 0.0 | 0.0 | 0.0 | 1,253.8 |
| Bolter single boom | $302.0 | 302.0 | 0.0 | 0.0 | 0.0 | 0.0 | 302.0 |
| ANFO Loader | $423.0 | 105.8 | 317.3 | 0.0 | 0.0 | 0.0 | 423.0 |
| **Sub-total** | | **1,385.5** | **3,250.4** | **715.0** | **1,761.0** | **0.0** | **7,111.8** |
| **Support Equipment** | | | | | | | |
| Grader | $256.0 | 64.0 | 192.0 | 0.0 | 0.0 | 0.0 | 256.0 |
| Telehandler | $135.0 | 135.0 | 0.0 | 0.0 | 0.0 | 0.0 | 135.0 |
| Maintenance Kubota | $27.0 | 27.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.0 |
| Supervisor Kubota | $27.0 | 27.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.0 |
| Grade-control Kubota | $27.0 | 0.0 | 27.0 | 0.0 | 27.0 | 0.0 | 54.0 |
| Fuel-Lub truck | $324.8 | 0.0 | 324.8 | 0.0 | 0.0 | 0.0 | 324.8 |
| | | | | | | | |
| Exploration drill | $136.5 | 136.5 | 0.0 | 0.0 | 0.0 | 0.0 | 136.5 |
| **Sub-total** | | **389.5** | **543.8** | **0.0** | **27.0** | **0.0** | 960.3 |
| | | | | | | | |
| **Fixed Underground Equipment** | **U.S $/unit** | **YR -1** | **YR 1** | **YR 2** | **YR 3** | **YR 4** | **Total** |
| **Compressed Air** | | | | | | | |
| Air compressor | $50.7 | 50.7 | 0.0 | 50.7 | 0.0 | 0.0 | 101.5 |
| Jackleg/Stoper (with legs) | $10.4 | 20.8 | 41.6 | 0.0 | 0.0 | 41.6 | 104.0 |
| **Sub-total** | | **71.5** | **41.6** | **50.7** | **0.0** | **41.6** | **205.5** |
| **Mine Dewatering** | | | | | | | |
| Face pump, including cables & switc | $27.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| dewareting pumps | $11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Sub-total** | | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Drill Water** | | | | | | | |
| Fresh-water pump | $7.4 | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 |
| Valves, connections | $1.1 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 1.1 |
| **Sub-total** | | **7.4** | **0.0** | **0.0** | **1.1** | **0.0** | **8.5** |
| **Explosive Storage** | | | | | | | |
| Surface storage magazine | $28.5 | 0.0 | 28.5 | 0.0 | 0.0 | 0.0 | 28.5 |
| Blasting equipment | $1.4 | 0.0 | 1.4 | 0.0 | 0.0 | 1.4 | 2.9 |
| Explosive boxes - transport and tem | $2.9 | 0.0 | 2.9 | 0.0 | 0.0 | 2.9 | 5.7 |
| **Sub-total** | | **0.0** | **32.8** | **0.0** | **0.0** | **4.3** | **37.1** |
| **Electrical** | | | | | | | |
| Portable power center | $68.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Underground Electrical distribution | $300.0 | 0.0 | 0.0 | 0.0 | 300.0 | 0.0 | 300.0 |
| Surface substation | $400.0 | | | | 400.0 | | 400.0 |
| **Sub-total** | | **0.0** | **0.0** | **0.0** | **700.0** | **0.0** | **700.0** |
| **Communications** | | | | | | | |
| Underground communication syster | $23.7 | 0.0 | 0.0 | 0.0 | 23.7 | 0.0 | 23.7 |
| Radios / Chargers | $1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 |
| **Sub-total** | | **0.0** | **0.0** | **0.0** | **24.7** | **0.0** | **24.7** |
| **Safety** | | | | | | | |
| Refuge chambers | $80.0 | 0.0 | 80.0 | 0.0 | 0.0 | 0.0 | 80.0 |
| Mine rescue equipment | $100.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| First-aid equipment / Supplies | $10.0 | 5.0 | 0.0 | 5.0 | 0.0 | 2.5 | 12.5 |
| Cap lamps | $0.1 | 3.8 | 0.0 | 0.0 | 1.3 | 0.0 | 5.0 |
| Respirators / Self-rescuers | $0.4 | 30.0 | 0.0 | 0.0 | 10.0 | 0.0 | 40.0 |
| **Sub-total** | | **138.8** | **80.0** | **5.0** | **11.3** | **2.5** | **237.5** |
| **Mine Ventilation Equipment** | | | | | | | |
| Main fans - with accessories | $432.6 | 0.0 | 0.0 | 0.0 | 432.6 | 0.0 | 432.6 |
| Auxiliary and booster fans | $165.0 | 0.0 | 0.0 | 0.0 | 165.0 | 0.0 | 165.0 |
| Auxiliary and booster fans | $36.0 | 0.0 | 0.0 | 0.0 | 108.0 | 0.0 | 108.0 |
| Vent doors | $2.5 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 |
| **Sub-total** | | **0.0** | **0.0** | **0.0** | **708.1** | **0.0** | **708.1** |
| **Engineering / Surveying Equipment** | | | | | | | |
| Survey equipment | $15.0 | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.0 |
| Ventilation | $5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 5.0 |
| **Sub-total** | | **15.0** | **5.0** | **0.0** | **0.0** | **0.0** | **20.0** |
| **Total Mine Equipment Capital** | | **2,007.7** | **3,953.5** | **770.7** | **3,233.1** | **48.4** | **10,013.4** |

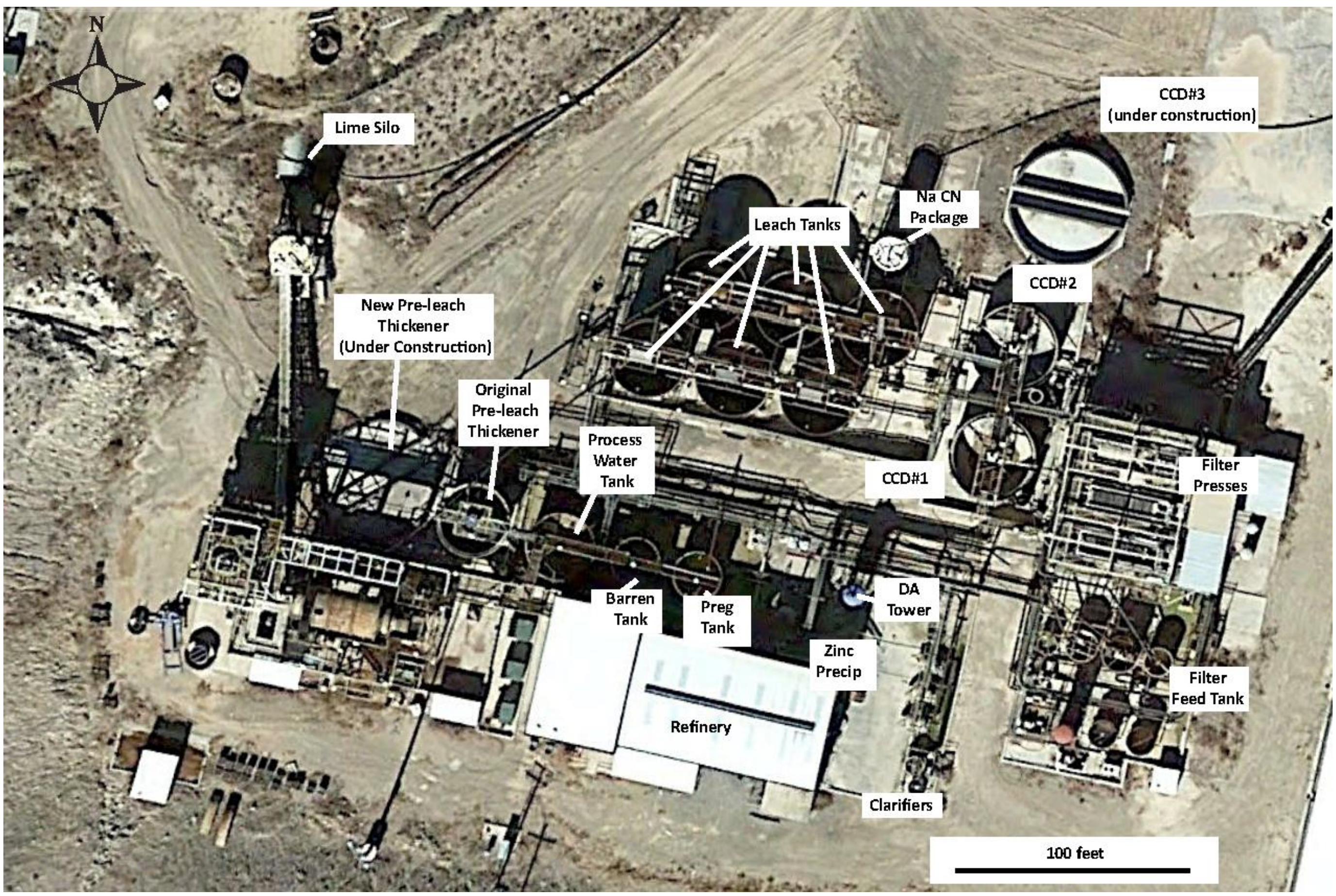
Other Mine Capital included in the estimate includes rehabilitation of the Shafter hoist and headframe, paste mixing plant and distribution pumps and pipes, mine surface haul truck(s), mine dewatering cost, and an underground and surface drill program to convert most of the inferred material to measured or indicated resources. A 10 percent contingency was included in the mine capital estimate. The closure cost of the mine was estimated to be $655,000. Process sustaining capital of $200,000 per year for years 1-5 was also included in the capital cost estimate. Owners cost was estimated to be 6 months of the normal G&A cost estimate.

