Feasibility Study Update
Technical Report on the Soledad Mountain Heap Leach Project
Kern County, California USA

Prepared for:

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1.0 SUMMARY

Golden Queen Mining Company LLC ("GQMC" or the "Company") is held by Soledad Holdings, Inc., a wholly-owned subsidiary of Andean Precious Metals Corporation (Andean). GQMC operates the Soledad Mountain Project (the "Project"), located in the Mojave Mining District, Kern County, California. The Project has California Mine ID #91-15-0098. It has been in operation since early 2016. Andean Precious Metals Corporation purchased a 100% interest in GQMC and its subsidiary California Land Investment, LLC on 24 November 2023 from Auvergne Umbrella LLC.

GQMC requested that Kappes, Cassiday & Associates ("KCA"), Independent Mining Corporation (IMC) and RESPEC prepare an NI 43-101 compliant technical report (the "Report") with results from updated mineral resource and mineral reserve estimates based on new and historical drilling data, updated metallurgical results and costs based on the current operation.

1.1 Key Outcomes

- Total Proven and Probable Mineral Reserve Estimates of 23.2 million tons (21.0 million tonnes) with a contained grade of 0.021 oz/ton (0.72 g/t) Au and 0.296 oz/ton (10.15 g/t) Ag.
- Life of mine average annual production of 65 k oz of gold and 466 k oz of silver during the period 2024 through 2028.
- Total production of 373 k oz of gold and 2.7 M oz of silver.
- Stripping ratio of 6.09:1 (waste tons : ore tons).
- Sustaining capital cost of $55.9 M
- Base case after-tax net present value (5% discount rate) of $102 M with a gold price of $1,850/oz and a silver price of $24/oz.
- Pre-tax net present value at the 5% discount rate of $116 M.

1.2 Location, Access and Climate

The Project is located in Kern County in southern California, approximately five miles south of the town of Mojave. The metropolitan areas of Rosamond and Lancaster lie approximately nine miles and 20 miles to the south, respectively. Los Angeles is about 70 miles south of Mojave.

Access to site is from State Route 14 and Silver Queen Road, an existing paved County road. Silver Queen Road is the primary access to site.

The Mojave region is generally characterized as arid, with a wet season from December through March. Rainfall events tend to be short lived and of high intensity. Mojave experiences high summer temperatures up to 113°F. The minimum temperature may reach 20°F. Maximum wind speed is 90 mph with Exposure Category C for design purposes. Mean recorded annual rainfall is 6.14 inches with a mean maximum month of 1.11 inches.

1.3 Land Status

The land status is described in Section 4.2.

GQMC acquired its initial property interests in 1985. From the 1990's onwards, GQMC has added to its land position in the area by purchasing fee land and patented mining claims, staking unpatented mining claims and millsites, and entering into mining lease agreements.

GQMC controls the land required for the Project through a combination of the mining lease agreements referred to in Section 1.4 below and through ownership of the land in fee or as patented and unpatented mining claims or millsites.

The Project operates within an Approved Project Boundary that was most recently expanded as part of the permitting process described in Section 1.6.1 below.

1.4 Mineral Tenure and Mining Lease Agreements

Mineral tenure and mining lease agreements are described in Section 4.3.

GQMC holds directly or controls via mining lease agreements with landholders a total of 23 patented lode mining claims, 135 unpatented lode mining claims, one patented millsite, 26 unpatented millsites, and one unpatented placer claim and upwards of 1,223 acres of fee land, collectively referred to as the Property.

1.5 Royalties

Royalties are described in Section 4.4.

Royalty rates on production vary depending on the area being mined and gold and silver prices. The royalty fees are estimated at $16.9 million.

Prior to commencing production, GQMC was required to pay advance, minimum royalties under certain mining lease agreements. In some instances, the Company receives a credit against production royalties for the advance minimum royalty payments made prior to commencement of commercial production.

Royalty calculations from production are complex. GQMC has developed a model for an accurate royalty calculation.

State fees for payable gold and silver are charged at the following rates:

- Gold fee = $5.00/oz gold (post-smelter)
- Silver fee = $0.10/oz silver (post-smelter)

The mining lease agreements also typically provide for an additional royalty if non-mineral commodities, such as aggregates, are produced and sold.

1.6 Approvals and Permits

1.6.1 Land Use - Conditional Use Permits

On 13 August 2020, the Addendum to the Supplemental Environmental Impact Report for the Soledad Mountain Project was approved by a vote of five to zero in favor, by the Kern County Planning Commission. Approval specifically consisted of: (a) adoption of Section 15091 Findings of Fact and Section 15093 Statement of Overriding Considerations, (b) adoption of Mitigation Measure Monitoring Program, (c) approval of Modification of Conditional Use Permits subject to recommended revised conditions, and (d) adoption of the suggested findings as set forth in the revised Draft Resolutions.

During the Mine expansion the Bureau of Land Management confirmed there was No Significant Impact. On basis of the information contained in Determination of NEPA Adequacy DOI-BLM-CAD-05000-2018-009, and all other information available to BLM, it was determined that adding this additional area to CACA-39132 is not a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

1.6.2 Water Quality – Waste Discharge Requirements

The Lahontan Regional Water Quality Control Board (the Board) unanimously approved Waste Discharge Requirements and a Monitoring and Reporting Program for the Project at a public hearing held in South Lake Tahoe on 14 July 2010. The Board order was subsequently signed by the Executive Officer of the Board and is now in effect.

The Lahontan Regional Water Quality Control Board updated the Waste Discharge Requirements and a Monitoring and Reporting Program for the Project at a public hearing held in Victorville on 13 May 2021.

1.6.3 Air Quality – Authority to Construct and Permit to Operate

The original Air Quality and Health Risk Assessments for the Project were completed and submitted to the Planning Department and the Eastern Kern Air Pollution Control District ("EKAPCD") on 21 July 2009. This report was approved by the Planning Commission on 8 April 2010, as part of the certification of the SEIR.

Ten applications for Authority to Construct permits were submitted to the EKAPCD in February 2011. The EKAPCD confirmed that the information required to support the applications was complete. The draft Authority to Construct permits were received in September 2011. The Company's consulting engineers and legal counsel completed their review of the draft Authority to Construct permits in January 2012. The Authority to Construct permits were issued by EKAPCD on 8 February 2012.

During the Mine Expansion the following reports were updated:

- Toxic Emissions Inventory report – Completed 15 January 2021.
- Cyanide Monitoring Plan – Completed April 2021.
- Title V Compliance Certification and Reporting – Completed 1 March 2021.
- Air Technical Memo – Completed 1 March 2021.
- Annual Mercury Monitoring Report – Completed July 2021.
- QAPP (Quality Assurance Production Plan) – Completed June 2018.

There are now 16 Air Permits, and one Title V Permit updated every October of every year.

1.7 Considerations of Social and Community Impacts

The impact of the Project on Mojave and the surrounding areas is described in Section 20.0. The Project has had a positive impact on local communities because it provides high paying jobs with generous benefits that allow parents to give their families a high standard of living.

1.8 Geology and Mineralization

Soledad Mountain is an erosional remnant of a Miocene-age rhyolitic volcanic center within the western part of the Mojave structural block, a triangular-shaped area bounded to the west by the northwest-trending, right-lateral San Andreas Fault and to the north by the northeast-trending, left-lateral Garlock Fault. This volcanic center overlies a basement of Cretaceous Quartz Monzonite. The volcanic lithologies have been assigned to: 1) Quartz latite, present over most of the northeast portion of the deposit and in the subsurface of the center of the deposit; 2) Pyroclastic rocks, present at both the surface and subsurface of the deposit; and lithologically above and beneath flow-banded rhyolite; 3) flow-banded rhyolite, which occurs at the surface in the north-central portion of the deposit and, as an intrusive, extending deep into the center of the deposit; and 4) porphyritic rhyolite (previously referred to as rhyolite porphyry), which extends from the surface to the depth of drilling over most of the southwest portion of the deposit.

Gold and silver mineralization at Soledad Mountain occurs in a swarm of mainly northwest-striking, subparallel to anastomosing, low-sulfidation, epithermal quartz veins that formed in faults and fractures within the Miocene rhyolitic volcanic units. Over 20 gold-silver veins and related vein splits have been identified and modeled as part of the project resources. Veins generally strike N40°W and dip at moderate to high angles to the northeast and to the southwest, and occur in parallel and, locally, *en echelon* patterns over a total strike-length of 7,000 ft and a total width of 4,500 ft. Vein "zones" consist of one or more central veins surrounded by either a stockwork or parallel zones of sheeted narrow quartz veins. Mineralization consists of fine-grained pyrite, covellite, chalcocite, tetrahedrite acanthite, native silver, pyrargyrite, polybasite, native gold and electrum within discrete quartz veins, veinlets, veinlet stockworks, and irregular zones of silicification. Gangue minerals include quartz, potassium feldspar (adularia), ferruginous kaolinitic clay, sericite, hematite, magnetite, goethite, and limonite.

1.9 Exploration

Exploration conducted by GQMC began in earnest in 1988, continued intermittently until 2011, and was undertaken in a more consistent manner from 2015 through to the effective date of this report. GQMC geologists carried out surface geologic mapping of Soledad Mountain between 1986 and 1991, and surface geochemical surveys were conducted in the 1990s, 2019, and early 2020s. Channel sampling of underground crosscuts was carried out in 1988 and 1997-1998, much of which was conducted in an attempt to validate the pre-war sampling and assaying of Gold Fields American Development Co. ("GFA"). Drilling was a major component of the exploration work completed by GQMC at Soledad Mountain.

A study of the Project geology, mineralized structures, and historical stoping was completed by Vance Thornsberry, Boies Hall, and Stephen Bruff in 1997 that included the construction of a set of detailed geologic cross sections and sectional modeling of historical stopes. This work served as the foundation for the various iterations of geological and resource modeling completed from 2014 through to the current resource estimation.

A significant surface exploration program was completed in 2019, with subsequent smaller programs completed in 2020 through 2022. These programs focused on the western, southern, and eastern flanks of the Soledad Mountain Volcanic Complex and consisted largely of geological and alteration mapping, surface rock-chip sampling, and initial diamond core and reverse-circulation ("RC") drill testing. A number of target concepts were developed from this work and several of these targets have been drill-tested very recently with favorable results. An additional number of these targets remain to be tested by initial drilling.

1.10 Drilling

The database that supports the current mineral resources includes 924 reverse-circulation ("RC") holes for a total of 373,537 ft, 158 surface and underground diamond-core holes for 88,969 ft, as well as GFA underground channel sampling that includes almost 20,000 ft of drift samples and 29,000 ft of crosscut samples. The drilling totals do not include GFA underground core holes and or holes drilled by GQMC's blasthole rig, which were not used in the estimation of the Project resources. Historical operators other than GFA include Rosario, Shell Billiton, CoCa Mines, and Glamis Gold, who collectively drilled 103 RC holes. GQMC drilled the remainder of the holes, including 673 RC and 58 surface and underground core holes from 1988 through 2011, and as well as 148 RC and 100 core holes from 2015 through 2022. Taken as a whole, these holes served to define the more than 20 principal vein zones and vein splits that, along with associated secondary and tertiary veins of lesser extents, comprise the Soledad Mountain gold and silver mineral resources.

1.11 Sample Preparation Analysis and Security

Samples have been generated through surface and underground diamond core drilling, surface RC drilling, and channel sampling of underground crosscuts and drifts. The current database includes assays from at least 13 different laboratories. Documentation of the sample preparation procedures and analytical methods used in the 1930s and 1970s are not available. It is reasonable to assume that gold concentrations were determined during those years by fire assay with gravimetric finish.

No information on drill sample preparation procedures used during most of the 1980s is available. Shell-Billiton's RC drill samples were analyzed at GeoMonitor by cyanide-leach and atomic absorption ("AA"), with selected samples also analyzed by fire assay. No information is available on the laboratories, sample preparation, and analytical methods used by CoCa Mines for their RC drill samples, or for the GQMC underground crosscut samples from this period.

From 1988 through 1990, GQMC's core and RC samples were analyzed by fire assay with gravimetric finish at five different laboratories. Samples from the 1994-1995 Glamis RC drilling were mainly analyzed at American Assay Laboratories by fire assay, but it is not clear if these were done with AA or gravimetric finish. GQMC's RC and core drilling samples from 1994 through 1999 were assayed at Barringer Laboratories ("Barringer") and Inspectorate-Rocky Mountain Geochemical ("Inspectorate"). At Barringer, gold was determined by fire assay with either AA or gravimetric finish; fire assay with gravimetric finish was used at Inspectorate.

All drill samples from the 2011 RC drill campaign were assayed for gold and silver by ALS Chemex. Gold was determined by fire assay and AA finish. Silver was assayed by aqua-regia digestion and AA. Those samples returning greater than 0.058 oz Au/ton (> 2.0 ppm Au) were re-run by fire assay with gravimetric finish.

The assaying of 2015 to 2022 drill samples was completed by Bureau Veritas Laboratories ("Bureau Veritas"), with some samples analyzed at Paragon Geochemical ("Paragon") late in the 2021 drilling program due to extended turnaround times at Bureau Veritas. Samples from the 2022 drilling program were also analyzed at Paragon. These labs analyzed the drill samples for gold and silver, with portions of selected holes analyzed for a 53-element geochemical suite. Gold was analyzed at both labs by fire assaying of 30-gram charges with an AA finish. At Bureau Veritas, samples returning gold assays greater than 10 ppm were re-analyzed by fire assaying with a gravimetric finish; Paragon did the same for initial assays exceeding 5 ppm. Silver was determined at both labs by aqua regia digestion and AA spectrometry with samples returning greater than 100 ppm re-analyzed by fire assaying with a gravimetric finish. Sample preparation procedures were similar at both labs.

No information is available to document sample-security procedures prior to 1994. Sample security measures from 1994 through 2011 included moving core from the drill site to a locked storage unit on the Project site at the end of each drill shift. RC cuttings were allowed to dry at the drill site before being locked in a semi-trailer to be shipped to the laboratory. Since construction for the current open-pit mining operation commenced in 2015, all drilling locations and logging and storage facilities have been secured.

1.12 Data Verification and QA/QC

Available laboratory analytical certificates provide evidence that Quality Assurance-Quality Control (“QA/QC”) samples, apparently having included standards and blanks, were periodically submitted with post-GFA and pre-2011 drill samples for assaying, but the details of any such QA/QC program are not known and the evidence for the submission of these QA/QC samples is sporadic.