### 21.1.3 Process Plant Capital Cost Estimate

#### 21.1.3.1 Objective and Summary

Figure 21.1 shows an aerial view of the existing Shafter processing facility.

**Figure 21.1 Shafter Processing Facility**




SE was retained by Aurcana to assist in preparing a scoping level (+/- 40 percent accuracy) capital cost estimate for re-starting operations at the Shafter project.

The key objectives of the capital cost study were to:

- Support the 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 the next phase of project financing.

The estimate includes costs for engineering, procurement, construction and start-up of the defined facility expansion and modification plans. Contingencies for the work are not built into quantities and rates. Contingency has been applied as a line item for visibility. The expected accuracy of the estimates is -40 percent to +40 percent.

The total estimated cost to design, procure, construct and start-up the facilities described in this report is $7.7 million. Table 21.7 summarizes the expected cost for the project.

**Table 21.7 Estimated Processing Facility Capital Costs ($Thousands$)**

| Description | Cost (U.S.$) |
|---|---|
| Demolition | |
| Earthwork | $5.0 |
| Concrete | $52.9 |
| Structural Steel | $193.9 |
| Buildings | |
| Mechanical - Repurchase | $4,200.0 |
| Mechanical | $523.0 |
| Piping | $253.3 |
| Electrical | $195.7 |
| Instrumentation | $520.4 |
| | |
| **Subtotal Direct** | **$5,944.3** |
| Indirects | |
| Construction Equipment | $67.4 |
| Construction Contractor Indirects (30% of Labor) | $144.0 |
| Contractor Mark-up on Materials | $52.0 |
| Building Permits | $30.1 |
| Spare Parts | $138.5 |
| Initial Fills | $191.6 |
| Vendor Repersentatives | $91.6 |
| Surveying and Testing Services | $40.0 |
| Freight (6%) | $75.5 |
| EPCM | $261.6 |
| Contractor Testing and Start-up Support | $37.1 |
| Owners Cost (Excluded) | |
| | |
| **Subtotal** | **$1,129.6** |
| | |
| **Contingency** | **$668.9** |
| | |
| **Total Estimate** | **$7,742.7** |

The Shafter processing facility proposed in this study will use whole-ore cyanide leach to extract silver from the material being processed. Metal recovery will be accomplished using a standard Merrill Crowe CCD zinc precipitation method. ROM material will be crushed to a nominal 1 inch size using a single jaw crusher for primary crushing and a cone crusher in closed circuit with a product screen. The crushing plant will operate on a single 12 hour shift seven days a week to replenish the crushed mill feed stockpile. The stockpile will have enough capacity to feed the milling operations which will operate with two twelve hour shifts to continuously operate 24 hours a day, 7 days a week.

Milling to the final leach feed product size of 80 percent passing 74 microns will be achieved by a single ball mill in closed circuit with cyclones for classification. Cyclone overflow feeds into a pre leach thickener. Thickened slurry at 68 percent solids will flow to the leach circuit where it will be diluted with returned filtrate from the zinc precipitation circuit and make up process water to a solids weight percent of 45 percent solids. The pre leach thickener overflow will report to the process water tank for use in the grinding circuit and as wash water for the tailings filter.

The leach tanks are design for 72 hour retention to achieve an extraction of silver at 81 percent. The slurry from the leach circuit will report to the counter current decantation (CCD) circuit using the CCD circuit will flow by pumps to the deaeration vessel and then to the zinc precipitation circuit. Cleaned residue from the CCD circuit is pumped to the tailings plate and frame filters for one final wash before the residue cake is conveyed to a tailings load out area where it will be hauled to a dry stacked tailings storage facility or to the mine as feed to backfill operations. (Note: Tailings handling is not part the scope of this estimate. Filtered tailings cake will be conveyed to a tailings load out area to be hauled to the tailings storage facility or hauled to the mine as backfill material. However, the battery limit for this estimate is the discharge end of the filter discharge conveyor).

The zinc precipitation circuit will mix zinc with silver bearing pregnant solution causing the silver to precipitate from solution. The silver precipitated slurry is pumped through the zinc precipitation filters to capture the silver as a cake. The silver precip cake is transferred to a retort for drying and to remove any contained mercury which will be collected for removal off site. The dried cake from the retort is then mixed with flux and melted in a gas fired furnace for pouring into silver doré. The silver doré will be stored in a safe until it is shipped off site to a refiner.

As summarized below, SE has provided an installed cost estimate for the design, procurement, construction and start-up costs for re-configuring the plant facilities to optimize the processing of minerals based on the current resource model and mining conditions. All the old milling and processing equipment will be re-used to the fullest extent possible. The equipment in the existing facility will all be readied for re-use by Aurcana's maintenance and operations personnel with assistance as required from contracted services. The readying of the existing facilities is an Owner's cost and not included in this estimate.

The basic utilities infrastructure and ancillary support structure for the mine and plant facilities is still in place and should be sufficient for the smaller plant currently envisioned. Water will be obtained from the mine and wells which are already in-place from the previous operation. Some of this water is also apportioned to residents of Shafter.

American Electric Power ("AEP") generates and transmits electricity in the region. The site is served by a 69 kV power line connected to an existing on-site substation.

The existing on-site ancillary buildings which will support the mine and processing facilities including the Administration Building, Maintenance Shop, Warehousing and Assay Laboratory are all in useable condition and no new major structures should be needed.

Cement will be used to prepare a paste backfill for the underground mine. The cost of the small facility to mix cement and water with the dry tailings is included in the mine capital cost estimate. It is assumed that the cement provider will supply, set-up and maintain an on-site cement storage silo.

RGMC currently owns and operates a front-end loader at the facility which is assumed will continue to serve the future operations with the following duties: loading tailings filter cake into trucks for haulage to the TSF or as backfill to the mine, and also for grooming the stockpile as needed.

An additional front-end loader will be needed to feed the crusher. The cost for this loader is included with the mine capital.

Items that are not be included in the capital estimates are as follows:

- Sunk costs:
- Demolition and disposal of existing facilities:
- Removal of any existing equipment that is not required for the new operations:
- Cleaning, lubricating, aligning, calibrating, testing or refurbishing of existing equipment:
- Mobil equipment:
- Allowance for special incentives (schedule, safety, etc.):
- Force majeure occurrences, such as risk due to government policy changes, labor disputes, permitting delays, etc.;
- Owner’s cost (pre-operations labor, refurbishment of existing facilities, project management, insurances, corporate expenses, legal fees, etc.);
- Risk analysis / Owner’s Reserve Funds;
- Escalation beyond third quarter 2016;
- Interest and/or financing cost; and
- Operating costs.

### 21.1.3.2 Currency

The estimate is expressed in third-quarter 2016 United States dollars. No provision has been included to offset future escalation.

#### 21.1.3.3 Estimating Methodology

The estimate is built up by prime commodity accounts, which include earthwork, concrete, structural steel, mechanical, piping, electrical and instrumentation. The following information was used in the development of this estimate:

- Shafter Fixed Asset Register (provided by Aurcana);
- Budgetary Equipment Quotes;
- Sketches for MTOs; and
- Historical project costs and data.

Costs are based on the assumption that new equipment and materials will be purchased on a competitive basis, and installation contracts will be awarded in well-defined packages. Manufacturer's standard warranties on equipment are assumed to be satisfactory.

The man-hours associated with materials and equipment is intended to cover all required operations for the installation of individual components. This would include unloading from trucks, storing in storage yard or warehouse, unpacking, hauling to erection site, rigging, lifting, setting, welding, aligning, calibrating and checking out of all items included with the supply.

#### 21.1.3.4 Site Civil Work

All new work is within the confines of the existing facility and no new rough grading or additional security fencing will be required. Final grading and gravel surfacing around disturbed areas will be required and allowances for that have been made in the CCD thickening area where new containment structures will be built around the thickener foundations.

It is assumed that there will be no buried utility interferences and no allowance is made in the estimate for any buried utility relocations. Additionally, no allowances have been made for encountering hazardous waste or other buried items.

If the remaining mill feed in the existing stockpile needs to be removed (and later put back) in order to install the new reclaim belt feeders, it is assumed that RMGC personnel will perform this task with labor and machinery in the Owner's care and maintenance budget.

#### 21.1.3.5 Concrete and Foundations

Most of the processing equipment will be re-used in-place at their current locations and therefore will not require any additional concrete. However, there will be some new equipment required for which foundations will be needed. While existing foundations will be used wherever possible, there will be some instances where they may need to be demolished and replaced.

The CCD thickener area will require the most new concrete. Two thickeners are existing and the foundation for a third was in the process of being installed. The third foundation will require finishing and a fourth thickener foundation will be needed. There is an existing vacant pre-leach thickener foundation built to accommodate a larger pre-leach thickener (which is no longer required). It is the same size as the CCD thickeners and it is hoped that this foundation can be used for the fourth thickener. In addition, there will need to be containment added for both new thickeners as they will hold cyanide. The new lime slaking system will require foundations and the existing cyanide system will be modified, which may need some foundations reconfigured as well.

An average total installed cost for concrete of $1,080/cy has been used. The price includes both labor and materials for structural excavation and backfill, formwork, rebar, embeds, anchor bolts, and additives.