Records were found for a large number of duplicate analyses of various types, including third-party check assays and field, preparation, and pulp duplicates, all assayed at various times after the original drill samples were analyzed. Under Mr. Gustin’s supervision, the duplicate data were compiled and evaluated, in addition to voluminous original-lab replicate analyses, in an effort to compensate for the lack of usable data from control samples such as standards and blanks.

The check assay data completed by GQMC prior to 2011 suggest that the gold values in the database may have a low bias, at least for those assays that are represented by the check analyses (the check assaying was done on drill samples derived from subsets of the 1988, 1996, and 1997 drilling programs). By contrast, silver database values for samples derived from the same subsets of holes may have a high bias. It is impossible to ascertain which of the original or check gold and silver results are more accurate, however. Other duplicate data indicate that the variability of any single gold or silver analysis is high, especially at low grades.

QA/QC programs associated with the drilling campaigns in the 2000s included certified reference materials, blanks, and field duplicates. High variability was again documented, but no significant issues were identified.

1.13 Metallurgical Test Work

Site personnel have been conducting column leach tests on monthly composites of crushed ore since start up in early 2016. It was observed that the Golden Queen, Starlight and Soledad material had a relationship between gold recovery and elevation. A series of column leach tests have also been recently completed on samples from the Silver Queen and Sheeted Vein deposits. Based on results from the current heap leach operation and the recent column leach test results, KCA built heap models to estimate gold and silver recoveries. KCA recommends using the following field leach parameters for future ore mined:

Table 1-1 Process Parameters

Ore Type	Gold Recovery, %	Silver Recovery, %	NaCN Cons., lb/st	Cement Cons., lb/st
Golden Queen, Starlight, and Soledad	y = (-0.0435x+219.44)/100 y </= 85 y = Au Recovery, % x = Bench Elevation, ft	37%	0.16	11
Silver Queen	49%	37%	0.37	11
Sheeted Vein	74%	37%	0.23	11

1.14 Mineral Resources

The modeling and estimate of the mineral resources at the Soledad Mountain deposit were estimated under the supervision of Mr. Gustin, a qualified person with respect to mineral resource estimations under NI 43-101. The estimate was prepared in accordance with the set forth in the Canadian Securities Administrators' National Instrument 43-101 ("NI 43-101").

The gold and silver resources were modeled and estimated by; (i) evaluating the drill data statistically and spatially to determine natural gold and silver populations; (ii) explicitly modeling low-, medium- and high-grade mineral-domain polygons for both gold and silver on sets of cross sections spaced at 50- and 100-ft intervals; (iii) projecting the sectional mineral-domain polygons horizontally to the drill data within each cross-sectional window; (iv) slicing the three-dimensionally projected mineral-domain polygons along 20-ft-spaced horizontal planes at and using these slices to guide the refinement of the gold and silver mineral-domain polygons on a set of level plans; (v) coding a block model comprised of 20 x 20 x 20 ft blocks to the gold and silver mineral domains for each of the two deposit areas using the level-plan mineral-domain polygons; (vi) analyzing the modeled mineralization geostatistically to aid in the establishment of estimation and classification parameters; and (vii) interpolating gold and silver grades into the block model by inverse-distance to the third power, using the coded gold and silver mineral-domain percentages to explicitly constrain the grade estimations.

The Soledad Mountain mineral resources were estimated to reflect potential open-pit extraction and processing by crushing and heap leaching. To meet the requirement of the in-pit resources having reasonable prospects for eventual economic extraction, a pit optimization was run using the parameters summarized in Table 1-2.

Table 1-2 Pit Optimization Parameters

Parameter	Input	Unit
Rock Mining Cost	$2.00	$/ton mined
Fill/Waste Mining Cost	$1.70	$/ton mined
Processing Cost	$6.75	$/ton processed
Taxes, Royalties, Refining, and Site Costs	$1.66	$/ton processed
Gold Price	$2,000	$/oz produced
Silver Price	$23	$/oz produced
Gold Recovery		
Silver Queen	55%	
All Other Areas	85%	
Silver Recovery	40%	
Pit Slopes	47°	

The in-pit resources were further constrained by the application of gold-equivalent cutoffs to all model blocks lying within the optimized pits. A gold-equivalent cutoff of 0.008 oz Au/ton was applied to in-pit blocks lying within the Silver Queen vein zone, and a gold-equivalent cutoff of 0.005 was applied to all other in-pit blocks. Gold-equivalent block grades (oz AuEq/ton) were calculated using metal prices and recoveries as follows: Silver Queen AuEq/ton = oz Au/ton + (oz Ag/ton/120); oz AuEq/ton of all other areas = oz Au/ton + (oz Ag/ton/185).

The Soledad Mountain Project gold and silver resources are shown in Table 1-3. The resources are inclusive of the Project mineral reserves. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Table 1-3 Soledad Mountain Project Gold and Silver Resources

			In-Situ Grade				Contained Metal	
			Gold		Silver		Gold	Silver
Classification	Tonnes	Tons	g/t	oz/ton	g/t	oz/ton	oz	oz
Measured	2,667,000	2,940,000	0.99	0.029	12.93	0.377	86,000	1,108,000
Indicated	39,147,000	43,152,000	0.58	0.017	8.06	0.235	736,000	10,133,000
Measured & Indicated	**41,814,000**	**46,092,000**	**0.62**	**0.018**	**8.37**	**0.244**	**822,000**	**11,241,000**
Inferred	3,625,000	3,996,000	0.45	0.013	6.27	0.183	53,000	732,000

1. Mineral resources are inclusive of mineral reserves.
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability.
3. Mineral resources are reported by applying cutoffs of 0.008 oz AuEq/ton (0.274 g/t) at the Silver Queen zone and 0.005 oz AuEq/ton (0.171 g/t) at all other areas to all model blocks lying within optimized resource pits, in consideration of potential open-pit mining and heap-leach processing.
4. Gold equivalent grades were calculated as follows: oz AuEq/ton = oz Au/ton + (oz Ag/ton / AuEq Factor). The AuEq Factor is derived from metal prices ($2,000/oz Au and $23/oz Ag) and recoveries of 55% for Au and 40% for Ag for model blocks lying within the Silver Queen zone (AuEq Factor = 120), and 85% for Au and 40% for Ag in all other areas (AuEq Factor = 185).
5. The effective date of the mineral resources is September 30, 2023.
6. Tonnage and grade estimations are presented in both U.S. and metric units. Grades are reported in troy ounces per short ton (U.S.) and in grams per metric tonne (metric).
7. Rounding may result in apparent discrepancies between tons, grade, and contained metal content.

1.15 Mineral Reserves

The mine design is described in Section 16.0.

The block model provided by RESPEC to GQMC and IMC was used as a basis for the Reserves within of the mine plan for the Project. The mine plan was based on engineered pit designs provided by the technical staff at Golden Queen Mining Company. The mineral reserve was established by tabulating the contained tonnage of measured and indicated material (proven and probable) within the engineered final pit at the planned cut-off grade.

IMC verified the engineered pit designs and compared it to the Lerchs Grossman pit optimized at a $1,600/oz gold price. Both GQMC and IMC used MinePlan™ 3D (Hexagon Mining©) software was used to carry out the detailed mine design.

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1.16 Mineral Reserves Statement

The QP for the Mineral Reserve Estimates is Joseph McNaughton, Senior Mining Engineer, P.Eng. and an employee of IMC. Mineral Reserve Estimates are reported in Table 1-4 and have an effective date of 30 September 2023. The estimate was prepared in compliance with the disclosure and reporting requirements set forth in the National Instrument 43-101. In accordance with the CIM classification system only Measured and Indicated resource categories were converted to reserves (through inclusion within the open-pit mining limits). In this Mineral Reserve Statement, Inferred Mineral Resources are reported as waste.

Table 1-4 Mineral Reserve Estimates

Golden Queen Mining Company - Soledad Mountain Deposit

Mineral Reserve Statement (Imperial & Metric Units); September 30th, 2023									
	Mineralization		Contained (In-Situ) Grade					Contained Metal	
Classification	Metric (ktonnes)	Imperial (ktons)	NSR ($/ton)	Gold (gpt)	Gold (opt)	Silver (gpt)	Silver (opt)	Gold (oz)	Silver (oz)
Proven	1,671	1,842	42.6	1.11	0.032	14.29	0.417	59,744	767,876
Probable	19,338	21,316	29.3	0.68	0.020	9.79	0.285	424,931	6,085,430
Total Prov + Prob	**21,009**	**23,158**	**30.3**	**0.72**	**0.021**	**10.15**	**0.296**	**484,675**	**6,853,306**

Notes:
- Mineral reserves were tabulated based on a $1,850/oz gold price and $23/oz silver price within a pit designed based on a $1,600/oz gold $1,600/oz gold price @ 2022 economics
- Mineral reserves are based on the economic input parameters provided in Tables 15.1-2, 15.1-3 & 15.1-4
- The mineral reserves Cutoff Grade (COG) is based on a Net Smelter Return (NSR) of $8.44/ore ton ($9.30/ore tonne)
- Includes 389 ktons (353 ktonnes) from Low Stockpile @ 0.48 gpt (0.0139 opt) Gold Grade applied to Probable
- Low Stockpile tonnage placed verified, but not tonnage removed. The low grade stockpile is not material to the Reserves.
- Based on end of September 2023 topography
- Imperial: ktons means 1000 short tons; where, 1 short ton = 2000 lbs
- Metric: ktonnes means 1000 metric tonnes; where, 1 metric tonne = 2204.6 lbs
- Gold and Silver are all reported as contained grades and contained metal; where,
  "opt" is troy ounce per short ton and "gpt" is grams per metric tonne
  "gpt" is grams per metric tonne
  "oz" is 1 troy ounce
- The columns may not sum exactly due to rounding

1.17 Open Pit Operation

The open pit operation is described in Section 16.0.

The operation is an open pit operation. The Project has been in operation since 2016 and is currently and will continue to be mined as an open pit operation. The primary production fleet currently on hand is comprised of wheel loaders, hydraulic shovels and 100-ton capacity haul trucks. The support equipment on hand includes graders, water trucks, tracked dozers and a wheel dozer. The support equipment is used for road and bench maintenance, dust control, work in the waste rock disposal areas, pioneering access roads, mining narrower benches, and final ore extraction at the bottom of the various mining phases.

1.18 Recovery Methods

Run-of-mine ore is delivered to the crushing screening plant located south of the Phase 1 heap leach pad. The crushing plant is a three-stage circuit with average throughput of 375,000 dry tons of ore per month.

The crushing plant includes primary and secondary cone crushers, a primary screen and an HPGR as the key comminution devices and the required ore chutes and conveyors.

The HPGR discharge is conveyed to an agglomeration drum where cement and fresh water are added, the discharge is then conveyed by overland conveyor and a series of grass-hopper conveyors to a stacker and placed on the heap leach pad. Once on containment cyanide bearing process solution is added to the ore at the transfer points on the first three grass-hopper conveyors.

Gold and silver are recovered by dissolution in a dilute sodium cyanide solution and then recovered in the Merrill-Crowe process, which includes the typical clarification, deaeration, precipitation with zinc dust, and filtration, retorting, and smelting of the precious metal precipitate into a doré product.

The site assay laboratory can process 600 fire assay and 600 solution samples per day.

The heap leach pad is a multi-lift single-use pad. Individual lifts have been designed at a 30-ft nominal height.

Once prepared, the heap surface is irrigated with dilute cyanide solution by drip emitters, for a primary leaching cycle of 75 days. An Intermediate Leach System (ILS) is in use that allows low grade pregnant solution to be recycled as barren solution. This will help increase effective leach time and pregnant solution grades.

Additional underlying lifts will continue to leach to reach the ultimate recoveries for gold and silver. The leachate or pregnant solution will be collected in a network of perforated pipes and will be directed to a pump box, and will then be pumped to the Merrill-Crowe plant.

The average water use is 404 gal/min (2021 through 2023).

The crushing plant, heap leach pad and recovery plant are described in Section 17.0.

1.19 Local Resources and Infrastructure

Services such as a hospital, ambulance, fire-protection, garbage and hazardous waste disposal, schools, motels and housing, shopping, airport and recreation are available in Mojave and its surroundings. Telephone and internet service are available on site. Mojave is a railroad hub for the Burlington Northern/Santa Fe and Union Pacific/Southern Pacific railroad lines.

Infrastructure is described in Section 18.0 and this includes both on-site and off-site infrastructure.

Off-site infrastructure such as roads and the availability of power are described in Sections 18.6.

1.20 Market Studies

Doré is produced in the refinery on site. The doré is shipped to Asahi Refining USA in Salt Lake City, Utah. The doré is refined to produce saleable gold and silver. The gold and silver is sold to Asahi Refining.

GQMC is permitted to ship 500,000 t of aggregate per year until 2061. GQMC works with MRC Rock & Sand, to produce aggregate from waste using a portable crushing plant located to the west of the existing leach pad.

MRC produces a wide-range of products at Soledad Mountain such as fine base, coarse base, coarse aggregate, rip-rap, and boulders for use in both construction and landscaping applications for public works, commercial, industrial, and residential development customers.

Aggregate sales are projected to be 240,000 t in 2024 and 160,000 t in years 2025 through 2030.

1.21 Capital and Operating Cost Estimates

The Soledad Mount Project has been in operation since early 2016 providing almost eight years of historical operating data for the site. Future mining and processing at the site have recently increased due to recent improvements in operation. The historical data and experience of the site personnel will provide the best estimate of future costs.

The heap leach pad has been expanded to its final size. The capital costs are summarized as:

Table 1-5 Total Sustaining Capital

Total Capital ($000)	Q4 2023	2024	2025	2026	2027	2028	2029
Mining	$3,079	$11,647	$5,449	$500	$500	$250	
Processing	$25	$820	$410	$210	$160	$90	$1,000
Overhaul		$10,622	$5,724	$8,338	$1,625		
Other	$131	$2,401	$2,304	$250	$250	$125	
Total	$3,235	$25,490	$13,887	$9,298	$2,535	$465	$1,000

The capital costs are sustaining costs to rebuild and replace equipment and to replace the Merrill Crowe with a carbon adsorption circuit at closure.

Operating costs are summarized as:

Table 1-6 Summarized Operating Costs

Category	Cost per ton Ore	Cost Fraction
Mining	$12.934	54.7%
Process	$6.912	29.2%
Site Services	$1.173	5.0%
Administration	$1.283	5.4%
Offsite Operating	$1.253	5.3%
Reclamation	$0.102	0.4%
Total	$23.657	100.0%

The operating costs are estimated to average $23.66 per ton, including mining, processing, G&A and reclamation.

The capital and operating costs are discussed in Section 21.0.