#### 21.1.3.6 Structural Steel

Structural steel quantities have been allowed based on estimator judgement. Steel has been included for framing the new reclaim feeders, modifying the leach tanks to allow cascading between tanks and pipe racks in the CCD thickening area.

A unit material cost of $3,800 per ton has been used as an average for all structural steel framing, stairs, handrail, grating, etc. This unit rate includes detailing, fabrication and prime coat painting and is based on recent in-house pricing.

#### 21.1.3.7 Buildings

There are no new buildings planned for the Shafter project. The existing buildings are anticipated to be sufficient to meet the needs of the new operations. Additionally, the buildings are not thought to require any modifications; they can be re-used as-is.

The existing on-site ancillary buildings which will support the mine and processing facilities include:

- Administration Building, 10,560 $ft^2$;
- Maintenance Shop, 6,000 $ft^2$;
- Dry Warehousing, 12,000 $ft^2$ and;
- Assay Laboratory, 6,000 $ft^2$.

#### 21.1.3.8 Mechanical

All the old milling and processing equipment will be re-used to the fullest extent possible. However, when the Shafter project ceased operations in 2013, some of the mechanical processing equipment was sold back to the bank (Orion). Fortunately, the bank never removed any of the equipment from site and it currently remains in-place on their foundations.

All of the equipment that was sold to Orion is still available for re-purchase. Orion has been contacted, and has confirmed that the equipment could be repurchased for a deemed upfront value of US$4.2 million.

For the purposes of the estimate, SE has assumed that the equipment can be re-purchased at the discussed price of $4.2 million. Although not all of the Orion owned equipment will be re-used, it is assumed that all will be re-purchased. This estimate does not include any costs for removing superfluous equipment.

Equipment items that will be re-purchased from Orion are shown in Table 21.8 (See the SE section 21 report attached as an appendix for photographs of existing equipment).

**Table 21.8 Bank Owned Process Equipment**

| Photo | Item | Closing | Buy Back @ WDV | Comments |
|---|---|---|---|---|
| | | $000's | 000's | |
| 1001 | JW Jones Nordberg 32x40 Jaw Crushing Plant | $99.0 | $118.8 | |
| 1002 | Symons /Nordberg Cone Crus hing/Screening Plant | $178.1 | $213.8 | |
| 1008 | Refurbished Koppers 14x24 Ball Mill - NJB | $670.7 | $804.9 | |
| 1009 | New Pinion & Bull Gear | $215.8 | $259.0 | |
| 1010 | New 3,000 HP Motor | $233.0 | $279.6 | |
| Used 3,000 HP Motor - requires repairs | | - | - | |
| 1011 | New Ball Mill Liner Change | $238.8 | $286.5 | |
| 1021 | Cyanco System w/ 25,000 Gal Tank refurbished | $102.4 | $122.9 | Only the tank will be re-us ed |
| 1022 | Agitators w/ Gear Boxes (3-each) | $105.2 | $126.2 | Only one of the three will be re-used |
| 1024 | Thickeners w/ Bridges & Mechanisms (2-each) | $83.4 | $100.1 | |
| 1027 | TPH Used Filter Press | $369.0 | $442.8 | This filter will not be re-used |
| 1028 | TPH New Filter Press | $503.0 | $603.6 | |
| 1029 | Chines e Filter Press | $271.1 | $325.3 | |
| 1036 | Refinery Filter Press Micronics | $163.0 | $195.6 | |
| 1038 | Mercury Scrubber & Melting Furnace | $72.3 | $86.8 | |
| 1039 | New Refinery Retort | $66.1 | $79.3 | |
| Masaba Stacking Conveyor (36" X 150'), 24" | | $129.1 | $154.9 | |
| **Totals** | | **$3,500.0** | **$4,200.0** | **Re-pay bank $4.2MM** |

Some of the existing equipment is in need of repair work:

- The secondary cone crusher needs a rebuild or refurbishment;
- The secondary screen is cracked (use as-is to begin initial operations);
- The ball mill needs new liners and a new motor (new liners and motor are on-site);
- The ball mill ring gear may need to be replaced (unknown at this time);
- The hydrocyclones have been dismantled;
- The lime bin appears to be cracked;
- Pre-leach and leach tanks are not painted and are rusting; and
- Feedwells on existing thickeners may need upgrading to perform at desired wash efficiencies.

All repairs and work on existing equipment including alignments, lubrication, gearbox oil changes, motor rotations, calibrations and general mechanical check-out will be performed by the Owner's maintenance crews prior to start-up.

The two thickeners owned by the bank are used equipment purchased just prior to the mill shut down in 2013 and were never installed. They are complete with tanks, bridges, rakes, and drive mechanisms, however, they have not run since they were dismantled 30-years ago. It is anticipated that these will be installed by a mechanical contractor (included in the estimate) and not by the Owner's maintenance crews.

The following major equipment will be purchased new:

- Reclaim Belt Feeders (existing pan feeders have already been removed from tunnel);
- Cyanide Addition System with a bag breaker, mix tank, enclosure, metering pump, etc.; and
- Lime Slaking Plant (including storage silo, hydrator, slurry tank, controls and accessories)

Pricing for the new equipment was obtained from a published cost database. No specifications were prepared for the equipment. It is assumed that vendor's standard designs, painting systems and warranties for equipment are acceptable.

Prices include vendor engineering, documentation and tagging. No freight costs are included with the equipment. Quotes are FOB factory, and freight has been allocated separately in the indirect section of the estimate.

All new mechanical equipment is assumed to be procured by either the Engineer or the Owner and provided "free issue" to the construction contractor for installation, thereby avoiding any third party markup. The Construction Contractor(s) will be responsible for receiving, unloading, storing, unpacking and installing the equipment.

Mechanical equipment installation man-hours cover all required operations for the installation of new equipment. This would include unloading from trucks, storing in storage yard or warehouse, unpacking, hauling to erection site, rigging, lifting, setting, anchoring, grouting, aligning, calibrating and checking out of all items included with the equipment supply.

#### 21.1.3.9 Piping

It is anticipated that the majority of the existing piping is still good and can continue to be used as-is. Some new plant piping will be needed (including pipe, flanges, fittings, connections and valves) in areas where new equipment will be deployed. In addition, pipe work will need to be performed to add new valves, meters and instrumentation.

No material quantity take-offs have been performed at this stage for piping. The pipe cost are intended to include:

- Re-configure piping at leach tanks as required;
- Piping for the two new CCD thickeners;
- Reagents piping for the new cyanide system and lime slaking system; and
- Hydrostatic testing for new pipe (Owner will perform hydro-testing on existing piping).

#### 21.1.3.10 Electrical

Since the new plant will be operating at a lower throughput than the previous period of commercial operation, the new installed electrical loads planned for the re-start of the facilities should be well within the capacity of the existing substation and grid power supply.

No material take-offs have been generated or equipment pricing obtained for electrical components necessary to power the new equipment/facilities downstream of the substation.

It has been assumed that existing power distribution centers ("PDC"s) and motor control centers ("MCC"s) are in good working order and remain connected to the various equipment motors. Some motor starters may need to be replaced where equipment was downsized.

A new MCC has been allowed for the CCD thickener circuit as there may not be enough motor starter buckets in the existing MCC to accommodate the new pumps and thickener mechanisms. The existing MCC rooms are assumed to have adequate space for the new MCC line-up.

Allowances have been made for electrical bulk materials and their installation, including raceway, wire, grounding and terminations for the new equipment.

New construction is within an existing facility where it is assumed that no additional site lighting is necessary except possibly in the CCD thickener area.

#### 21.1.3.11 Instrumentation and Controls

The original plant did not have an abundance of instrumentation and automation. There was enough instrumentation that the operators could determine what was happening within the process, but the opening and shutting of valves and turning pumps on and off (aside from sump type operations) would be manual and left to the operators.

An increased level of automation is planned for the basic control of the process in the new operation. This would include automation for items such as lime addition metering for pH control, density control in the grinding circuit, mass flow, etc.

Flowmeters would be installed on at least all lines going in and out of the major equipment (leach circuits and CCD circuits can be looked at a single units), level indicators in tanks and thickeners, pH meters at the front and end of the leach circuits and the Merrill Crowe system. And a metal detector ahead of the secondary cone crusher is also planned (included with mechanical equipment).

New instruments will be installed and calibrated by the installation contractor. However, the existing plant instrumentation will be calibrated and tested by the Owner's maintenance and operations personnel prior to start-up and these costs are not included in the capital cost (Owner's costs are excluded).

The existing facility's PLC system will be updated to include any new process equipment. It is assumed that the original station PLC was designed with sufficient I/O capacity to accommodate the new equipment.
No material take-offs have been generated or equipment pricing obtained for instrumentation. The cost included is intended to cover instruments, instrument wiring bulk materials (wire, conduit, etc.) and installation.

### 21.1.3.12 Labor Rates and Productivity

An average labor rate of $73 per hour has been used, which is intended to include basic wage, fringe benefits, compensation insurance, salary burdens including unemployment, social security, FICA, etc. The wages assume an open-shop workforce.

Labor does not include contractor field indirect costs such as mobilization, demobilization, temporary facilities, temporary utilities, surveying or on-site administration. These items are included with the construction indirect cost.