1.22 Financial Analysis

The after-tax cash flow analysis is described in Section 22.5. This analysis includes detail on a number of items that make up the cash flow model.

The base cash flow analysis is done on a constant United States dollar, after-tax, stand-alone Project basis.

The Project has pre-tax and after-tax net present values (NPV) of $116 million and $102 million, respectively, at a discount rate of 5.0%. The undiscounted, cumulative net cash flows for pre-tax and after-tax are approximately $145 million and $129 million, respectively. By comparison, at an 8.0% discount rate, the pre-tax and after-tax NPVs are $102 million and $89 million, respectively.

The total operating cash cost per ounce of equivalent gold produced is $1,340/oz. Gold and silver prices used to model the cash flows were $1,850 and $24, respectively.

1.23 Sensitivity Analysis

Sensitivity analyses are detailed in Section 22.5.2. The sensitivity of Project cash flows to increases in capital (sustaining capital), site operating costs, and gold and silver prices was evaluated. The Project pre-tax and after-tax NPVs are relatively insensitive to changes in capital costs but are quite sensitive to metals prices and operating costs.

1.24 Project Schedule

Stage 3 of heap construction was completed in 2021. No further expansions are planned at this time.

1.25 Interpretation and Conclusions

1.25.1 RESPEC Interpretations, Conclusions and Recommendations

Mr. Gustin reviewed the Project data, constructed resource databases, evaluated QA/QC data, completed extensive verification of relevant Project data, and has undertaken inspections of the Project site on a number of occasions. Mr. Gustin believes the Project data are of sufficient quality to support the estimation classification of the current resources.

GQMC has developed a 98,500-ft core and RC infill and exploration drilling program that provides for infill drilling as well as drilling of various exploration targets (Table 1-7).

Mr. Gustin believes this program is warranted, and strongly recommends that the higher-priority targets, at a minimum, are tested in the short term.

Table 1-7 Recommended Drilling Program and Cost Estimate

Target	Description	RC (ft)	Core (ft)	Total (ft)	Estimated Costs
Main Pit Phase 3	High-Priority Infill		16,000	16,000	$ 2,080,000
Silver Queen SE ext.	High-Priority Infill-Expl	8,000	4,000	12,000	920,000
Sheeted Vein Zone	High-Priority Infill-Expl		5,000	5,000	650,000
Alphason	High-Priority Expl	15,000	2,500	17,500	1,075,000
Soledad/Starlight – SE ext.	Continued Exploration	10,000		10,000	500,000
Black Karma	Continued Exploration	6,000	2,000	8,000	560,000
Deep Silver Queen	Continued Exploration	5,000	2,000	7,000	510,000
Deep Soledad/Starlight	Initial Exploration		10,000	10,000	1,300,000
NW Alphason	Initial Exploration	3,000		3,000	150,000
Soledad hanging wall	Initial Exploration	2,000		2,000	100,000
Soledad Far SE	Initial Exploration	2,500		2,500	125,000
Landon Clay	Initial Exploration	3,000		3,000	150,000
West Basin	Initial Exploration		2,500	2,500	325,000
Totals		*54,500*	*44,000*	*98,500*	*$ 8,445,000*

1.25.2 Interpretations, Conclusions and Recommendations by KCA

The cash flow analysis shows the Soledad Mountain Project is economical.

KCA believes the following are reasonable estimations of leach parameters for the future operation of the Project.

Table 1-8 Expected Recoveries and Reagent Consumptions

Ore Type	Gold Recovery, %	Silver Recovery, %	NaCN Cons., lb/st	Cement Cons., lb/st
Golden Queen, Starlight, and Soledad	y = (-0.0435x+219.44)/100 y </= 85 y = Au Recovery, % x = Bench Elevation, ft	37%	0.16	11
Silver Queen	49%	37%	0.37	11
Sheeted Vein	74%	37%	0.23	11

KCA recommends adding clay content to the mine planning process. This could help forecast when excessive clay will be encountered so blending may occur. KCA believes this will cost less than $25,000.

KCA recommends drilling and column testing "Other" materials to be processed in 2025 through 2028. This will confirm the higher recoveries expected at lower elevations.

KCA recommends comparing the monthly column leach test results against the mining history of the ore types of rhyolite, pyroclastic and quartz. If the data is sufficient, the relationships could give a better estimate of what to expect in future mining.

Bottle roll and column leach tests and compacted permeability tests should be conducted on potential future mineralized material to confirm recovery estimates and reagent requirements.

The HPGR was originally sized to allow edge recycle. This would make the crusher product finer in size but would require adjustable gates on the HPGR under size and additional conveyors. Column tests to check for a difference in recovery at the finer product size should be conducted.

Total estimated cost of the above testing recommendations is $250,000.

1.26 Cautionary Statement

This document contains "forward-looking information" as defined in applicable securities laws. Forward looking information includes, but is not limited to, statements with respect to the FS, including but not limited to future production, costs and expenses of the Project; estimates of Mineral Reserves and Mineral Resources; commodity prices and exchange rates; mine production plans; projected mining and process recovery rates; mining dilution assumptions; sustaining costs and operating costs; closure costs and requirements; requirements for additional capital; and general business and economic conditions. Often, but not always, forward-looking information can be identified by the use of words such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "continues", "forecasts", "projects", "predicts", "intends", "anticipates" or "believes", or variations of, or the negatives of, such words and phrases, or statements that certain actions, events or results "may", "could", "would", "should", "might" or "will" be taken, occur or be achieved.

Forward-looking information is based on a number of assumptions which may prove to be incorrect, including, but not limited to, the availability of financing for production, development and exploration activities; the timelines for exploration and development activities on the Project; the availability of certain consumables and services; assumptions made in mineral resource and mineral reserve estimates, including geological interpretation grade, recovery rates, price assumption, and operational costs; and general business and economic conditions. Forward-looking information involves known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any of the future results, performance or achievements expressed or implied by the forward-looking information. These risks, uncertainties and other factors include, but are not limited to, the assumptions underlying the production estimates not being realized, changes to the cost of production, variations in quantity of mineralized material, grade or recovery rates, geotechnical or hydrogeological considerations during mining differing from what has been assumed, failure of plant, equipment or processes, changes to availability of power or the power rates used in the cost estimates, changes to salvage values, ability to maintain social license, changes to interest or tax rates, decrease of future gold prices, cost of labor, supplies, fuel and equipment rising, the availability of financing on attractive terms, actual results of current exploration, changes in project parameters, exchange rate fluctuations, delays and costs inherent to consulting and accommodating rights of local communities, environmental risks, reclamation expenses and other risks involved in the gold production.

All forward-looking information herein is qualified by this cautionary statement. Accordingly, readers should not place undue reliance on forward-looking information. GQMC and the authors of this Technical Report undertake no obligation to update publicly or otherwise revise any forward-looking information whether as a result of new information or future events or otherwise, except as may be required by applicable law.

2.0 INTRODUCTION

2.1 Terms of Reference

Golden Queen Mining Co. LLC (GQMC) engaged Kappes, Cassiday & Associates ("KCA"), RESPEC and Independent Mine Consultants ("IMC") to prepare an updated technical report on a Feasibility Study level to assess mineral reserves for the Project based upon technical work and engineering designs completed up to 30 September 2023.

The geological model for the Project was developed by RESPEC. GQMC has used this model as a basis for pit optimization and the development of the mining plan in the feasibility study. IMC performed a detailed review of the pit optimization and mine development plan.

GQMC has been operating since January 2016; the operating and onsite testing data have been provided to KCA. KCA has access to the results of previous test work. In addition, KCA has performed bottle roll leach tests and column leach tests on various historic monthly composite samples, samples from Sheeted Vein and from Silver Queen.

2.2 Qualified Persons

The following people served as the Qualified Person's (QPs) as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1:

- Carl E. Defilippi, SME Registered Member, Engineering Manager, Kappes Cassiday & Associates, Reno NV.
- Michael M. Gustin, AIPG Certified Professional Geologist, RESPEC Principal Consultant.
- Joseph C. McNaughton, PE, Partner, Independent Mining Consultants Inc., Tucson AZ.
- George Klemmick, AIPG Certified Professional Geologist, Consulting Geologist, Chugiak, AK.

2.3 Site Visits and Scope of Personal Inspections

QPs areas of responsibility are detailed in Table 2-1.

Table 2-1 QPs Areas of Report Responsibility and Site Visits

Qualified Person	Most Recent Site Visits	Report Sections of Responsibility (or Shared Responsibility)
Carl E. Defilippi	13 November 2023	Sections 1.0 to 1.7, 1.13, 1.18 to 1.24, 1.25, 1.25.2, 1.26, 2 through 5, 12.9, 13, 17 through 20, 21 except 21.3.2, 22, 23, 24 except 24.1.1, 25.2, 26.3, 27, 28
Joseph McNaughton	7 December 2023	Sections 1.15, 1.16, 1.17, 15, 16, 21.3.2, 24.1.1, 25.4, 26.2, 27, 28
Michael M. Gustin	16 December 2023	Sections 1.8-1.12, 1.14, 1.25.1, 6, 7, 8, 9, 10, 11, 12 except for 12.9, 14, 25.1, 25.3, 26.1, 27, 28
George Klemmick	Worked extended periods at site from March 2014 to May 2023	Sections 1.8-1.11, 1.25.1, 7, 8, 9, 10, 11.0-11.7, 26.1, 27, 28

Carl Defilippi has visited the Soledad Mountain Mine numerous times starting in 2015, with the latest site visit occurring on 13 November 2023. While onsite, he inspected the process areas and discussed plant performance with management. In prior visits, he was part of the commissioning team of the crushing, agglomeration and stacking systems, reviewed metallurgical performance of the heap, reviewed laboratory sampling and testing procedures, toured the mine areas and worked with site personnel to improve processing operations performance.

Michael Gustin of RESPEC visited the Project site a number of times since March 2014, and most recently on 14 December 2023. During these visits, he examined surface exposures of barren and altered and mineralized rocks typical of the resource area; noted the presence of numerous historical mine dumps and other surface expressions of historical underground mining; inspected mineralized drill core and RC cuttings; reviewed numerous documents, reports, and maps in the possession of GQMC; and visited the active open-pit mining operations.

Joseph McNaughton, of IMC, visited the Soledad Mountain Mine on 7 December 2023. While onsite, Joseph toured around all of the active and idle pits and dumps, visited both the engineering department and the mine dispatch, and met with Mark Fullenwider and Kojo Anim to discuss the current operations.

George Klemmick, an independent geologist, has worked extensively at the Soledad Mountain Mine, and was last on site in May of 2023. George has worked at Soledad Mountain at various times between March 2014 and May 2023. His duties during this period have included planning, implementation and management of several large drilling campaigns, including post-drilling program data compilation and geologic interpretation. He has managed district-wide exploration programs, which included geologic mapping, geochemical sampling and subsequent interpretation.

Effective Dates

The Report has a number of effective dates as follows:

- Effective date of the drillhole database closeout for Soledad Mountain for the purposes of estimating Mineral Resources: 01 December 2021
- Effective date of the Mineral Resource Estimates: 30 September 2023
- Effective date of the mineral tenure and surface rights data: 20 November 2020
- Effective date of the Mineral Reserve Estimates: 30 September 2023
- Effective date of the final report: 12 January 2024

The Soledad Mountain crushing system was shut down on about 14 December 2023 due to a fire and has been down up to the time of the effective date of this Report. This loss in production has not been included in this updated Technical Report. Otherwise, there has been no material change to the scientific and technical information on the Project between the effective date of the Report and the signature date.

2.4 Information Sources and References

Reports and documents listed in Section 3, Reliance on Other Experts and Section 28.0, References were also used to support preparation of the Report. Additional information was provided by Company personnel where required.

2.5 Previous Technical Reports

The Company has previously filed the Technical Reports presented in the following table. There was also an unpublished Report completed on a Feasibility Study level in 2022.

Table 2-2 Previously Filed Technical Reports

Name of Report	Date of Report
Soledad Mountain Project Technical Report and Updated Feasibility Study (Prepared by Kappes, Cassiday & Assoc.)	25 February 2015
Soledad Mountain Project Technical Report (Prepared by AMEC and Norwest Corporation)	17 October 2012
Soledad Mountain Feasibility Study (Prepared by Norwest Corporation)	2 May 2011
Technical Report Soledad Mountain Project (Prepared by Norwest Corporation)	23 January 2008
NI 43-101 Technical Report Soledad Mountain Project (Prepared by SRK Consulting U.S., Inc.)	1 March 2006
Soledad Mountain Project Technical Report (Prepared by John Barton Fairbairn)	20 June 1997

2.6 Units and Abbreviations

The standard units of measure used in this Technical Report are imperial units. For consistency with certain supporting references and data, metric units may also be shown in parentheses.

Units of measure and abbreviations that may occur in this Technical Report are listed in Table 2-3.

Table 2-3. Units of Measure and Abbreviations

Abbreviation	Description
AQ	Core diameter (usually ~ 2.7 cm diameter)
Au	Gold
AuEq / AuEqV	Gold equivalent
Ag	Silver
BWI	Bond ball mill work index
$Ca(OH)_2$	Calcium hydroxide, hydrated lime
CuYd	Cubic yard
Cdn$	Canadian currency (dollars)
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
cm^3	Cubic centimeter
cm^2/s	Centimeter per second
CV	Coefficient of variation
DDH	Diamond drill hole (core)
ft	Feet
ft^2 or sq. ft.	Square feet

Abbreviation	Description
g or gms	Gram
gal	Gallons
gpm, gal/min	Gallons per minute
gal/min/ft^2	Irrigation rate, gallons per minute per square foot
G&A	General and administrative
g/L	Grams per liter
g/T or g/mt	Grams per metric tonne
Ha	Hectare
HDPE	High-density polyethylene
hp	Horse power
HQ	Drill core diameter (~ 63.5 mm diameter)
ICP	Inductively coupled plasma analytical method
ICP-AES	Inductively coupled plasma analytical method
ID^2	Inverse distance squared
ID^3	Inverse distance cubed
in	Inches
kg/t or kg/mt	Kilogram per metric tonne
km	Kilometer
km^2	Square kilometers
km/h	Kilometers per hour
kW	Kilowatt
kN	Kilonewton
kWh	Kilowatt-hour
lb	Pounds
lbf	Pounds-force
LLDPE	Low-density polyethylene
LpHr/m^2	Irrigation rate, liters per hour per square meter
L/T	Liters per metric tonne
m	Meter
M	Million
MPa	Megapascal
µm	Micrometers or microns
m^2	Square meters
m^3	Cubic meters
m^3/hr	Cubic meters per hour
masl	Mean elevation above sea level
mi	Miles
mm	Millimeter
mg	Milligram
mg/L	Milligrams per liter
mph	Miles per hour
NaCN	Sodium cyanide

Abbreviation	Description
NQ	Drill core diameter (~ 47.6 mm diameter)
NSR	Net smelter return
oz	Troy ounce approximately (31.1035 grams)
oz/ton	Troy ounces per short ton
pcf or lb/ft^3	Pounds per cubic foot
PEA	Preliminary economic assessment
ppb	Parts per billion
ppm	Parts per million
PQ	Drill core diameter (~ 85.0 mm diameter)
QA/QC	Quality assurance/quality control
QQ	Quantile-quantile plot
RC	Reverse circulation drilling method
RPD	Relative percent difference
RQD	Rock quality designation
SMU	Selective mining unit
T, mt, tn or tonne	Metric tonne (1,000 kg)
t or ton	Short ton (2,000 lb)
t/d or ton/d	tons per day
t/h or ton/h	tons per hour
ton/yd^3	Short tons per cubic yard
US$ or USD	US currency (dollars)
UTM	Universal Transverse Mercator
%	Percent

3.0 RELIANCE ON OTHER EXPERTS

KCA, RESPEC and IMC have relied upon and disclaim responsibility for information derived from reports pertaining to mineral tenure, surface rights, water rights, and environmental approvals and permits. KCA has reviewed the status of the current environmental permits and everything is in good standing.

3.1 Mineral Tenure and Royalties

KCA has not independently verified the legal status of ownership of land within the Approved Project Boundary. KCA has fully relied upon, and disclaims responsibility for information provided by Company staff and experts retained by the Company for information relating to mineral tenure, landholders' title to properties, and mining lease agreements the Company has with landholders. The following document was referred to with respect to mineral ownership and royalty rights:

Deed of Trust, Assignment of Rents, Security Agreement and Fixture Filing, November 24, 2020.

Detail is provided in Section 4.3 and 4.4. This information is used in Sections 4.3, 4.4, and 14.0.

3.2 Surface and Water Rights

KCA has fully relied upon information provided by Company staff and experts retained by the Company for information relating to surface rights and water rights in California. The following document was referred to with respect to current surface and water rights:

Independent California legal counsel, Paul Singarella, Esq., Latham & Watkins LLP, Costa Mesa, California, prepared a document titled "Memorandum, July 18, 2007, Initial Diligence Report and Potential Action Items – Golden Queen Mining's Soledad Mountain Project".

Kern County Board of Supervisors approved a water entitlement of 750 gal/min (170 m^3/h) in the CUPs issued in 1997.

An assessment of surface rights and water rights is provided in Sections 4.5 and 5.5 of the Report. This information is used in Sections 4.5, 5.5, 14.0 and 15.0.

3.3 Environmental Studies and Approvals and Permits

KCA has reviewed information provided by Company staff and experts retained by the Company for information relating to the environmental studies performed and approvals and permits obtained for the Project. No environmental or permitting issues were found. The following documents were referred to with respect to environmental studies, approvals and permits.

Board Order R6V-2021-0020 Revised Waste Discharge Requirements for Golden Queen Mining Company, LLC and the U.S. Department of the Interior, Bureau of Land Management, Soledad Mountain Project, Kern County, signed and adopted on May 13, 2021.

"California Regional Water Quality Control Board, Lahontan Region, Board Order No. R6V-2012-0031, Waste Discharge Requirements, July 23, 2012."

A Supplemental Environmental Impact Report ("SEIR") was issued by Kern County Planning & Community Development Department as the Lead Agency in January 2010. The Kern County Planning Commission formally considered the Project at its regularly scheduled meeting in Bakersfield on 8 April 2010. The Planning Commission certified the SEIR, adopted a Mitigation Measures Monitoring Program and Conditions of Approval for the Project which define conditions and performance standards which the mining operation must meet. The Mitigation Measures Monitoring Program and Conditions of Approval for the Project were amended by Planning Commission Resolution No. 171-10 adopted on 28 October 2010

Detail is provided in Section 21.0 of the Report. This information was used in Section 14.0 of this report

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Project is located in Kern County in southern California as shown in Figure 4-1. The Project is located approximately five miles (eight km) south of the town of Mojave. The metropolitan areas of Rosamond and Lancaster lie approximately nine miles (14 km) and 20 miles (32 km) to the south respectively. Los Angeles is about 70 miles (113 km) south of Mojave. California City lies approximately 10 miles (16 km) north-east of Mojave.

The project coordinates are N 39º 59’ 20” and E 118º 11’ 43”.

The Project is in the Mojave Mining District along with the former Cactus Gold Mine, Standard Hill Mine and Tropico Mine. These former operating mines are located within a radius of 5 miles (8 km) of the site.

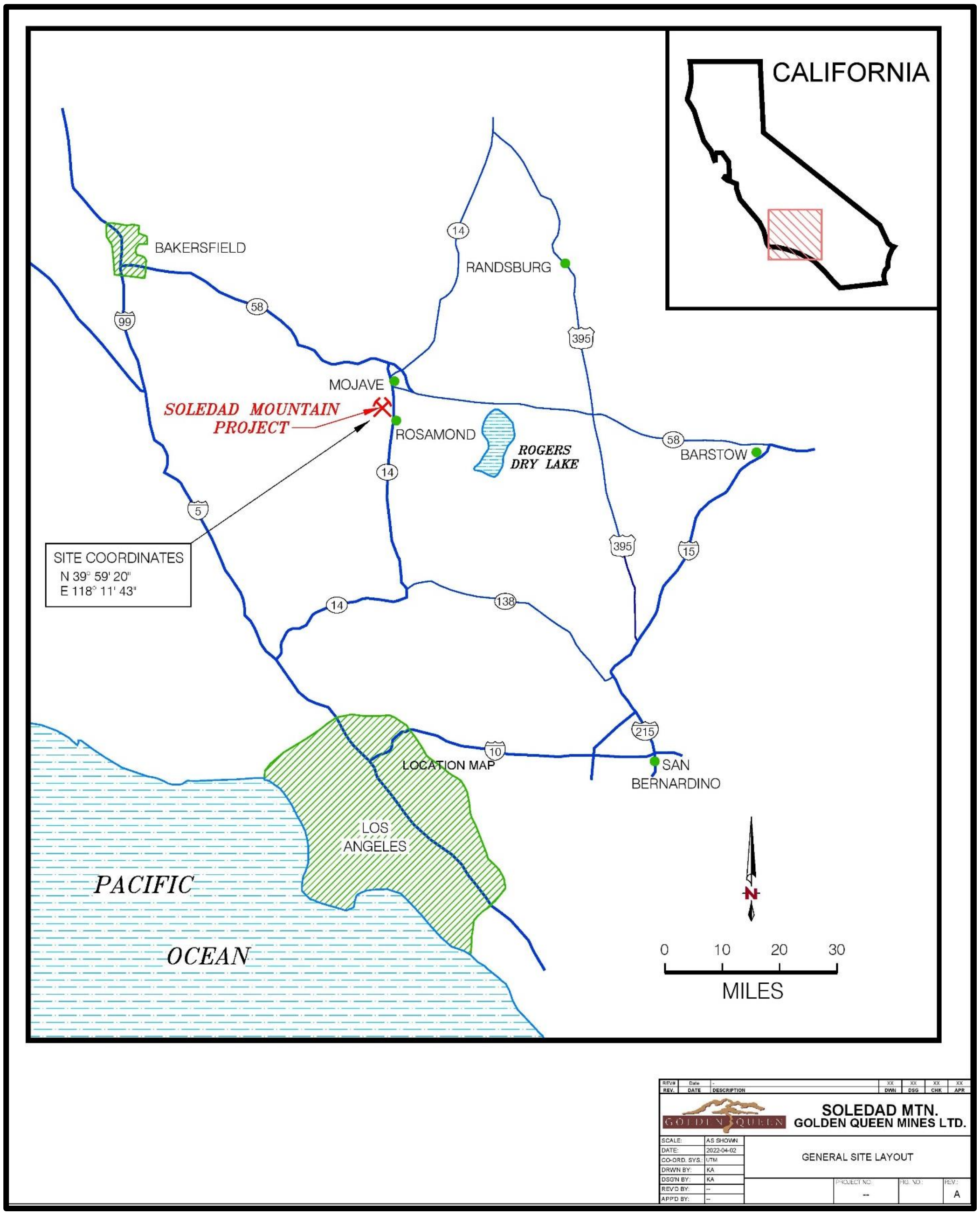
A general site layout is shown in Figure 4-2.

4.2 Land Holdings

The Company controls approximately 2,687 acres of land in the area, consisting of private (fee land and patented lode mining claims and millsites) and federal lands (unpatented mining claims and millsites) administered by the BLM, collectively referred to as the Property. The total area required for the Project, which is surrounded by an Approved New Project Boundary, is approximately 1,188 acres in size. The actual area that will be disturbed by mining, waste rock disposal, the construction of the heap leach pads and the heap and the facilities will be approximately 1,188 acres in size of which approximately 1,080 acres will be revegetated; includes the Heap Leach Facility (HFL), waste rock pads constructed as a base for the aggregate operation, waste rock replaced in mined-out portions of the open pits, processing and support facilities, access roads, exploration roads and drill pads. The 108 acres of disturbed area that will not be revegetated includes the steep slopes in the open pits that are not covered by replaced waste rock and the permanent access road to the top of Soledad Mountain.

The Property is located west of California State Highway 14 and largely south of Silver Queen Road in Kern County, California, and covers all of Section 6 and portions of Sections 5, 7 and 8 in Township 10 North (T10N), Range 12 West (R12W), portions of Sections 1 and 12 in T10N, R13W, portions of Section 18 in T9N, R12W, and portions of Section 32 in T11N, R12W, all from the San Bernardino Baseline and Meridian. The Project facilities will be located in Section 6 of T10N, R12W.

Figure 4-1 Project Location Map



KCA Kappes, Cassiday & Associates

Figure 4-2 Site Layout

Kappes, Cassiday & Associates

4.3 Mineral Tenure and Mining Lease Agreements

The Company holds directly or controls via agreement a total of 23 patented lode mining claims, 135 unpatented lode mining claims, one patented millsite, 26 unpatented millsites, one unpatented placer claim and upwards of 1,223 acres of fee land, which together make up the Property. Additional land is held by the Company which may be incorporated into the Project area in the future if required. The land status is shown in Figure 4-3 and Land Ownership is shown in Figure 4-4.

GQMC holds or controls the properties under mining leases with 60 individual landholders, 15 groups of landholders and one incorporated entity. Lengths of the agreements vary.

The Company believes that all the land required for the Project either has been secured under a mining lease or is held by the Company through ownership of the land in fee or via unpatented mining claims. The Company is continuing to add to its land position in the area. Records of Survey were performed for Section 6 in 2011 and for Section 8 in 2014.

4.3.1 Title Review

An updated formal title review was completed for the MSLP loan in December, 2020 and is described in the 24 November 2020 Deed of Trust. The review confirmed that the titles were valid.

An older formal title review was done by Gresham Savage Nolan & Tilden, a firm with experience in title matters. The report was dated 6 September 1996 and was updated to 26 April 1999. This title review was done to provide confirmation that titles remained valid. A formal title review was again done by an independent landman, Sylvia Good, in May 2004 and no particular title problems were identified.

The Company then determined that any remaining title questions would not present a threat to the Project.