### 21.1.3.13 Common Distributable and Contracted Indirect Costs

Common distributable and contracted indirect costs apply to multiple parties (suppliers, contractors, service providers, etc.) across multiple areas of the project. These costs are typically calculated using percentages based on historical data of similar type projects. Percentages based on historical data of similar projects are applied to develop pricing for the following:

Contractor's indirect costs for the process facilities will be included at an overall rate of 30 percent of the direct field labor cost. Items included with contractor's indirect costs include:

- Contractor's mobilization and demobilization;
- Supervision, safety and administrative support costs;
- Temporary construction facilities (offices, fencing around work areas, etc.);
- Warehousing and lay down area cost;
- Temporary toilets;
- Construction vehicles, fuel, and maintenance;
- Construction power/utilities hook-up;
- Cleanup and waste removal;
- Bonds and insurances;
- Temporary communications;
- Construction surveying; and
- Contractors' overhead and profit.

It is assumed that construction power and water will be provided to the contractors by Aurcana free of charge. Contractors will be responsible for any temporary utility tie-ins and distribution to work areas.
A mark-up of twelve percent has been applied to material cost expected to be provided by the contractor to cover their overhead and profit on the purchases.
The construction equipment account is intended to cover the cost of lifting cranes, forklifts, man-lifts, flat-bed trucks, generator sets, scissor lifts, dewatering pumps, light plants, scaffolding, etc. Construction equipment costs are added based on direct construction man-hours. This will cover equipment rental (both contractor owned and rented) plus fuel and maintenance.

Building permits for the project are included at 1.5 percent of the contracted direct costs of the project (excluding the $4.2 million to re-purchase the bank owned equipment).

Spare parts required for start-up and commissioning as well as critical spares are included in the estimate for the new equipment. The typical cost is in the range of 4 percent to 6 percent of mechanical equipment. However, it is assumed that there is still an inventory of spare parts available from the previous operations and therefor this estimate has been lowered to 3 percent.

Initial Fills (aka First Fill) includes grinding media for the mills and reagents. Reagents and grinding media have been quantified and priced for inclusion in the estimate based on the storage tank volumes or thirty days use. Pricing is based on recent in house data.

The initial fill costs are detailed in the Table 21.9.

**Table 21.9 Initial Fills**

| Reagents / Consumables | lb/year | Initial Fill (1 month or fill) lb | Initial Fill (1 month or fill) ($) |
|---|---|---|---|
| Grinding Balls (fill mill and 15 day stock) | 414,060 | 160,802 | $ 88,441 |
| Lime | 1,050,000 | 87,500 | $ 7,678 |
| NaCN | 331,800 | 27,650 | $ 42,316 |
| Flocculant | 53,242 | 4,437 | $ 8,652 |
| Zinc | 97,356 | 8,113 | $ 24,258 |
| Borax | 15,905 | 1,325 | $ 1,129 |
| Soda Ash | 31,811 | 2,651 | $ 928 |
| Sodium Nitrate | 63,622 | 5,302 | $ 2,253 |
| Silica Sand | 127,244 | 10,604 | $ 1,591 |
| Diatomaceous Earth | 348,600 | 29,050 | $ 14,380 |
| **Initial Fills Total** | | | **$ 191,626** |

Reagents and consumables will be filled/charged by the Owner's operations team. Lubricants for the existing equipment will be provided and changed as necessary by the Owner.

Vendor representative supervision and assistance will likely be required during both installation and startup of specialized equipment. An allowance for vendor representative field support at site is included at 2 percent of equipment cost.

An amount of $10K per month of assumed 4 month construction duration has been included for third party surveying and testing services including surveying verification, soils compaction, concrete sampling/slump testing, bolt torque testing, weld inspection, crane certification and other non-destructive testing requirements.

Highway 67 runs through the property and deliveries are not anticipated to be a problem. Freight costs have been included for the delivery of equipment and materials to the jobsite as a percent of the sum of materials and equipment; 6 percent has been used. The existing equipment has been excluded from the calculation.

EPCM services for the detailed design, procurement and construction management of the environmental facilities has been included at 15 percent of the cost for which the service provider will be responsible.

Startup support services encompassing pre-operations testing will be included at 3 percent of the installation labor plus EPCM services. It is assumed that the Owner's on-site operations staff will actually perform the start-up and commissioning of the plant; this account is for pre-operations checkout and support by construction craft labor and supervision.

It is assumed that the environmental permitting for original facilities is still valid and remains in-place. Any ongoing environmental requirements to maintain and re-start operations will be borne by the Owner.

Project management and oversight will be required by Aurcana for the duration of construction; this and other corporate service charges, including time, travel, accounting and other expenses incurred on behalf of the project are included in the G&A cost.

Aurcana has included costs for repair, alignment, lubrication, check-out, calibration and start-up of all existing equipment. This cost is included elsewhere in the Owner's Cost.

Contractors who supply construction materials will pay sales tax to their suppliers and include that price in the charges they pass on to the Owner. While not listed as separate line items on invoices; that tax amount will be built into the rates they charge. For the purposes of the capital cost estimate, sales tax has been included at 6.75 percent against the cost of contractor supplied (purchased) materials. The rate consists of 6.25 percent Texas State Tax plus 0.5 percent Special Tax. There is no applicable county tax. It is assumed that Presidio City Tax (1.5 percent) does not apply.

Labor related to installation of tangible personal property to real property is non-taxable. These charges are not subject to sales tax. No sales tax has been applied to labor.

#### 21.1.3.14 Contingency

An overall contingency of about ten percent (10 percent) has been included in the capital cost. Zero contingency dollars have been applied to the cost of equipment to be re-purchased by Aurcana from the bank ($4.2 million). If that cost is excluded from the calculation, the contingency percentage rises to 23 percent.

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. It is assumed that contingency will be spent; however, it does not cover scope changes or project exclusions.

#### 21.1.3.15 Accuracy

The Preliminary Economic Assessment capital cost has been developed to a level sufficient to assess/evaluate the project concept, various development options and the 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 40 percent plus 40 percent.

Minimal design has been performed on the plant facilities at this early stage of study and the design will continue to evolve. Costs will increase and decrease according to the final design scope compared with the conceptual scope and quantification in this study.

## 21.2 Operating Cost Estimate

Table 21.10 shows the operating cost estimate for the project.

**Table 21.10 Estimated Project Operating Cost**

| Item | LOM $000's | $/ton |
|---|---|---|
| Mining | $53,085.4 | $40.00 |
| Surface Hauling | $1,854.1 | $1.40 |
| Cement for Paste | $6,308.5 | $4.75 |
| Paste Plant & Distribution | $1,752.4 | $1.32 |
| Processing | $28,798.8 | $21.70 |
| G & A | $11,280.6 | $8.50 |
| | | |
| **Totals** | **$103,079.9** | **$77.67** |

### 21.2.1 Mine Operating Cost Estimate

The mine operating cost estimate is based on operating two 12-hour shifts per day in the mine, 350 days per year, to produce 600 tons per day of mill feed material to be processed. Table 21.11 summarizes the mine operating cost estimate.

**Table 21.11 Estimated Mine Operating Cost**

| Item | LOM $000's | $/ton |
|---|---|---|
| Mining | $53,085.4 | $40.00 |
| Surface Hauling | $1,854.1 | $1.40 |
| Cement for Paste | $6,308.5 | $4.75 |
| Paste Plant & Distribution | $1,752.4 | $1.32 |
| | | |
| **Totals** | **$63,000.4** | **$47.47** |

The estimated mining cost of $40 per ton is based on a combination of historical mining cost estimates from prior mining studies and the current mining cost services estimate for a 500 tpd operation of $42.50 per ton.

#### 21.2.1.1 Surface Haulage

The material from the Presidio mine area has a slight amount of surface haulage to the plant facilities stockpile located near the portal included in the mining cost. The material mined from the Shafter area has $2.00 per ton of material hauled added to the mining cost estimate. The surface haulage is assumed to be by a contractor and that back-haul of dry tailings is included.

#### 21.2.1.2 Cement for Paste

The delivered price of cement is estimated to be $180 per ton, or about $0.09 per pound of cement required. It was assumed that the paste would require 8 percent cement by weight. The amount of tailings required to backfill the Shafter area was estimated to be 55 percent of the tons mined, except for the last year of mining, which was lowered to 30 percent.

#### 21.2.1.3 Backfill distribution and Paste Plant Operation

A cost of $4 per ton of paste required was included for the backfill distribution cost, and operation of the small paste plant.

### 21.2.2 Process Facility Cost

The operations are expected to mine and process 210,000 short tons per year (tpy) of mineralized material. The current expected life of mine ("LOM") is approximately 6.3 years.

The SE scope of work includes the mill feed processing facilities consisting of a comminution circuit, whole-ore leaching, Merrill Crowe recovery of silver, refining, and tailings filtration.

The expected costs to operate the processing facilities described in this report are summarized in Table 21.12.

**Table 21.12 Process Facility Operating Cost Estimate**

| Description | Total LOM Cost ($000's) | $/ton |
|---|---|---|
| Salaried Labor | $3,357.8 | $2.53 |
| Operating Labor | $6,598.2 | $4.97 |
| Technicians and Assayers | $2,066.6 | $1.56 |
| Maintenance Labor | $2,054.6 | $1.55 |
| Site Plant Electrical Power | $4,164.4 | $3.14 |
| Reagents | $7,824.9 | $5.89 |
| Grinding Media | $1,664.9 | $1.25 |
| Maintenance Supplies (5% of installed equipment cost) | $795.0 | $0.60 |
| Misc. Op. Exp. (1% of process operating costs) | $274.4 | $0.21 |
| | | |
| **Processing Total** | **$28,800.8** | **$21.70** |

#### 21.2.2.1 Exclusions and Clarifications

Items not included in the process facility operating cost estimate are as follows:

- Mine operations and material hauling;
- Waste storage facilities;
- Water treatment;
- Mobile equipment (fuel, maintenance, etc.); and
- Additional G&A (Owner's) costs for the plant; including personnel recruiting, hiring, relocation and training, insurance, security, legal, permits, fees, etc.