Figure 4-3 Project Property Map

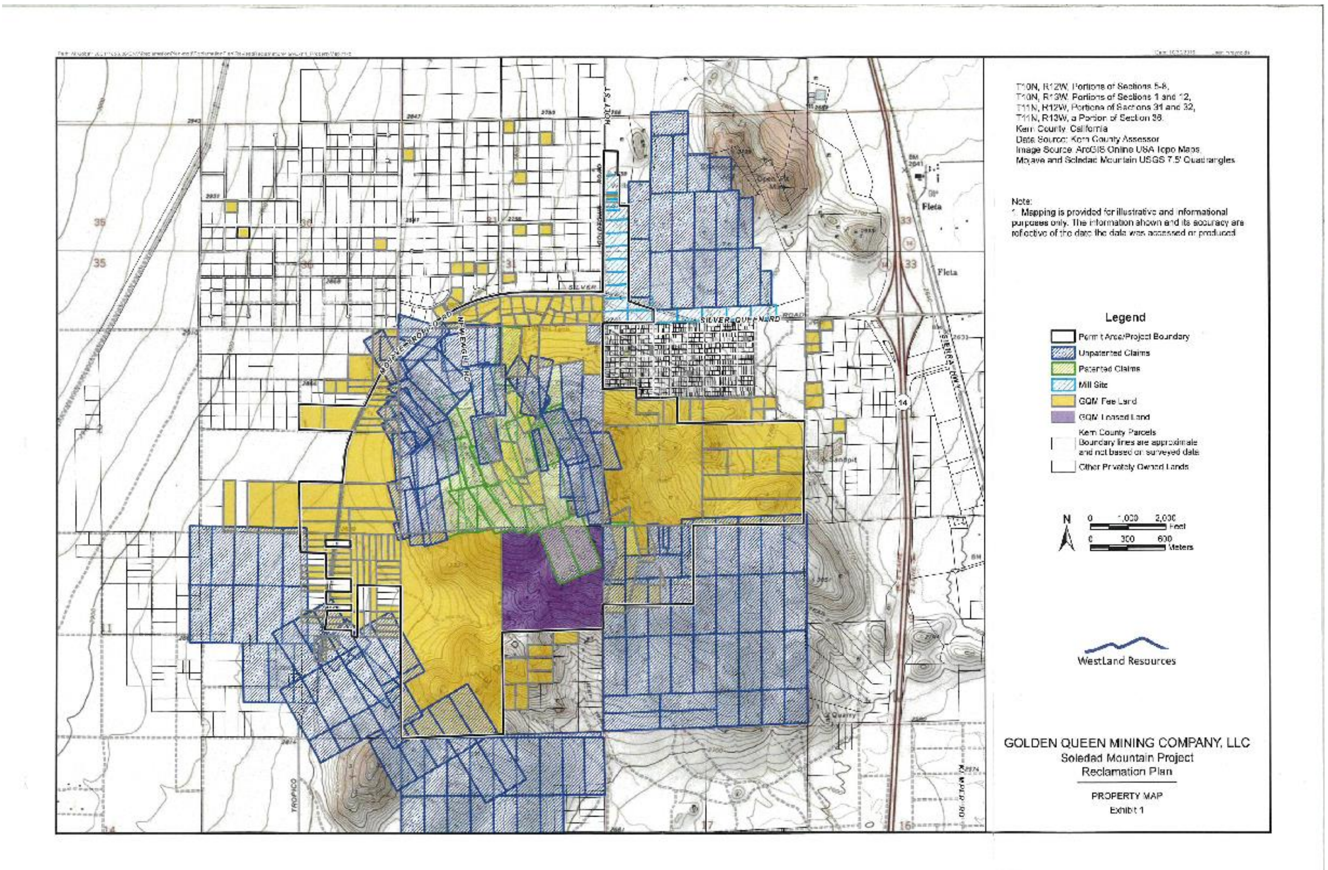
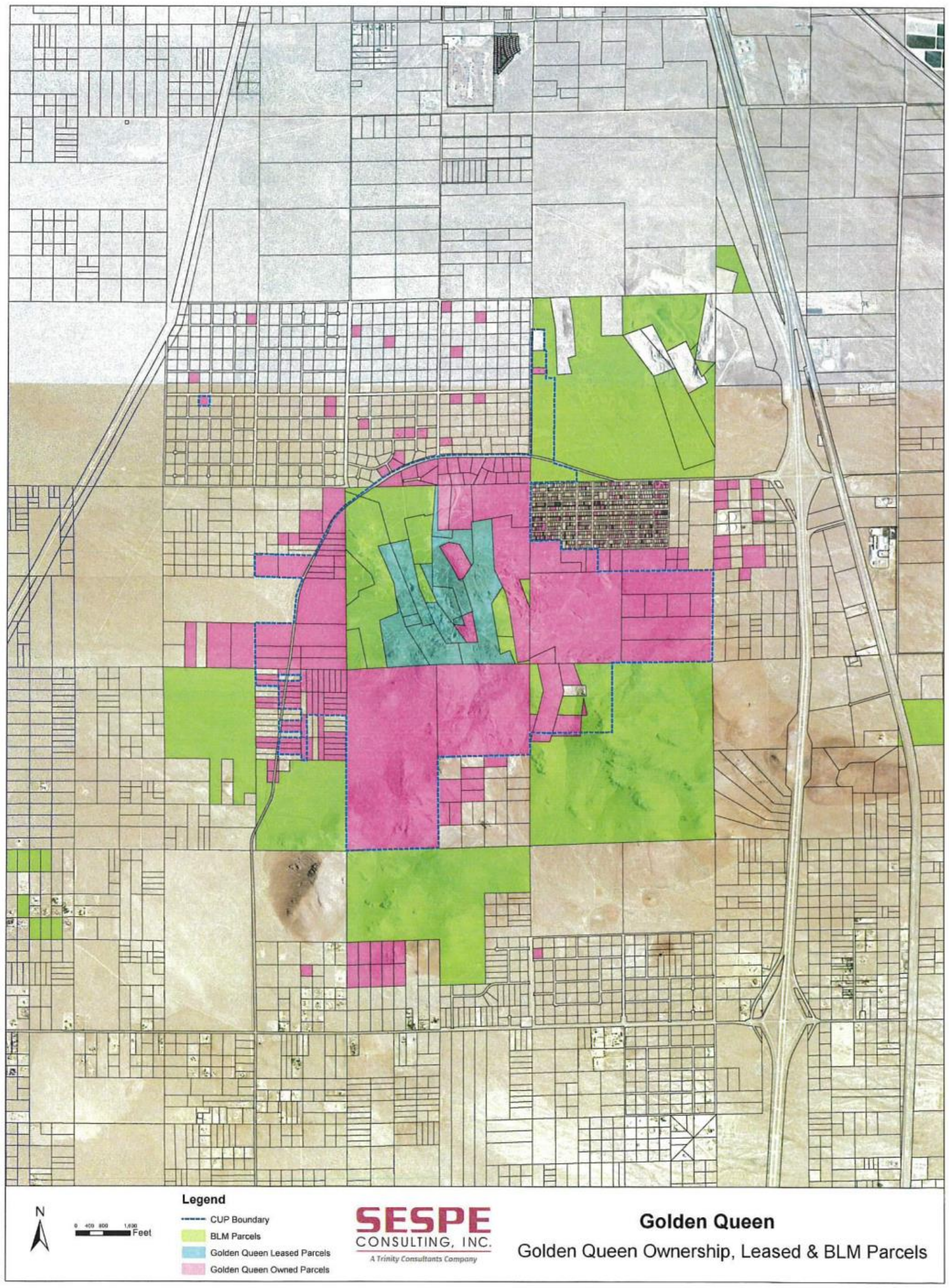


Figure 4-4 Project Land Ownership Map



4.3.2 Freedom to Operation Across Property

The Company has unimpaired ability to operate across all land that comprises the Project. The Company is not in default of any current mining lease agreement, and all current leases contain an "evergreen" clause extending the duration of the lease as long as the Project is in operation.

4.4 Royalties

Royalties paid to third party landholders and the State of California are included in the Offsite Operating Costs shown as line items in the Project cash flows in Table 22-1.

There are multiple third party landholders and the royalty formula applied to mine production varies with each property. The royalty calculations were provided by GQMC and have been included in the cash flow model for the Project. The estimated royalty payable over the Project's life is approximately $16.9 million (30 September 2023 through Life-of-Mine).

State fees for payable gold and silver have been applied at the following rates:

- Gold fee - $5.00/oz gold (post-smelter)
- Silver fee - $0.10/oz silver (post-smelter)

The estimated combined gold and silver fees paid to the State over the Project's life are about $2.2 million (30 September 2023 through 2030).

4.5 Water Rights

Independent California legal counsel ("Memorandum, July 18, 2007, Initial Diligence Report and Potential Action Items – Golden Queen Mining's Soledad Mountain Project", Prepared by Paul Singarella, Esq., Latham & Watkins LLP, Costa Mesa, California.) performed an analysis of water rights in California on behalf of the Company. The following are key points:

- California does not regulate the use of groundwater under a state-wide administrative permit program;
- A land holder with land overlying groundwater does not need to have the right to pump water verified before the land holder can drill wells and pump water;

- Groundwater rights rules include a hierarchy of rights under which the rights of the overlying users are paramount;
- When a groundwater basin is in an overdraft condition, competing water uses will frequently initiate judicial proceedings to test the claims of competing rights;
- Groundwater rights can be determined, and pumping limited, through court adjudications;
- The Project will draw groundwater from the Fremont Valley groundwater basin and this basin is separated from other basins by significant geological features;
- Ongoing monitoring will be required to ensure that the groundwater immediately underlying the Project is not in an overdraft condition;
- If the Project's groundwater demands were to contribute to an overdraft condition, the Company would be bound by the correlative rights doctrine, which provides that as between overlying owners, all have equal rights to the water and must share in any water shortages;
- An adjudication of groundwater resources in the Antelope Valley is ongoing and this also needs ongoing monitoring to confirm that the Fremont Valley groundwater basin is not drawn into this adjudication; and
- Under Article X, Section 2 of the California Constitution, water must be put to "reasonable and beneficial use" and the California Code of Regulations expressly defines "beneficial uses" to include mining.

The Kern County Board of Supervisors approved a water entitlement of 750 gal/min (170 m^3/h) in the CUPs issued in 1997.

Water required for the Project and alternative water supplies are described in Section 18.5.

4.6 Reclamation and Reclamation Financial Assurance

The Company provided reclamation financial assurance in the form of an Irrevocable Standby Letter Of Credit backed by a Certificate Of Deposit with Bank of New York Mellon in the amount of US$4,055,549. This is the current estimate for reclamation of historical disturbances on the property and this is reassessed annually.

The Company prepared detailed cost estimates for ongoing reclamation and reclamation at the end of the life of the mine and these cost estimates were included in the Application for a revised Surface Mining Reclamation Plan. The Company provided the necessary financial assurance as required by the regulatory authorities. Cost estimates for site reclamation are included in the discussion of the Project economics and operating costs.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

Refer to Section 18.1 for a description of access to site.

Access to site is from State Route 14 and Silver Queen Road, an existing paved county road. Access also exists from the south via Mojave Tropico Road, an existing paved county road. State Route 14 is the major highway, which connects Mojave, Rosamond, Lancaster and Palmdale to the greater Los Angeles area.

The Kern County Planning & Community Development Department assigned a street address for the Project – 2818 Silver Queen Road, Mojave, CA 93501.

5.2 Climate

The Mojave region is generally characterized as arid, with a wet season from December through March. Rainfall events tend to be short-lived and of high intensity. Mojave experiences high summer temperatures up to 113°F. The minimum temperature may reach 20°F. Maximum wind speed is 90 mph with Exposure Category C for design purposes. Mean recorded annual rainfall is 6.14 inches with a mean maximum month of 1.11 inches.

Exploration is possible year-round, though snow in winter and wet conditions can make travel on unimproved dirt roads difficult. Mining operations will be conducted year-round.

5.3 Local Resources

Services such as a hospital, ambulance, fire-protection, garbage and hazardous waste disposal, schools, motels and housing, shopping, airport and recreation are available in Mojave and its surroundings. Telephone and internet service are available on site.

Mojave is a railroad hub for the Burlington Northern/Santa Fe and Union Pacific/Southern Pacific railroad lines.

Off-site infrastructure such as the availability of power and water supply is described in Section 18.0.

5.4 Physiography

The Soledad Mountain gold-silver deposit is hosted in a volcanic sequence of rhyolite porphyries, quartz latites and bedded pyroclastics that form a large dome-shaped feature, called Soledad Mountain, along the margins of a collapsed caldera. The deposit is located on the central-northeast flank of Soledad Mountain. The mountain has a domal form that is a reflection of an original, dome-shaped volcanic center. Elevations range from 4,180 ft above mean sea level at the highest point of Soledad Mountain to 2,840 ft above mean sea level at the valley floor north of the mountain. The topographic relief ranges from moderate to steep.

Vegetation is typical of the Basin and Range physiographic province. The lower slopes of Soledad Mountain are covered by sagebrush, grass, and various desert shrubs. Fauna that have been observed in the Project area are typical of those of the Great Basin area.

5.5 Sufficiency of Surface Rights

The Kern County Planning Commission formally considered the Project on 8 April 2010. At the meeting, the Commission, consisting of a panel of three commissioners, unanimously approved the Project. The Planning Commission certified the Supplemental Environmental Impact Report (SEIR) and adopted a Mitigation Measures Monitoring Program and a set of Conditions of Approval for the Project. The Mitigation Measures Monitoring Program and Conditions of Approval for the Project were amended by Commission Resolution No. 171-10 adopted on 28 October 2010 and are now final. The Approved Plan for the Project includes an Approved Project Boundary with a legal description checked and confirmed by the Kern County Engineering, Surveying & Permit Services Department.

The Company believes that the land required for the Project, which has been included within the Approved Project Boundary, has either been secured under a mining lease or is held by the Company through ownership of the land in fee or via patented and unpatented lode mining claims or millsites. Detail on the SEIR is provided in Section 20.1.1.

5.6 Comments on Section 5

In the opinion of KCA and based on actual production experience, the Project is located in an area with access and services that supports the operation of the mine and process facilities.

6.0 HISTORY

The following information related to exploration history and past production is modified from reports by M3 Engineering (1998), Clark (2006), and with additional references as cited.

The first recorded mining activity in the Mojave Mining District occurred on March 8, 1894, when W.W. Bowers discovered gold on a promontory south of Mojave, then known as Little Buttes and subsequently named Bower's Hill (which today is known as Standard Hill). This soon led to the discovery of the Exposed Treasure Mine on the same hill. Later that year gold was found on Soledad Mountain which led to the development of the following productive mines: Queen Esther, Karma, Elephant, Echo, and Grey Eagle.

The high cost of shipping ores led to the building of the first mill near Soledad Mountain in 1901, at the Exposed Treasure Mine. This mill consisted of 20 stamps and a cyanide plant. Construction of other mills followed rapidly, including the Echo in 1902 with 10 stamps, later increased to 20 stamps; the Queen Esther in 1903, with 75 ton per day of dry crushing capacity that was increased to 150 ton per day in the following year; and the Karma in 1904, with 20 stamps. Of these historical workings the Exposed Treasure, located north of the current property boundary, was the largest with production of 105,000 ounces of gold (calculated from the reported dollar value). The Queen Esther was second, with production equivalent to 62,000 ounces of gold, and Karma was third with production equivalent to 37,000 ounces of gold. By 1914 the ore for these mills was exhausted and the mills were closed.

In September 1933, George Holmes discovered a piece of float that led to the discovery of the Silver Queen vein on Soledad Mountain. The property was sold in January 1935 to a syndicate (Golden Queen Mining Co.) headed by Gold Fields American Development Co. ("GFA"), a subsidiary of Consolidated Gold Fields of South Africa. The syndicate included several of the larger American mining groups (Julihn and Horton, 1937). GFA conducted extensive exploration resulting in a large increase in ore reserves by October 1935, and went into production. During the exploration period, the Golden Queen vein was discovered.

GFA constructed a conventional 300 tons-per-day mill that began operating in October 1935. California Journal of Mines and Geology reports in 1938 and 1940 indicate that the mill was expanded to 400 tons per day by 1937 and again to 500 tons per day by 1939. The mill reportedly achieved 90 percent recovery through vat leaching of -200 mesh material. GFA mined portions of the Silver Queen, Golden Queen, Soledad, Queen Esther, and Karma veins, and received custom ore from other properties on Soledad Mountain and Standard Hill.

Records are incomplete, but by 1942, when GFA's operations were shut down by order of the War Production Board, it is estimated that total production at Soledad Mountain since initial discovery was approximately 1,355,000 tons of ore mined, yielding approximately 367,000 ounces of gold and 8,521,400 ounces of silver (Perez, 1978, citing a 1976 confidential report from Rosario Exploration Co.). The estimate given by Perez indicates an average grade of 0.271 ounces of gold per ton and 6.3 ounces of silver per ton. Using the information supplied by Perez, the GFA portion of this production can be estimated at approximately 1,000,000 tons. Mr. Gustin does not know if the average grades stated above are based on recovered metal or refer to the average head grades processed.

The operations of GFA from 1935 to 1942 included significant underground core drilling and underground channel sampling for exploration, development and ore control. During this time a total of 61 underground diamond-core holes were drilled, for a total of approximately 16,200 ft of drilling. The current resource database also contains 4,414 channel samples from crosscuts taken by GFA and 5,810 drift samples. The channel samples varied from 0.1 ft to 38 ft in length with a median length of 5 ft, while the drift samples had lengths of 0.4 to 15 ft with a median length of 35 ft. Inspections of channel sites on the 200 level by Mineral Resources Development Inc. ("MRDI") indicate the samples were neatly cut horizontally to a width of 6 in by either 1 in or 2 in depths, mainly to lengths of about 5 ft (Parker et al., 2000). No description of the exact channel sample procedures has been found, but MRDI inferred the samples were cut by hand chisels. GFA's underground assay maps were plotted on linen and include numerous channel samples from drifts and crosscuts.