#### 21.2.2.2 Currency

The estimate is expressed in 2016 United States dollars. No provision has been included to offset future escalation or foreign currency exchange rate fluctuations.

#### 21.2.2.3 Labor

The labor component of the estimate consists of three parts:

- Hourly Labor – direct hired operators, techs, maintenance, laborers and security personnel;
- Salary Labor – direct hire supervisory and administrative personnel; and
- Service Labor – Equipment vendor representatives for service calls.

The direct hired personnel represent the direct labor necessary for day-to-day operations and maintenance of the process plant, including both hourly and salaried personnel. The service labor from vendors is provided for the required periodic tuning of specialized equipment.

The proposed process facility will operate continuously with two 12-hour shifts (with the exception of the crushing circuit which will operate on a single 12-hour shift), seven days per week, for 350 days per year. Three shifts are included in the calculation so that the hourly personnel can be rotated and cover vacations, holidays and sick days. The labor rates used in the estimate are based on salary information from a similar project in Arizona. No special bonuses or incentives have been included.

Labor costs are summarized in Table 21.13.

**Table 21.13 Process Facility Labor Cost Estimate**

| Description | Number | Annual $000's | $/ton |
|---|---|---|---|
| Salaried Labor | | | |
| LaborProcess Superintendent | 1 | 245,004 | $1.17 |
| Senior Metallurgist /Lab Manager | 1 | 168,174 | $0.80 |
| Plant General Foreman | 1 | 84,087 | $0.40 |
| Secretary/Clerk | 1 | 34,071 | $0.16 |
| | | | |
| **Total Salaried** | **4** | **531,336** | **$2.53** |
| Operating Labor | | | |
| Lead Crusher Operator | 2 | $152.1 | $0.72 |
| Crusher Helper | 2 | $120.1 | $0.57 |
| Lead Grinding Operator/Leach | 4 | $304.2 | $1.45 |
| Dewatering/Zinc Precipitate | 4 | $261.5 | $1.25 |
| Tailings Storage Facility Operator | 2 | $130.7 | $0.62 |
| Refiner | 1 | $75.4 | $0.36 |
| | | | |
| **Total Operating Labor** | **15** | **$1,044.1** | **$4.97** |
| Technicians and Assayers | | | |
| Metallurgical Technician | 1 | $65.5 | $0.31 |
| Assayers and Sample Preperation | 4 | $261.5 | $1.25 |
| | | | |
| **Total Technicians and Assayers** | **5** | **$327.0** | **$1.56** |
| Maintenance Labor | | | |
| Day Mechanic | 2 | $131.0 | $0.62 |
| Helper | 1 | $55.6 | $0.26 |
| Electrician | 1 | $68.0 | $0.32 |
| Instrument Technician | 1 | $70.5 | $0.34 |
| | | | |
| **Total Maintenance Labor** | **5** | **$325.1** | **$1.55** |
| | | | |
| **Total Hourly Labor** | **25** | **$1,696.2** | **$8.08** |
| | | | |
| **Total Plant Labor** | **29** | **$2,227.6** | **$10.61** |

### 21.2.2.4 Consumables

The main consumable in the plant will be the grinding media. The primary crusher, secondary crusher, and ball mill each will require liner replacement. The ball mill will also consume steel grinding media. All grinding media costs were estimated using quotes from previous SE projects with the exception of steel grinding media which were taken from actual costs given to SE from Shafter operations. Grinding media and liner replacement costs are shown in Table 21.14.

**Table 21.14 Grinding Media Cost Estimate**

| Item | Media | Use (lbs/ton) | Cost/ton | LOM Cost | Cost $/ton |
|---|---|---|---|---|---|
| | | | | $000's | |
| Primary Crusher | Liners | 0.021 | $3,708 | $52.2 | $0.04 |
| Pebble Crusher | Liners | 0.019 | $3,708 | $48.3 | $0.03 |
| Ball Mill | Balls | 1.972 | $1,100 | $1,439.2 | $1.08 |
| Ball Mill | Liners | 0.096 | $2,000 | $127.3 | $0.10 |
| | | | | | |
| **Totals** | | | | **$1,666.9** | **$1.25** |

Reagents are the chemicals required to extract the desired metals from the mineralized material. The reagent consumption rates were calculated based on the design criteria. Unit costs for all reagents except cyanide were obtained from the prices paid during operations in 2013. The table below shows the individual reagent consumption rate and associated delivered costs for the Shafter project. No allowance has been made at this time for water treatment chemicals. Table 21.15 summarizes the estimated reagent cost for the plant.

**Table 21.15 Plant Reagent Cost**

| Reagent | Use - lbs/ton | Cost $/lb | Cost LOM $000's | Cost $/ton |
|---|---|---|---|---|
| Lime | 5.00 | 0.09 | 582,265 | 0.44 |
| NaCN | 1.58 | 1.53 | 3,209,036 | 2.42 |
| Flocculant | 0.25 | 1.95 | 656,100 | 0.49 |
| Zinc | 0.46 | 2.99 | 1,839,578 | 1.39 |
| Borax | 0.08 | 0.85 | 85,617 | 0.06 |
| Soda Ash | 0.15 | 0.35 | 70,361 | 0.05 |
| Sodium Nitrate | 0.30 | 0.43 | 170,876 | 0.13 |
| Silica Sand | 0.61 | 0.15 | 120,618 | 0.09 |
| Diatomaceous Earth | 1.66 | 0.50 | 1,090,478 | 0.82 |
| | | | | |
| Totals | | | 7,824,929 | 5.89 |

No allowance has been made at this time for water treatment chemicals.

### 21.2.2.5 Power and Energy

The power load analysis was based on the mechanical equipment list for the plant. The price per Kwh, \$0.0437, was based on actual invoice from the mine site. Net prices were tabulated at various demand rates and a linear regression was applied to determine the net price at the proposed plant demand of 2MW. Overall power consumption basis and associated costs are based on an annual use of 15,067,200 kwh, or an annual cost of \$658,979. A power cost of \$3.14/ton was used in the estimate of plant cost.

### 21.2.2.6 Maintenance Supplies and Materials

An allowance for replacing operating spare parts and other materials replacement includes maintenance supplies and materials for maintaining the process facilities. The basis is a percentage of the cost of the mechanical equipment. The percentage value for a new plant is typically about five percent of installed equipment cost, which has been used in this case.

An allowance for miscellaneous operations supplies has been added to account for Operations supplies, which is intended to cover the cost of lubricants, crucibles, cleaning supplies, small tools, waste disposal, personnel protection wear and other consumables not accounted for in the other cost categories above. A percentage value of one percent of process operating costs was used.

## 22.0 ECONOMIC ANALYSIS

***A Preliminary Economic Assessment 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 preliminary economic assessment will be realized. A PEA study can only demonstrate the potential viability of mineral resources and cannot be used to support mineral reserves.***

A pre-tax analysis of the cashflow from the project was completed. Aurcana has informed MDA that the property incurred in excess of $100 million in losses that should be available to offset any federal tax liability of the property. Since any federal taxes due should be reduced by the prior property losses, the pre-tax and after tax evaluation will be the same. The cashflow evaluation has been completed assuming that there will not be a tax liability except for Texas state taxes.

### 22.1 Project Cashflow

Table 22.1 shows the cashflow evaluation based on the PEA capital and operating cost estimates. A cumulative cashflow of $25.5 million is estimated, for a net present value (“NPV”) of $18 million at a 5 percent discount rate. The internal rate of return (“IRR”) is estimated to be 40.9 percent.

## Table 22.1 PEA Cashflow

| Item | Year -1 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| **PRODUCTION** | | | | | | | | | | |
| 000's Tons | | 210.0 | 210.0 | 210.5 | 210.0 | 210.0 | 210.0 | 66.8 | | 1,327.1 |
| oz Ag/t | | 9.93 | 9.73 | 8.26 | 6.66 | 7.86 | 8.92 | 8.47 | | 8.56 |
| 000's Oz Ag | | 2,085.4 | 2,043.6 | 1,739.4 | 1,399.2 | 1,649.7 | 1,872.8 | 565.9 | | 11,356.0 |
| 000's Tons Waste | 11.6 | 38.7 | 42.1 | 63.4 | 72.0 | 64.9 | 0.0 | 0.0 | | 292.6 |
| 000's Tons Total * | | 248.6 | 252.0 | 273.9 | 281.9 | 274.9 | 210.0 | 66.8 | | 1,608.1 |
| | | | | | | | | | | |
| Tons Material Mined/Day | | 710.36 | 720.08 | 782.59 | 805.51 | 785.39 | 599.89 | 190.88 | | |
| **SALES ($000's)** | | | | | | | | | | |
| Mill Recovery | | 84.13% | 83.83% | 81.11% | 76.79% | 80.18% | 82.43% | 81.55% | | 81.73% |
| 000's Oz Ag Recovered (Mill) | | 1.8 | 1.7 | 1.4 | 1.1 | 1.3 | 1.5 | 0.5 | | 9.3 |
| Silver Payment (99.5%) | | $34.9 | $34.1 | $28.1 | $21.4 | $26.3 | $30.7 | $9.2 | | $184.7 |
| Smelting and Transportation | | $0.4 | $0.3 | $0.3 | $0.2 | $0.3 | $0.3 | $0.1 | | $1.9 |
| Royalty | | $0.0 | $0.0 | $0.0 | $0.0 | $0.3 | $0.3 | $0.0 | | $0.6 |
| Texas Franchise Tax (0.0075%) | | $0.2 | $0.2 | $0.1 | $0.1 | $0.1 | $0.2 | $0.0 | | $1.0 |
| | | | | | | | | | | |
| **Total Revenue** | | **$34.4** | **$33.6** | **$27.6** | **$21.0** | **$25.6** | **$29.9** | **$9.0** | | $181.2 |
| **OPERATING COSTS $000'S** | | | | | | | | | | |
| Mining | | $8.4 | $8.4 | $8.4 | $8.4 | $8.4 | $8.4 | $2.7 | | $53.1 |
| Surface Hauling | | | | $0.3 | $0.5 | $0.5 | $0.4 | $0.1 | | $1.9 |
| Cement for Paste | | | | $1.0 | $1.7 | $1.7 | $1.7 | $0.3 | | $6.3 |
| Paste Plant & Distribution | | | | $0.3 | $0.5 | $0.5 | $0.5 | $0.1 | | $1.8 |
| Processing | | $4.6 | $4.6 | $4.6 | $4.6 | $4.6 | $4.6 | $1.4 | | $28.8 |
| G & A | | $1.8 | $1.8 | $1.8 | $1.8 | $1.8 | $1.8 | $0.6 | | $11.3 |
| | | | | | | | | | | |
| **Totals** | | **$14.7** | **$14.7** | **$16.4** | **$17.4** | **$17.3** | **$17.3** | **$5.2** | | $103.1 |
| **$/Ton** | | **$70.20** | **$70.20** | **$78.00** | **$82.66** | **$82.63** | **$82.32** | **$77.72** | | $0.1 |
| **$/oz Ag** | | **$8.4** | **$8.6** | **$11.6** | **$16.2** | **$13.1** | **$11.2** | **$11.3** | | **$11.1** |
| | | | | | | | | | | |
| **Net Profit before Tax** | | **$19.6** | **$18.8** | **$11.2** | **$3.7** | **$8.3** | **$12.7** | **$3.8** | | **$78.1** |
| **CASH FLOW $000'S** | | | | | | | | | | |
| Capital Cost | $13.2 | $10.2 | $6.8 | $8.3 | $6.0 | $7.0 | $0.4 | $0.8 | | $52.6 |
| Working Capital | | $3.7 | | | | | ($3.7) | | | $0.0 |
| Cash Flow | (13.2) | $5.8 | $12.0 | $3.0 | (2.3) | $1.2 | $16.0 | $3.0 | | $25.5 |
| Cumulative Cash Flow | (13.2) | (7.4) | $4.7 | $7.6 | $5.3 | $6.5 | $22.5 | $25.5 | | |
| Net Present Value (5%) | | | | | | | | 18.0 | | |
| IRR | | | | | | | | 40.9% | | |

## 22.2 Sensitivity

The project sensitivities to changes in metal price, operating cost, and capital cost were evaluated. Table 22.2 shows the project sensitivity to silver price. Table 22.3 shows the sensitivity to changes in operating cost, while Table 22.4 shows the sensitivity to changes in capital cost.

## Table 22.2 Silver Price Sensitivity

| Silver Price | % of base | NPV (5%) $000's | IRR |
|---|---|---|---|
| 16 | 80% | -$11.2 | -16.9% |
| 17 | 85% | -$3.9 | -2.7% |
| 18 | 90% | $3.4 | 11.9% |
| 19 | 95% | $10.7 | 26.5% |
| 20 | 100% | $18.0 | 40.9% |
| 21 | 105% | $25.3 | 55.2% |
| 22 | 110% | $32.6 | 69.2% |
| 23 | 115% | $39.9 | 83.0% |
| 24 | 120% | $47.2 | 96.7% |

## Table 22.3 Operating Cost Sensitivity

| % of base | NPV (5%) $000's | IRR |
|---|---|---|
| 80% | $34.4 | 68.8% |
| 85% | $30.3 | 62.1% |
| 90% | $26.2 | 55.3% |
| 95% | $22.1 | 48.2% |
| 100% | $18.0 | 40.9% |
| 105% | $13.9 | 33.4% |
| 110% | $9.8 | 25.5% |
| 115% | $5.7 | 17.2% |
| 120% | $1.6 | 8.6% |

## Table 22.4 Capital Cost Sensitivity

| % of base | NPV (5%) $000's | IRR |
|---|---|---|
| 80% | $27.1 | 73.6% |
| 85% | $24.8 | 63.9% |
| 90% | $22.5 | 55.4% |
| 95% | $20.3 | 47.8% |
| 100% | $18.0 | 40.9% |
| 105% | $15.8 | 34.8% |
| 110% | $13.5 | 29.2% |
| 115% | $11.2 | 24.2% |
| 120% | $9.0 | 19.6% |

This information is shown graphically in  for NPV (5 percent), Figure 22.1 and Figure 22.2 for IRR.

**Figure 22.1 NPV (5 percent) Sensitivity**

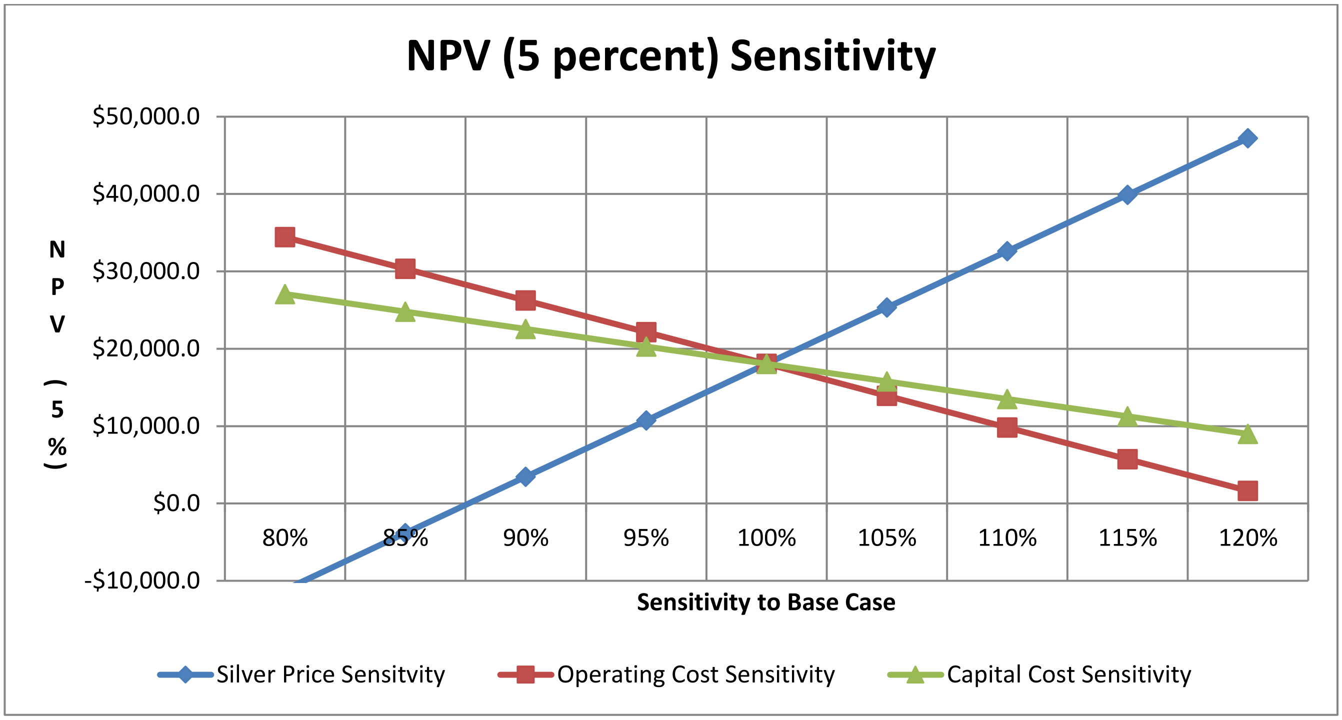
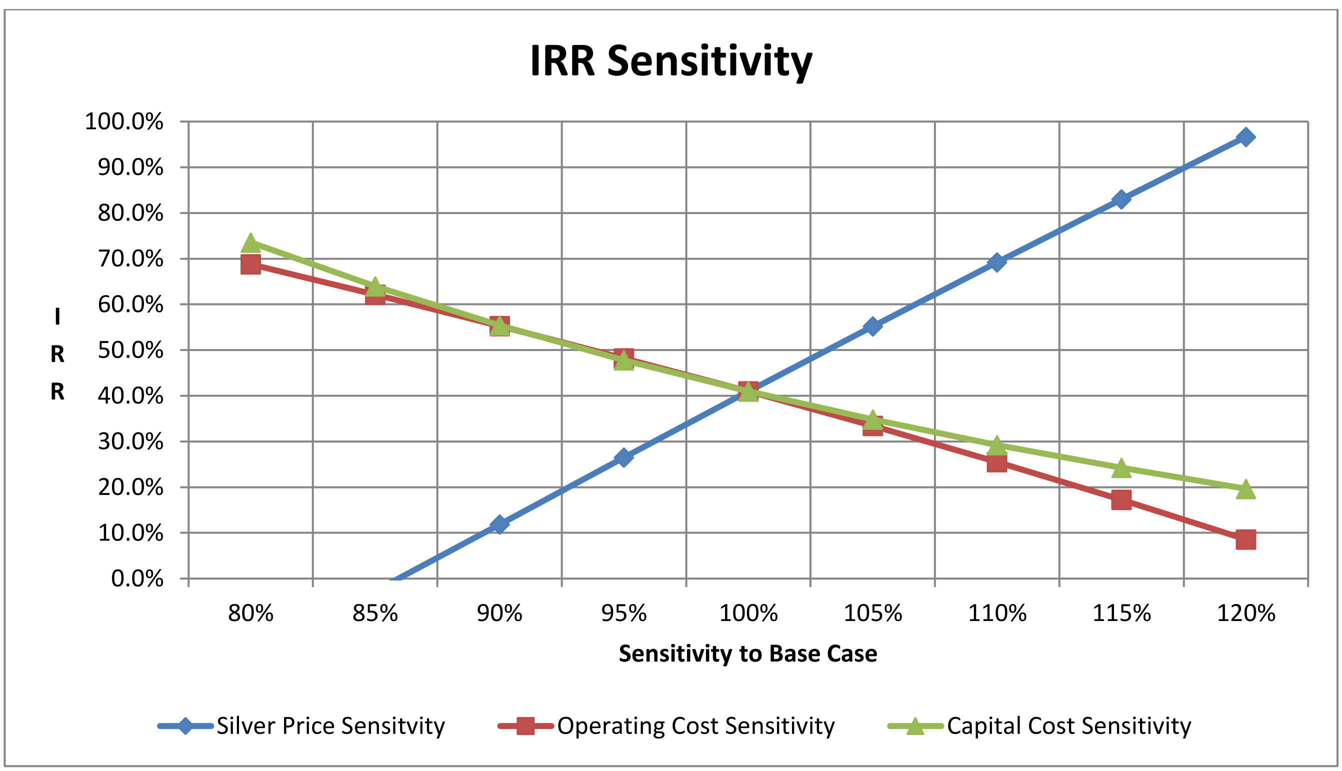