Production did not resume after the war due to increased costs of mining while the gold price remained at historical levels of $35.00 per ounce. GFA returned the property to the previous owners and Golden Queen Mining Co. was dissolved in 1953. During this period, an area south and west of the Golden Queen Vein was explored and a large vein was discovered on the Starlight claim. The Lodestar Mining Co obtained control of this area. The Soledad Extension Vein, west of the Starlight was discovered, developed, and production was shipped to GFA's mill. During the 1950s, small-scale mining was carried out at Soledad Mountain by independent lessees and limited to about 8,000 tons of ore.

As stated by M3 Engineering (1998) "*Previous underground mining has removed high grade shoots within portions of vein systems, leaving lower grade material in the hanging wall, and foot walls along strike and down dip. It is estimated that less than one third of the old mine workings had* *production, while the remaining two thirds of the openings represent exploration and development....*"

Substantial investigation of the Project area did not resume until the mid-1970s when Rosario Exploration Company conducted surface drilling and underground sampling of crosscuts. Rosario collected a total of 265 underground channel samples, representing 2,150 linear feet. Eight RC drill holes were drilled by Rosario in 1977. Surface and underground geologic mapping and alteration studies were carried out by Perez (1978), followed by broader surface mapping by McCusker (1982).

Initial appraisal of old underground assay maps impressed GQMC management with the horizontal and vertical extent of the deposit, and the significant precious metal values extending into the footwall and hanging wall of the major veins. At approximately the same time, during 1986-1987, Shell Oil's Billiton division drilled 25 RC holes at Soledad Mountain for a total of 6,365 ft.

During 1988 and 1989, CoCa Mines Inc. carried out 3,260 ft of RC drilling in a total of 20 holes in the northwestern portion of the deposit.

Work completed by GQMC is summarized in subsequent sections of this report.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

A general, but still relevant description of the geologic setting and mineralization of the Soledad Mountain gold-silver deposit was presented by Diblee (1963), with more detailed geology provided by Perez (1978), McCusker (1982), and a later summary by Bruff (1998, July). Subsequent reports by M3 Engineering (1998), MRDI (2000), and Ennis and Hertel (2012) used text taken from McCusker (1982) and Bruff (1998, July). The following sections are modified from the above reports, and other sources as cited.

7.1 Geologic Setting

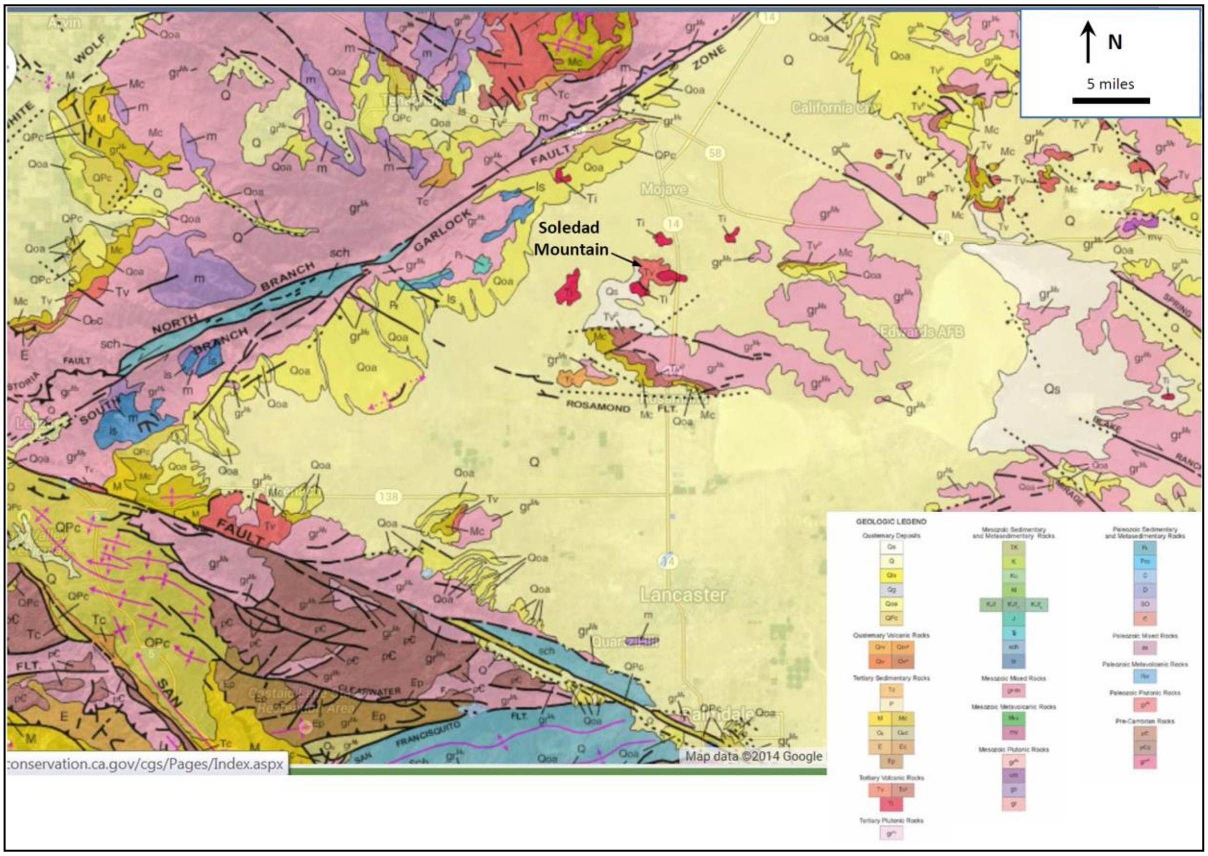
7.1.1 Regional Geology

Soledad Mountain is an erosional remnant of an early Miocene rhyolitic volcanic center situated within the western part of the Mojave structural block, a triangular-shaped area bounded to the west by the northwest-trending, right-lateral San Andreas Fault, and to the north by the northeast-trending, left-lateral Garlock Fault (Figure 7-1). Cretaceous quartz monzonite plutons of the Sierra Nevada batholith and roof pendants of meta-sedimentary and meta-volcanic rocks comprise a crystalline basement throughout the western part of the Mojave block. In this area, Tertiary age sedimentary and volcanic sequences, as well as Quaternary age sedimentary units, unconformably overlie the Cretaceous crystalline basement (Diblee, 1963). The Tertiary sedimentary and volcanic rocks were assigned to the Tropico Formation and further subdivided by Diblee (1963) to include the Gem Hill Formation, a sequence of calc-alkaline, largely rhyolitic flows, domes, tuffs and intercalated volcanic- and lacustrine sedimentary rocks exposed at Soledad Mountain and elsewhere in the region. According to Diblee (1963) the Gem Hill Formation dips generally to the south at low angles at Soledad Mountain.

Rocks of the Gem Hill Formation are now recognized to include separate, moderate-volume silicic volcanic centers exposed at Soledad Mountain, Willow Springs and Middle Buttes (e.g., McCusker, 1982, see below). GQMC geologists infer that these volcanic centers developed at the intersections of northeast and northwest-trending fracture systems; at Soledad Mountain this volcanism has been radiometrically dated at about 21.5 to 16.9 million years ago ("Ma") (McCusker, 1982).

Figure 7-1 Geology of the Soledad Mountain Region, Western Mojave Structural Block

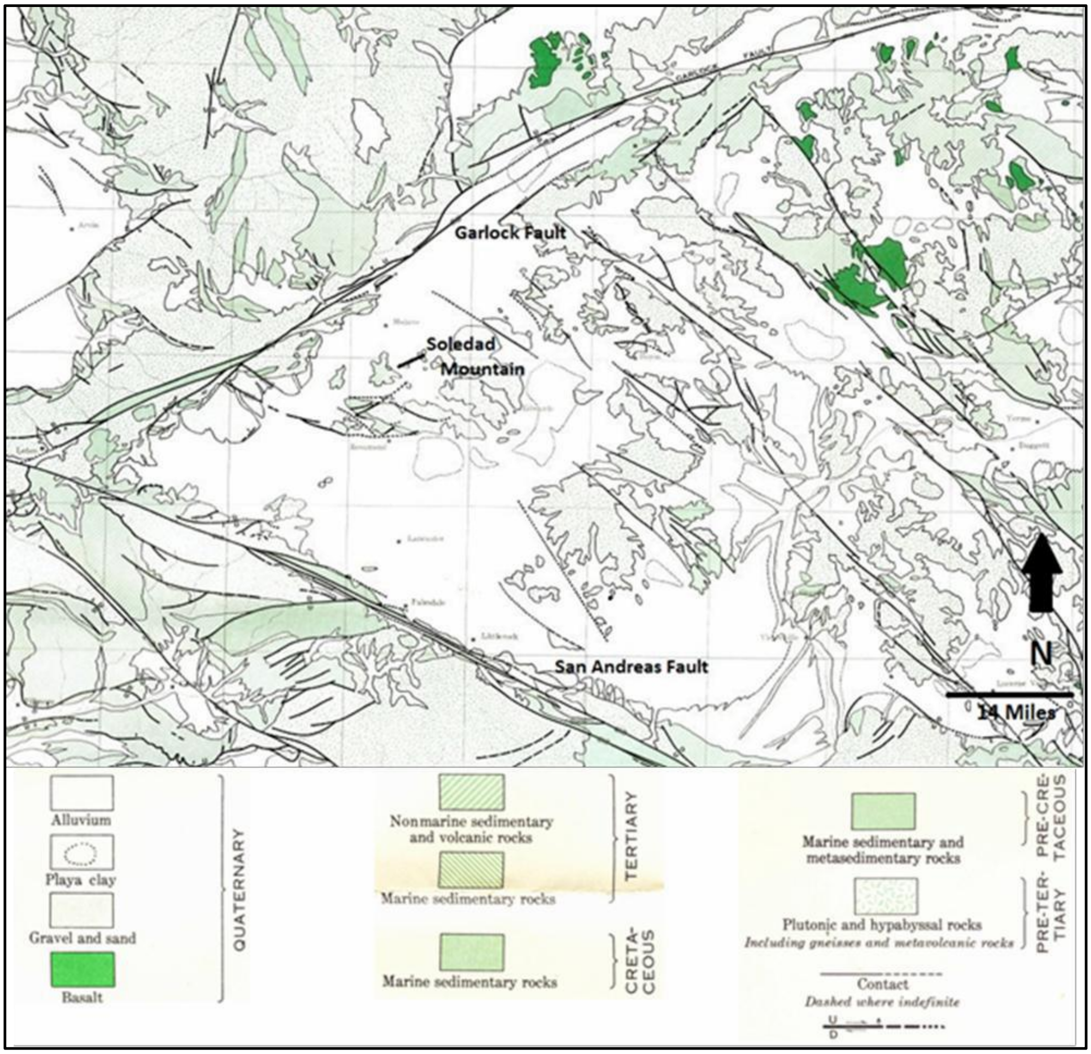
(from California Geological Survey (2010))



The Mojave block is broken into an orthogonal pattern of N50°E to N65°E and N40°W to N50°W faults and fracture systems (Figure 7-2). Although some of the faults may have originated during late Mesozoic through Oligocene regional compression, many geologists consider the faults and fracture systems to be largely due to wrench-style transpression and local extensional tectonics that took place between the San Andreas and Garlock faults during the Neogene and Quaternary Periods.

Figure 7-2 Regional Late Cenozoic Structural Setting of the Mojave Block

(modified from Diblee (1963)



7.1.2 Local Geology

As noted by McCusker (1982), Soledad Mountain was first described as an eroded remnant of a rhyolite flow-dome and volcanic center by Williams (1932). McCusker (1982) mapped Soledad Mountain in detail as part of a masters' thesis research project and defined the major stratigraphic and structural features of the volcanic complex present there. GQMC has modified McCusker's nomenclature. Volcanic rocks at Soledad Mountain comprise individual and coalesced intrusive-extrusive domes, flows and near-vent pyroclastic deposits. This volcanic center overlies Cretaceous quartz monzonite and granodiorite, such as at the adjacent Standard Hill mine. McCusker obtained K-Ar ages of 21.5 ± 0.8 Ma to 16.9 ± 0.7 Ma from the lowermost and uppermost volcanic units, demonstrating that volcanism took place over as much as six million years during early Miocene time.

The lowermost Tertiary volcanic unit penetrated in drilling is an early Miocene, flow-banded quartz latite (low-silica rhyolite) lava flow that strikes northwest and dips at low angles to the northeast, and it probably correlates with the informally named "lower quartz latite" of McCusker (1982). This unit is distinctly rich in phenocrysts (25-35%), including embayed quartz as large as 1.5 cm (McCusker, 1982).

Overlying the quartz latite is a sequence of coarse vent-proximal volcanic debris, breccias and lithic tuffs informally termed the "middle pyroclastic unit" by McCusker (1982) and referred to as the "lower pyroclastics" by Clarke (2006).

Flow-banded rhyolites with very sparse, small phenocrysts intrude and overly the "middle pyroclastic" unit of McCusker. The flow-banded rhyolites were termed the "aphyric rhyolite" unit by McCusker (1982) and the "AFBR" unit by Bruff (1998, July), and they appear to have flowed out along a northwest-trending, high-angle vent generally coinciding with the center of the deposit, and then north-eastward away from the vent.

Coarse-grained pyroclastic breccias occur locally overlying the flow-banded rhyolites along the axis of the inferred vents. GQMC geologists interpret these rocks as laterally discontinuous zones of vent eruption- and collapse-breccias that formed after the main pulse of flow-banded rhyolite extrusion. McCusker (1982) defined a sequence of near-vent breccias and pyroclastic deposits overlying the aphyric rhyolite unit, that he termed the "upper pyroclastic" unit. The content of flow-banded rhyolite fragments was observed to decrease upward, with increasing quantity of cognate fragments and becoming finer upward as well. McCusker (1982) interpreted this unit as the near-vent pyroclastic apron, or cone, formed by eruptions precursor to the intrusion and eruption of the succeeding unit of porphyritic rhyolite (see below).