**Figure 22.2 IRR Sensitivity**



# 23.0 ADJACENT PROPERTIES

MDA is not aware of any notable nearby properties.

## 24.0 OTHER RELEVANT DATA AND INFORMATION

MDA is not aware of other relative data or information on the Shafter Project.

## 25.0 INTERPRETATION AND CONCLUSIONS

The PEA analysis of the Shafter project resulted in positive results but additional work is necessary to improve the classification of Inferred resources to confirm the PEA results. Work should proceed toward completing a pre-feasibility or feasibility study for the project.

MDA has reviewed the project data and the Shafter drill-hole database and has visited the project site. MDA believes that the data provided by Aurcana are generally an accurate and reasonable representation of the Shafter silver deposit.

The Shafter deposit has been extensively drilled from both the surface and underground by Amax, Gold Fields, and RGMC (both before and after the company's acquisition by Aurcana). Since publication of the previous technical reports, about 800 holes have been added to the database, including a considerable number of historic Amax and Gold Fields holes, as well as the new holes drilled by Aurcana since 2011. The database used for the current mineral resource estimate includes 1,694 holes totaling over 466,000ft of drilling.

The silver mineralization in the Shafter deposits occurs as a sub-horizontal *manto* deposit, hosted by variably silicified limestone that lies at, or just below, the Permian/Cretaceous unconformity. Although silver mineralization is generally continuous along the 13,000ft length of the deposit, the resource is fragmentary in the vicinity of the historic Presidio mine due to the removal of mined-out material. The resource is also fragmented west of the historic Presidio mine underground development at the 4oz Ag/ton cutoff. The more fragmented nature of the Presidio mineralization does add more risk than mining in the more continuous Shafter mine area mineralization.

MDA believes that the most important items that are required for completion of a pre-feasibility or feasibility study is to complete a cavity survey of the old Presidio workings and to improve the classification of inferred materials to measured or indicated.

The old Presidio workings have not been surveyed. To complete the cavity survey some rehabilitation of the old workings may be required. While completing the cavity survey, it is suggested that it be followed by plotting level plans and putting the sample data that is recorded on the walls on maps. This information may be very helpful in finding additional areas and limiting projections of identified mineralization.

Additional infill drilling, increased underground mapping and sampling, and more density measurements are necessary to bring greater confidence to the current mineral resource estimate. Both surface and underground drilling are required to improve the classification of inferred materials to indicated or measured classifications. Purchase of an underground core drill should be considered.

### 25.1 Process

It is the conclusion that the PEA summarized in this technical report contains adequate detail and information to support the positive economic outcome for the Shafter Project. Using the assumption contained in this report, the project is economic and should proceed to the feasibility stage.
The Shafter operations from 2011 to 2013 suffered from poor recovery of metals after extraction in the leach circuit due to solution losses in the tails stream. Flowsheet alterations through the addition of a CCD

wash circuit and recycling of silver streams to the leach circuit improves the overall recovery significantly by mitigating loss of silver bearing solution to tails. Liquid solid separation tests performed by Pocock showed good thickening and filtration properties for this shafter mineralized material. Recovery of leached metals efficiency in the CCD circuit combined with filtration wash and recycle streams are anticipated to be above 99%.

Overall recovery predictions are based on a combination of the anticipated leach extraction as well as the recovery of silver through CCD thickening and filtration wash of the leach residue which recovers the solubilized (extracted) silver. Extraction predictions are calculated based on a fixed tails solids grade of 1.5 troy ounce per ton. The extraction calculation is as follows: (Head Grade – Tails Grade) ÷ (Head Grade). For the current mine plan with a Life of Mine silver head grade of 8.56 troy ounces per ton, leach extraction is predicted to be 82.4 percent. After extraction, the combined efficiency of the CCD circuit and filters is expected to be 99.2 percent and overall recovery of silver to saleable product is 81.7 percent.

## 25.2 Risks

The main risks to the project are the current definition of the size and shape of the minable areas. In the Presidio mine, the old Presidio workings have not been surveyed or mapped. In the Shafter mine, the drilling has been too widely spaced to adequately define the shape of the potentially minable mineralization. Improve definition of the mineralization will negate this risk.

Historical operations and testwork show that 1.5 troy ounces per ton silver tails grade are a reliable figure to use for the expected leach extraction recoveries at the recommended and historic leach feed grind size of 80 percent passing 74 micrometers (P80 = 74 µm) due to occluded silver unobtainable above 10 micrometers. However, there are some indications from the recent test data that there may be some slip to higher tails. This appears to be related to the higher head grades in samples that were tested recently. Additional metallurgical test work is recommended to resolve this risk.

A 3000 horsepower mill is at site and is considered for this study to be capable of performing the grinding requirements for this process. This study is at a reduced rate from the original mill design. The current flowsheet requires only about 1000 hp to achieve the grind of $P_{80}$ = 75 µm. Lower grinding ball loading is planned for reducing the power draw and producing the 75 micrometer product. There is a risk that the larger than required ball mill could over grind the material and cause issues with downstream liquid solid separation processes. This could affect the wash efficiency of the CCD thickeners

The costs associated with refurbishing and re-starting a facility that has been sitting idle for several years is very difficult to ascertain, and is something that is notoriously under-estimated. Issues with the condition of a piece of equipment are often not detectable without detailed mechanical and electrical inspections which sometimes require testing and/or disassembly.

Much of the existing tanks and platework were never painted. After several years of sitting empty, the steel plates of tanks have been oxidizing from both sides. An evaluation may need to be done to determine if the tanks are still competent enough to be re-used.

The installation of used thickeners that are now 30-years old may be more difficult than anticipated. The ease of assembly will depend heavily upon how and where the equipment has been stored (both at the current storage location as well as at previous locations).

## 25.3 Opportunities

Improving the definition of the mineralization may also lead to improvement in head grade and size of the potentially minable shapes.

Because the Shafter Project is reusing most of the equipment and reducing the throughput from the 2011 to 2013 operational design, there is an opportunity to use some of that for process advantage. Past metallurgical testing indicates that improved recovery may be seen if the grind product size were brought to 53 or 43 micrometers. Testing might show that since the milling power is available, advantage may be taken of the full milling capacity to improve recovery.

# 26.0 RECOMMENDATIONS

Fifteen activities are proposed to advance the Shafter project prior to developing a new mine plan and converting the estimated mineral resources into mineral reserves. The estimated total cost of these activities is about $3.25 million. The proposed activities are:

- Complete a cavity survey of the Presidio Mine workings. This work is believed to be necessary to improve the accuracy of mined material and mineralized material remaining in the mine.
- Purchase an underground core drill.
- Rehabilitate Presidio workings as necessary and complete limited drifting to enable drilling of core holes to improve the classification of Presidio resources.
- Map the Presidio workings and place the assay data that is painted on the ribs of the workings on maps that have been updated with the cavity survey.
- Drill 16 holes (pre-drilled by RC or rotary to 700ft, then core) to test the zone east of mine-grid 53750. The primary objective of this in-fill drill program is to obtain geotechnical data, samples for metallurgical testing, and rock density measurements. A secondary objective is to test for continuity and extensions of the high-grade domain (domain code 200) to the southeast.
- Re-examine historical drill-hole data with respect to collar locations, particularly underground.
- Update the database with historical channel-sample information and re-sample some locations to confirm historical results.
- Re-examine and compile historical information from Amax and Gold Fields.
    - Develop both level plans and sections that map mineral domains and rock types and that document the continuity of faults and dikes.
    - Compile results of Gold Fields' underground core drilling and sludge, panel, and bulk sampling.
- Develop an accurate survey of the project's land holdings with respect to proposed development activities.
- SE recommends that testing be performed on samples representative of the mine plan. Since extensive test-work has been very consistent on comminution studies as well as tailings observations that have established occlude silver in the sub 10 micron solids, SE recommends that a bottle roll leach campaign be performed on these composite samples at the recommended grind size. Bottle roll testing at one grind size ($P_{80}$=74 µm) on 4 composite samples by year (i.e. year 1 composite, year 2-3 composite, year 4-5 composite, and year 6+ composite). Pricing for three bottle rolls on each of composites (12 bottle rolls) is expected to be in the range of $20,000 to $30,000. SE recommends that the client consider further testing on the same composites to examine the benefits and disadvantages of finer grinding since that option is available with the current mill proposed in this study. Grind size versus recovery bottle roll testing, as well as thickening and pressure filtration testwork should be performed to examine this opportunity. Grind size versus recovery should include a minimum of the achievable grind $P_{80}$ characteristic

distributions of 43 and 53 micrometers. This would require 24 grind and bottle roll test which would cost in the range of $40,000 to $60,000.