The youngest volcanic unit at Soledad Mountain was originally mapped as the felsite phase of the Bobtail Quartz Latite member of the Gem Hill Formation (Diblee, 1963). It was later carefully mapped and well-described as flow-banded porphyritic rhyolite that forms a "*series of partly eroded lava domes and their co-extensive flows, masses of autobrecciated rubble, and dikes*" (McCusker, 1982). At the surface the rock varies from devitrified in large part, to much smaller volumes of vitrophere and perlite. GQMC geologists refer to this unit as massive, "quartz-eye rhyolite porphyry". This is not consistent with the petrography of McCusker (1982), and distinctive, granophyric groundmass textures corresponding to the term "porphyry" are absent in this and all other units at Soledad Mountain. Because the term "porphyry" signifies felsic igneous rocks emplaced and crystallized at subvolcanic depths of 1-2 km or more below the surface, and the rhyolites at Soledad Mountain were demonstrably emplaced immediately below and at the paleosurface, it is recommended that the name "rhyolite porphyry" is discontinued and porphyritic rhyolite is used in its place.

The late porphyritic rhyolite unit outcrops over most of the southwest portion of the property and has been intersected in drilling in other areas of the Project as well. This unit forms the core of the volcanic complex, intruding and displacing previous volcanic units south of the deposit center. Emplacement of the late porphyritic rhyolite may have been controlled by a northwest-directed fault that now may coincide with the Soledad and Soledad Extension structures.

Within the deposit area GQMC has classified the volcanic lithologies into five mappable units as shown in Figure 7-3 and Figure 7-4: Quartz Latite: present over most of the northeast portion of the deposit and in the subsurface of the center of the deposit; Pyroclastics: present in the subsurface of the north-central portion of the deposit beneath flow-banded rhyolite ("Middle Pyroclastics" in GQMC drilling data); Flow-banded Rhyolite: present at the surface in the north-central portion of the deposit and, as an intrusive, extending deep into the center of the deposit; Pyroclastics: near-vent breccias and pyroclastic deposits overlying the flow-banded rhyolite unit ("Upper Pyroclastics" in GQMC drilling data). This unit is interpreted as pyroclastic apron(s) formed by eruptions precursor to the intrusion and eruption of the succeeding unit of porphyritic rhyolite (described next); and Rhyolite Porphyry (porphyritic rhyolite): present as a massive body extending from the surface to the bottom of drilling over most of the southwest portion of the deposit, as well as in numerous other locations in the deposit area, often related to the mineralized structural zones.

Figure 7-3 Highly Generalized Surface Geology of Soledad Mountain

(from GQMC, 2000)

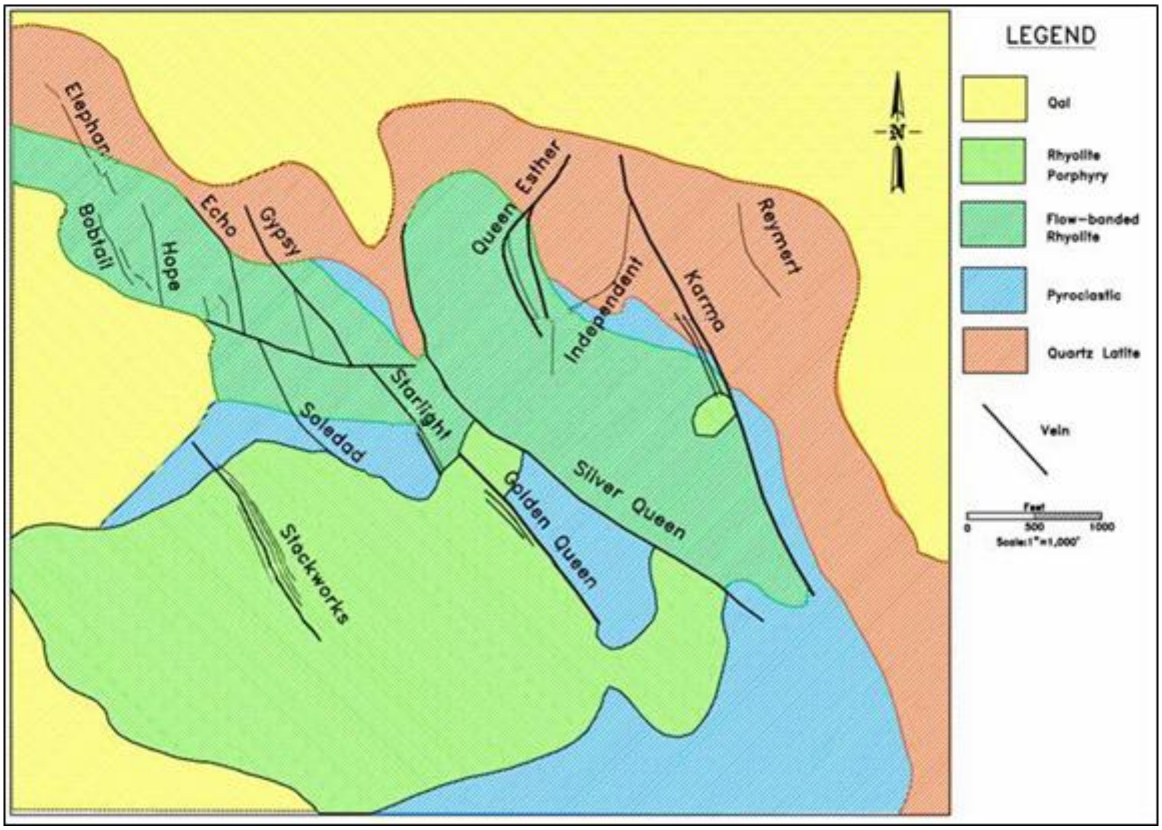
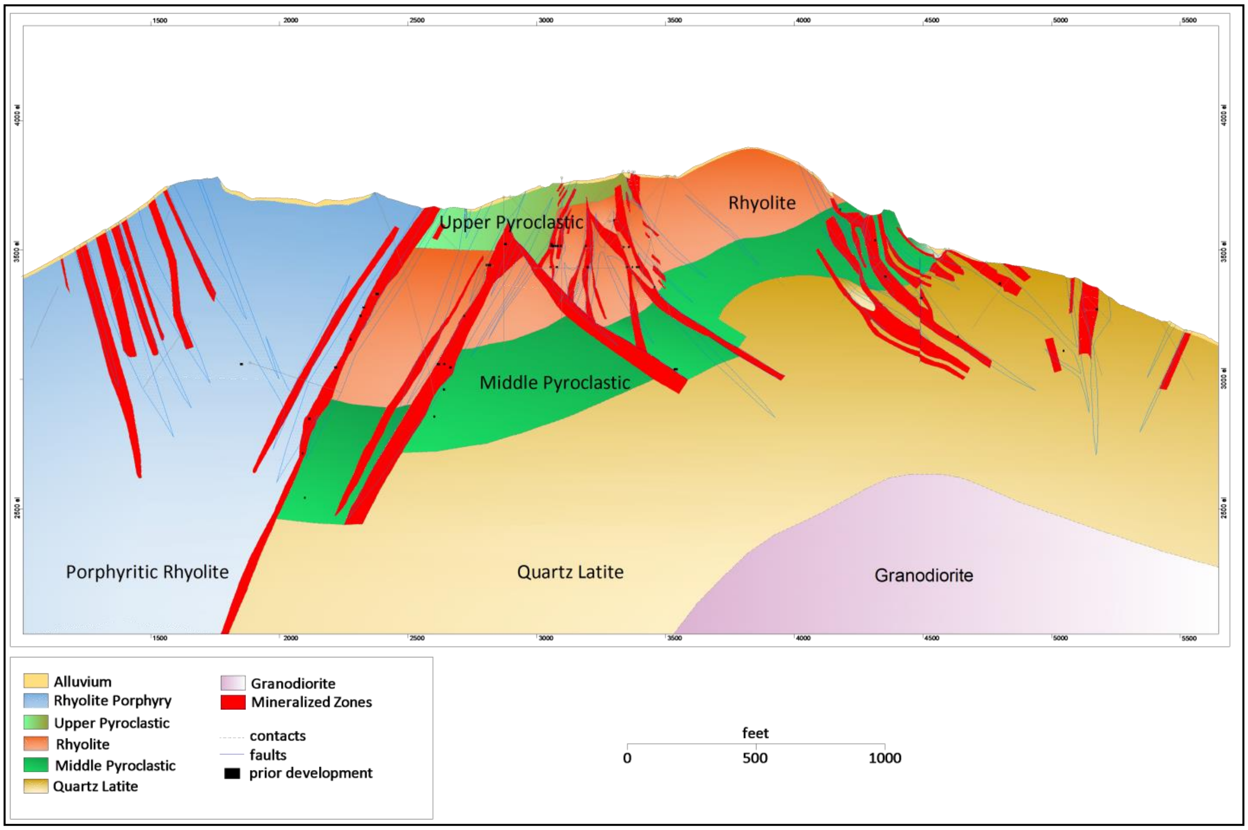


Figure 7-4 Geology Cross-section 2800, Looking North

(from GQMC, 2014)



Note: see Figure 10-1 for location of cross section

On the south flank of Soledad Mountain, south of the deposit, McCusker (1982) mapped a thin sequence of tuffaceous siltstone, volcanic sandstone and fresh-water limestone overlain by basaltic andesite lava containing quartz xenocrysts. These units were inferred to lie stratigraphically above nearby exposures of the middle pyroclastic sequence, and beneath the upper, porphyritic rhyolite (McCusker, 1982).

7.2 Mineralization

A comprehensive summary of the precious metal mineralization at Soledad Mountain and the surrounding Mojave mining district is provided by Diblee (1963), in part based on descriptions from Gardner (1954). Gold and silver mineralization occurs in a swarm of mainly northwest-striking, subparallel to anastomosing, low-sulfidation, epithermal quartz veins that formed in faults and fractures within the Miocene rhyolitic volcanic units. Quite detailed descriptions of the host rocks, structural controls of the veins, and vein minerals were presented by Perez (1978). Veins occur in parallel and, locally, *en echelon* patterns over a total strike-length of 7,000 ft and a total width of 4,500 ft. The veins have been sheared and brecciated to varying degrees by post-mineral faulting. A mineralization age of 16.1 Ma is mentioned by Bruff (1998, July), but the source of this age date is not known. The following information is taken from Bruff (1998, July), MRDI (2000), Ennis and Hertel (2012), and sources therein.

More than 20 gold-silver veins and related vein splits occur at Soledad Mountain (Figure 7-5). Veins generally strike N40°W and dip at moderate to high angles to the northeast and to the southwest Figure 7-6).

Figure 7-5 Plan Map of Gold Domains Along Mineralized Structures at 3485 ft Elevation

(RESPEC modeled domains 2014– see Section 14.6)

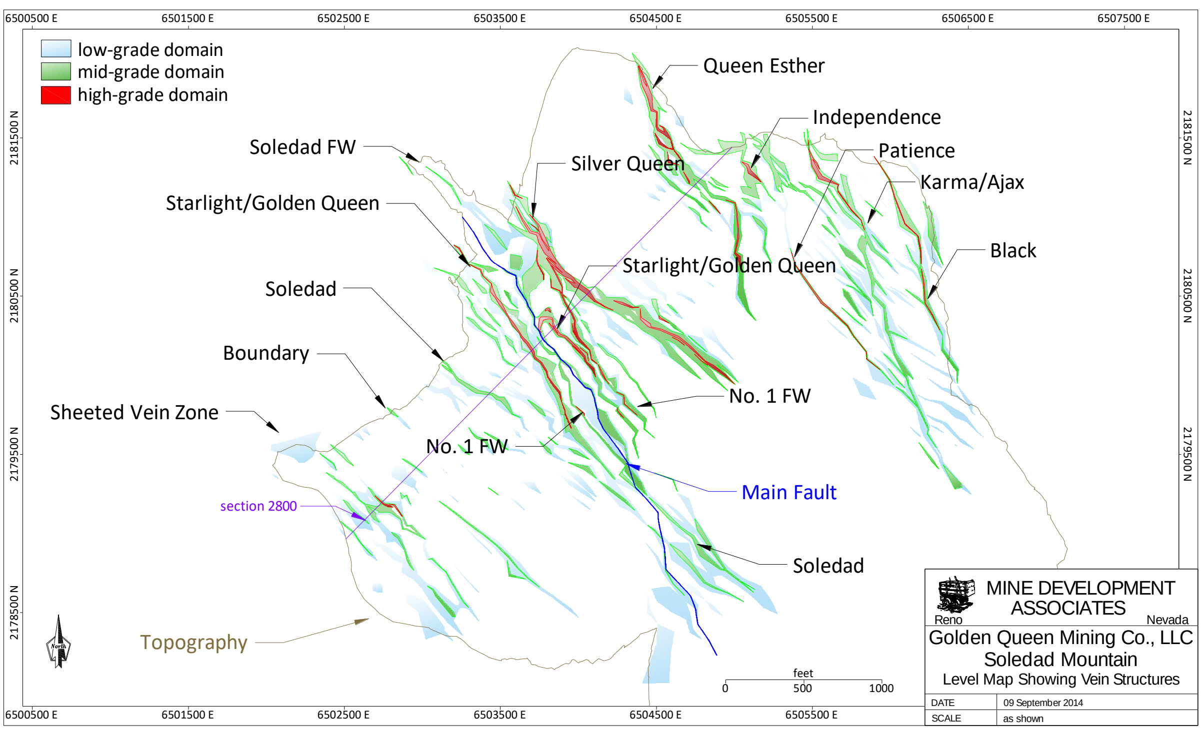
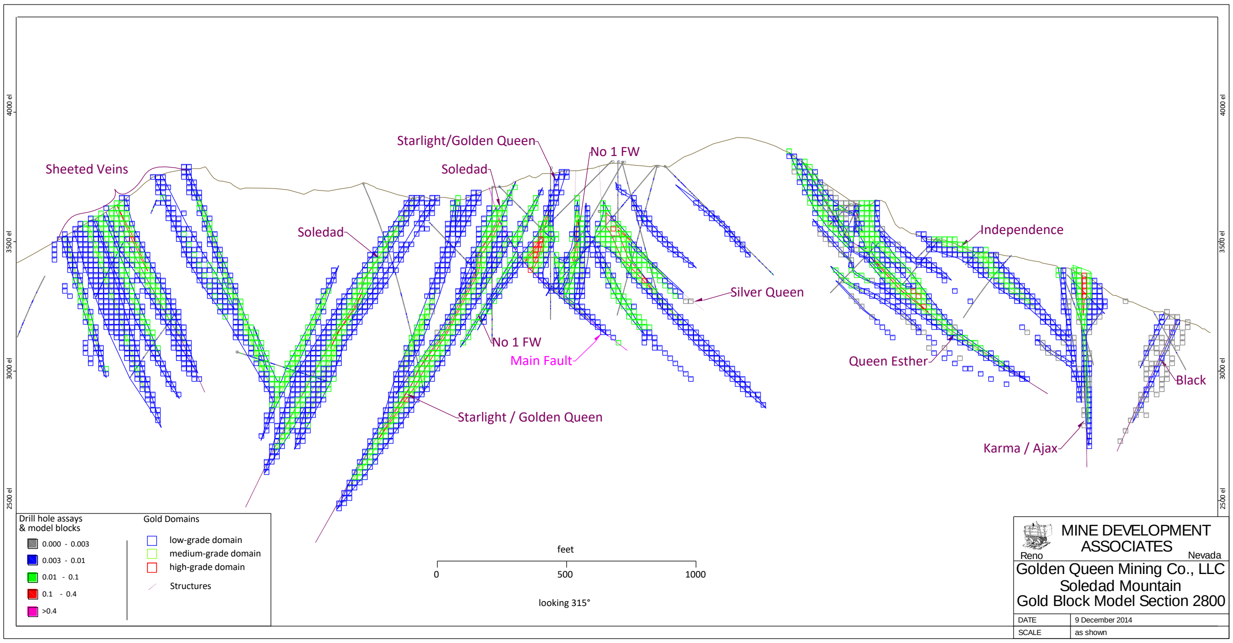


Figure 7-6 Cross-Section 2800, Pre-GQMC Mining, Looking Northwest

(RESPEC modeled Au data, 2014)



Note: see Figure 10-1 for location of cross section

Mineralization consists of fine-grained pyrite, covellite, chalcocite, tetrahedrite, acanthite, native silver, pyrargyrite, polybasite, native gold, and electrum within discrete quartz veins, veinlets, veinlet stockworks and irregular zones of silicification. Gangue minerals include quartz, potassium feldspar (adularia), ferruginous kaolinitic clay, sericite, hematite, magnetite, goethite, and limonite. As stated by Bruff (1998, July) "*At least five generations of quartz veining have been identified in hand-specimens within the major fissure-fill veins*." Calcite has also been reported by Diblee (1963) and in GQMC logging, as well as calcite replacement textures in quartz. Rhythmically banded veins are quite likely to show alternating layers of quartz and adularia (Bruff, 1998, July).