- SE recommends that Liquid solid separation testing on the different grind sizes of each of the composites should also be performed. The cost for 8 samples will be about $ 43,200.

- SE recommends that a qualified consultant(s) who specializes in the inspection, testing, repair and refurbishment of used mechanical equipment be engaged to inspect major equipment and assess its suitability for return to operation. Detailed inspections to verify the integrity of the equipment and provide specific recommendations and estimates for repair work required to bring each piece of major equipment back into service should be considered. It is anticipated that the cost of such inspections could be in the range of $50-150K.

- SE recommends that qualified person be consulted to evaluate the thickeners to determine if refurbishment and/or upgrading of key components is necessary to achieve the thickening performance predicted by the Pocock testwork.
- Complete a pre-feasibility or feasibility study with an updated resource estimate.

MDA believes that the Shafter project is a project of merit and warrants the program proposed by Aurcana and the level of expenditures outlined above.

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## 28.0 DATE AND SIGNATURE PAGE

| | |
|---|---|
| Effective Date of report: | August 26, 2016 |
| Completion Date of report: | September 13, 2016 |
| Amended Report Date: | January 20, 2017 |

*"Paul Tietz"*
Paul Tietz, C.P.G.

January 20, 2017
Date Signed

*"Neil Prenn"*
Neil Prenn, P.E.

January 20, 2017
Date Signed

*"Edwin Peralta"*
Edwin Peralta, P.E.

January 20, 2017
Date Signed

*"George Burgermeister"*
George Burgermeister, P.E.

January 20, 2017
Date Signed

## 29.0 CERTIFICATE OF QUALIFIED PERSON

**Paul Tietz, C.P.G**.

I, Paul Tietz, C.P.G., do hereby certify that:

1. I am currently employed as Senior Geologist for Mine Development Associates, Inc. located at 210 South Rock Blvd., Reno, Nevada 89502 and
2. I graduated with a Bachelor of Science degree in Biology/Geology from the University of Rochester in 1977, a Master of Science degree in Geology from the University of North Carolina, Chapel Hill in 1981, and a Master of Science degree in Geological Engineering from the University of Nevada, Reno in 2004.
3. I am a Certified Professional Geologist (#11004) with the American Institute of Professional Geologists and have worked as a geologist in the mining industry for more than 35 years. Relevant experience includes exploration and project development of carbonate-hosted precious metal deposits deposit in the western U.S. Also, I have been involved for more than 9 years in resource modeling and estimation for open pit and underground mining projects.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I certify that by reason of my education, affiliation with certified professional associations, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I am one of the authors of this technical report titled *"Preliminary Economic Assessment and Updated Technical Report on the Shafter Silver Project, Presidio County, Texas"* prepared for Aurcana Corp., with and effective date of August 26, 2016 and amended January 20, 2017. Subject to those issues discussed in Section 3.0, I am responsible for Section 2 through 12, 14, and take co-responsibility for Sections 1 and 25 and 26 of the Technical Report.
6. I have had prior involvement with the Shafter project in the early 1980s while an employee of a previous operator. Pertaining to my role as author and qualified person for this Technical Report, I visited the Shafter project site on January 30 and 31, 2013 and May 21 through May 25, 2013.
7. To the best of my knowledge, information and belief, the technical report contains the necessary scientific and technical information to make the technical report not misleading.
8. I am independent of Aurcana Corp. and related companies applying all of the tests in Section 1.5 of National Instrument 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
9. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with the requirements of that instrument and form.

Dated this January 20, 2017

***"Paul Tietz"***
Signature of Qualified Person

Paul Tietz
Print Name of Qualified Person

## CERTIFICATE OF QUALIFIED PERSON

### Neil Prenn

I, Neil Prenn, P.E.., do hereby certify that:

1. I am currently employed as Principle Engineer for Mine Development Associates, Inc. located at 210 South Rock Blvd., Reno, Nevada 89502 and
2. I graduated with a Engineer of Mines degree from the Colorado School of Mines in 1967.
3. I am a Professional Engineer registered in the state of Nevada (#7844), and a registered qualified person with MMSA. Relevant experience includes mining exploration, project development, underground construction and mine ventilation. Also, as a mining engineer I have been involved for more than 49 years in mine design, mine planning and project evaluation for open pit and underground mining projects.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I certify that by reason of my education, affiliation with certified professional associations, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I am one of the authors of this technical report titled *"Preliminary Economic Assessment and Updated Technical Report on the Shafter Silver Project, Presidio County, Texas"* prepared for Aurcana Corp., with and effective date of August 26, 2016 and amended January 20, 2017. Subject to those issues discussed in Section 3.0, I am responsible for Sections 15, 16, 19, 20, and Sections 22 through 24 and take co-responsibility for Sections 1, 21, 25 and 26 of the Technical Report.
6. I have not had prior involvement with the property that is the subject of this Technical Report. I visited the Shafter project site on June 10, 2016.
7. To the best of my knowledge, information and belief, the technical report contains the necessary scientific and technical information to make the technical report not misleading.
8. I am independent of Aurcana Corp. and related companies applying all of the tests in Section 1.5 of National Instrument 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
9. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with the requirements of that instrument and form.

Dated this January 20, 2017

***"Neil Prenn"***
Signature of Qualified Person

Neil Prenn
Print Name of Qualified Person

## CERTIFICATE OF QUALIFIED PERSON

I, Edwin R. Peralta, P.E., do hereby certify that I am currently employed as Senior Project Mining Engineer by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502 and:

1. I graduated with a Bachelor of Science degree in Mining Engineering in 1995 from the Colorado School of Mines, Golden Colorado. I also have a Master of Science degree in Mining and Earth Systems Engineering from the Colorado School of Mines (2001). I have worked as a mining engineer for over 20 years since my graduation from undergraduate school. Relevant experience includes mining exploration, project development, underground construction and mine ventilation. Also, as a mining engineer I have been involved for more than 10 years in mine design, mine planning and project evaluation for open pit and underground mining projects.

2. I am a Professional Engineer (#023216) licensed in the State of Nevada, and I am a Registered Member (#4033387RM) of the Society of Mining, Metallurgy and Exploration.

3. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

4. I am independent of Aurcana Corp. and related companies applying all of the tests in Section 1.5 of National Instrument 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.

5. I am one of the authors of this technical report titled *"Preliminary Economic Assessment and Updated Technical Report on the Shafter Silver Project, Presidio County, Texas"* prepared for Aurcana Corp., with and effective date of August 26, 2016 and amended January 20, 2017. Subject to those issues discussed in Section 3.0, I am responsible for Section 16, and take co-responsibility for Sections 15 and 21 of the Technical Report.

6. I have not had prior involvement with the property that is the subject of this Technical Report. I have not visited the Shafter project.

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

8. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this January 20, 2017

***"Edwin Peralta"***

Edwin Peralta, P.E.
Signature of Qualified Person

**CERTIFICATE OF QUALIFIED PERSON**

**George Burgermeister**.

I, George Burgermeister, P. E., do hereby certify that:

1. I am currently employed as Senior Process Engineer for Samuel Engineering, Inc. located at 8450 E. Crescent Pkwy 200, Greenwood Village, Colorado 80111.
2. I graduated with a Bachelor of Science degree in Material Science and Metallurgical Engineering from the Colorado School of Mine in 1994.
3. I am registered as a Professional Engineer (P.E.) with the State of Colorado, Registration Number 44859. I am a Qualified Professional Member of the Mining and Metallurgical Society of America, Member Number 01423QP. I have been a member of the Society for Mining, Metallurgy and Exploration (SME) for over 20 years (Member Number 4149639). I have worked as process metallurgist in the mining industry for the past 20 years, including with respect to the design and operation of precious metals whole leaching and Merrill Crowe recovery facilities.
4. I have read the definition of "qualified person" set out in National Instrument (NI) 43-101, and do certify that, by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I am one of the authors of this technical report titled *"Preliminary Economic Assessment and Updated Technical Report on the Shafter Silver Project, Presidio County, Texas"* prepared for Aurcana Corp., with and effective date of August 26, 2016 and amended January 20, 2017. Subject to those issues discussed in Section 3.0, I am responsible for Sections 13, 17, 18, and take co-responsibility for Sections 1 and 21, 25 and 26 of the Technical Report dealing with the process plant.
6. I have not had prior involvement with the property that is the subject of this Technical Report. I visited the Shafter project site on June 10, 2016.
7. To the best of my knowledge, information and belief, the technical report contains the necessary scientific and technical information to make the technical report not misleading.
8. I am independent of Aurcana Corp. and related companies applying all of the tests in Section 1.5 of National Instrument 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
9. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with the requirements of that instrument and form.

Dated this January 20, 2017

***"George Burgermeister"***
Signature of Qualified Person

George Burgermeister
Print Name of Qualified Person