The veins formed by intense alteration of volcanic rocks and by deposition of quartz and sericite-rich material in fault and fracture zones. The alteration and veins are generally low in sulfur, with total sulfide content generally being 1% or less. Vein "zones" consist of one or more central veins surrounded by either a stockwork or parallel zones of sheeted, narrow quartz veins. The effect is to have a core vein of 1 ft to 20 ft in width (with gold grades being generally greater than 0.1 oz/ton), surrounded by lower grade mineralization in the adjacent quartz-vein stockwork and sheeted vein zones. The widths of the stockwork and sheeted vein zones vary from 5 ft to 150 ft. The boundary between mineralized and non-mineralized material must be determined by assay.

Native gold and electrum are generally associated with siliceous gangue and occur as particles with diameters ranging from less than 10 µm to as much as 150 µm or more. Electrum contains about 25% silver. Gold grades greater than 0.1 oz/ton appear to occur where veins exhibit multiple generations of quartz, adularia and sericite. Sheeted veins and stockwork veinlets decrease in grade laterally outward from the core veins. Silver to gold ratios vary from 1:1 in shallow portions of veins in the south half of the deposit to greater than 35:1 at deeper levels (600 Level) in the north half of the deposit. Silver to gold ratios increase generally with depth, averaging about 10:1 at the surface of the Golden Queen vein, to about 35:1 at the 600 Level in the same vein. There is also a general horizontal zonation, from relatively silver-rich in the northeastern vein systems (*e.g.*, Queen Esther – Independence), to gold-rich structures in the southwest (*e.g.*, the Sheeted Vein system). The district silver-to-gold ratio average ranges from 15:1 to 18:1.

Alteration within mineralized zones consists of fracture-controlled and disseminated fine-grained silica, adularia, sericite, and minor pyrite. Intense quartz-feldspar-sericite alteration reportedly occurs in zones from about 10 ft to over 150 ft wide. Volcanic rocks are weakly silicified and argillically altered between and adjacent to zones of strong silicification. Weakly silicified and argillically altered rocks grade laterally into weakly to strongly propyllitized ± illitized volcanic rocks. Propylitic alteration is best developed in the quartz latite flows.

Important vein systems, from the northeast to southwest, are the Black, Reymert, Karma-Ajax, Independent, Queen Esther, Silver Queen, No. 1 Footwall, Golden Queen - Starlight, Soledad, Alphason, Gypsy, Echo, Hope, Elephant, Bobtail, Excelsior, and McLaughlin. Post-mineral offset of about 300 ft on the east-dipping, apparently listric, Main Fault has displaced the Starlight vein in the footwall, from its upper continuation known as the Golden Queen vein in the hanging wall (Figure 7-6). Portions of the Soledad and No. 1 Footwall veins are also displaced by offset on the Main Fault. Veins northeast of the Golden Queen vein dip from 40° to 70° northeast. Veins southwest of the Golden Queen Vein dip about 70° southwest (Figure 7-6).

A zone of "Flat Ore" is present between the Starlight and Silver Queen Vein, in the hanging wall of the Main Fault. Flat Ore is a complex zone of veins and stockwork mineralization that is from 100 ft to 125 ft thick and nearly horizontal that at least in part consists of blocks of the mineralized zones cut by the Main Fault. Individual, parallel and en-echelon vein systems are present over a total strike length of 7,000 ft trending northwest, and a total width of 4,500 ft. Veins and vein zones are from

5 ft to 150 ft in thickness, 325 ft to 3,000 ft long, and from 300 ft to 1,000 ft in extent along dip. The horizontal distance between individual veins is from 50 ft to greater than 400 ft.

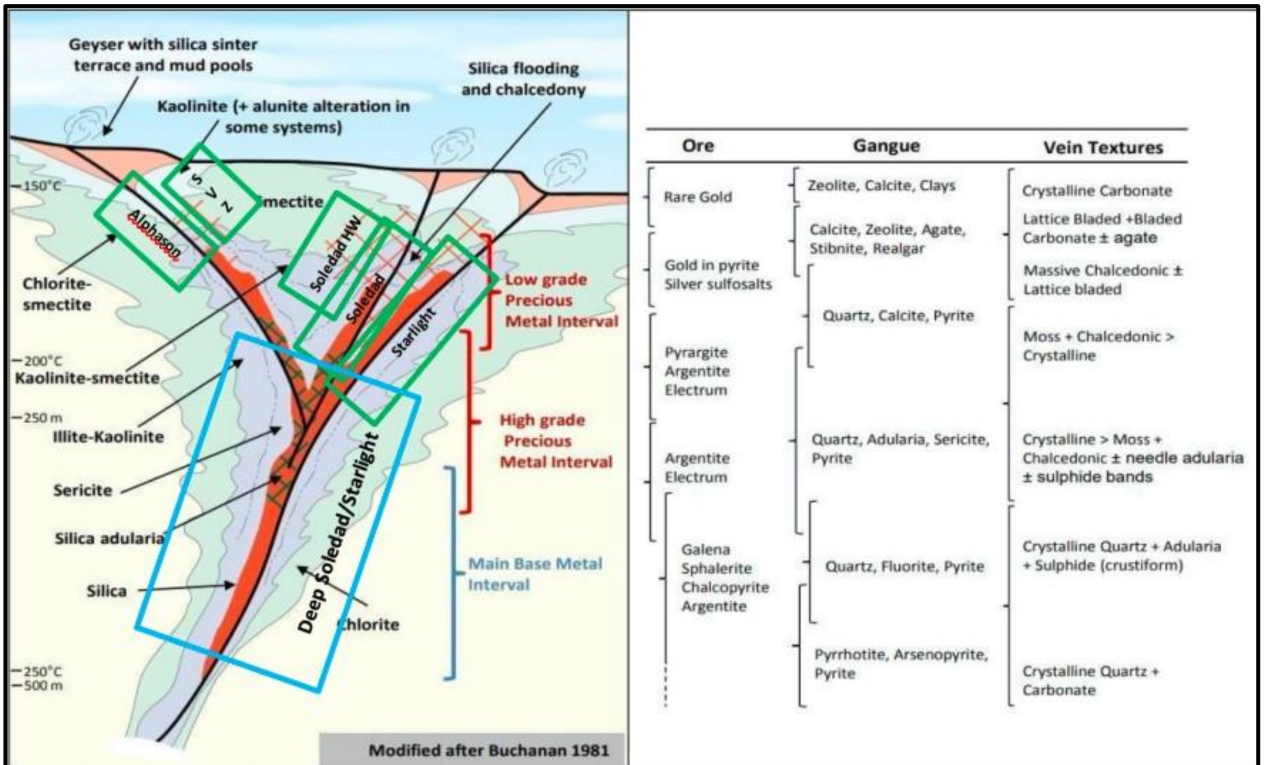
8.0 DEPOSIT TYPES

The Soledad Mountain gold-silver deposit is best interpreted as a volcanic rock-hosted, low sulfidation, epithermal vein system of the low base metal type. Individual major veins formed by episodic deposition of quartz, adularia, sericite, calcite, and sparse sulfide minerals in open faults and fractures, coeval with adjacent sheeted and quartz-vein stockwork zones and quartz ±adularia ±sericite alteration of nearby wall-rocks. Other examples of this deposit class include districts such as Oatman (Arizona), Bullfrog (Nevada), Bodie (California), and Tayoltita (Mexico). Soledad Mountain contains an unusually large number of individual veins within a relatively small area by comparison to the examples cited. Post-mineral faulting at Soledad Mountain has extensively sheared and brecciated the veins, most likely due to mid-Miocene to present-day wrench-fault tectonism between the nearby San Andreas and Garlock fault systems.

Figure 8-1 is a diagrammatic model of a typical volcanic rock-hosted, low sulfidation, epithermal precious metals deposit. The superimposed green boxes show GQMC's interpreted locations, based on current drilling data, of the vertical and lateral extents of several of the more important vein systems and target areas at Soledad within the depicted model. The superimposed blue box represents GQMC's conceptual Deep Soledad/Starlight target.

Figure 8-1 Volcanic-Hosted, Low-Sulfidation, Epithermal Precious-Metals Model with Soledad Mountain Veins and Targets

(Buchanan (1981); annotated by GQMC)



Buchanan, L.J., 1981, Precious metal deposits associated with volcanic environments in the southwest, in Dickson, W.R. and Payne, W.D., eds., Tectonics to Ore Deposits in the Southern Cordillera: Arizona Geological Relations of Society Digest, v. 14, p. 237-262.

9.0 EXPLORATION

9.1 Coordinate System

Prior to the 2000s, a coordinate system based on a local mine grid established by GFA in the 1930s was used to define the locations of mine workings, samples, drill holes, topography, and infrastructure at Soledad Mountain. The Project data were converted to California State Plane, Zone 5 coordinates using the NAD83 datum by AMEC on behalf of GQMC, possibly in the early 2000s.

9.2 1988 – 2011 Exploration Summary

Exploration conducted by GQMC began in earnest in 1988 with an initial program of 12 diamond-drill holes and underground check samples. With encouraging results, the next phase switched to RC drilling and more extensive underground check sampling that lasted through 1991. While records are inadequate to properly document the extent of its involvement, Noranda Exploration participated as a joint venture partner in this initial phase of exploration work. The Project was placed on a care and maintenance basis from 1991 to 1994 due to low funding. At that time, the Project data base contained 12 diamond drill holes, 335 RC drill holes, and 24,394 ft of underground assay data according to Clarke (2006).

In 1994, the Project was reactivated with a new exploration and development staff. From 1994 to 1997, GQMC added 15 surface diamond drill holes, 347 RC drill holes, and 14,105 ft of underground core drilling (28 holes) to the Project database. GQMC collected additional underground crosscut channel samples in 1998 according to Clarke (2006). During 1999, GQMC added approximately 32,100 ft of drilling, nearly all of it RC, as well as additional underground samples.

Exploration work was put on hold again in 2000 and did not resume until 2011. A total of 6,304 ft of RC drilling in 20 holes was completed in 2011.

9.2.1 Underground Channel Samples

GQMC performed channel sampling of underground crosscuts as part of the exploration work carried out from 1988 to 2011. Channel samples were collected in multiple campaigns from crosscuts, including areas sampled previously by GFA between 1933 and 1942. The resource database contains a total of 888 underground channel samples collected by GQMC, representing approximately 3,797 linear feet. Sample lengths vary from 0.1 ft to 22.2 ft, with a median sample length of 5 ft. It has been reported by Parker et al. (2000) that GQMC's 1997-1998 channel samples were cut horizontally to *"two to three inches wide and five feet long"* with pneumatic hammers and *"Rock chips were collected on a canvas sheet. Samples weighing about 14.5 kilograms were produced from* [GQMC] *channels"*. More specific descriptions of the procedures used, such as the depth of the channels, are not available.

Much of the GQMC channel sampling was conducted to validate the pre-war assays posted by GFA to the linen underground maps. Results from the GQMC channel samples were markedly lower in gold than nearby and/or adjacent GFA channel sample assays, although the silver results compared well. The differences in grades were the subject of considerable evaluation, assessment, and controversy (*e.g.*, M3 Engineering (1998), Parker et al. (MRDI 2000) and references therein). The comparisons were further complicated by the absence of information concerning the assay methods used by GFA, which are assumed to be fire assays. The approach taken by GQMC prior to 2015 was to reduce all of the GFA channel-sample gold assays by a set numerical factor. M3 Engineering (1998) reduced all of the GFA crosscut assays by 21%, whereas the GFA assays were adjusted according to the formula "*Adjusted value = 0.8571 x GFA - .0088"* by Ennis and Hertel (2012).

9.2.2 Geological Mapping

According to Ennis and Hertel (2012), GQMC geologists completed surface geologic mapping of Soledad Mountain between 1986 and 1991. Additional surface mapping and cross-sectional interpretations were completed in the 1990s, including significant work by Vance Thornsberry and Boies Hall (as cited by Bruff, 1998, July).

In 1997, Vance Thornsberry and Boies Hall constructed detailed geologic cross sections based on their surface and underground mapping. Bruff (1998, July) used these geologic interpretations to complete cross-sectional modeling of the gold and silver mineralization, as well as historical underground stoping, in support of an informal, polygonal-based resource estimation.

9.2.3 Trenching

Ennis and Hertel (2012), quoting the AMEC 2012 report of estimated resources, stated, "*Several legacy trenches were noted on the southern extension of the Golden Queen vein. Channel samples indicate that anomalous gold mineralization is present."*

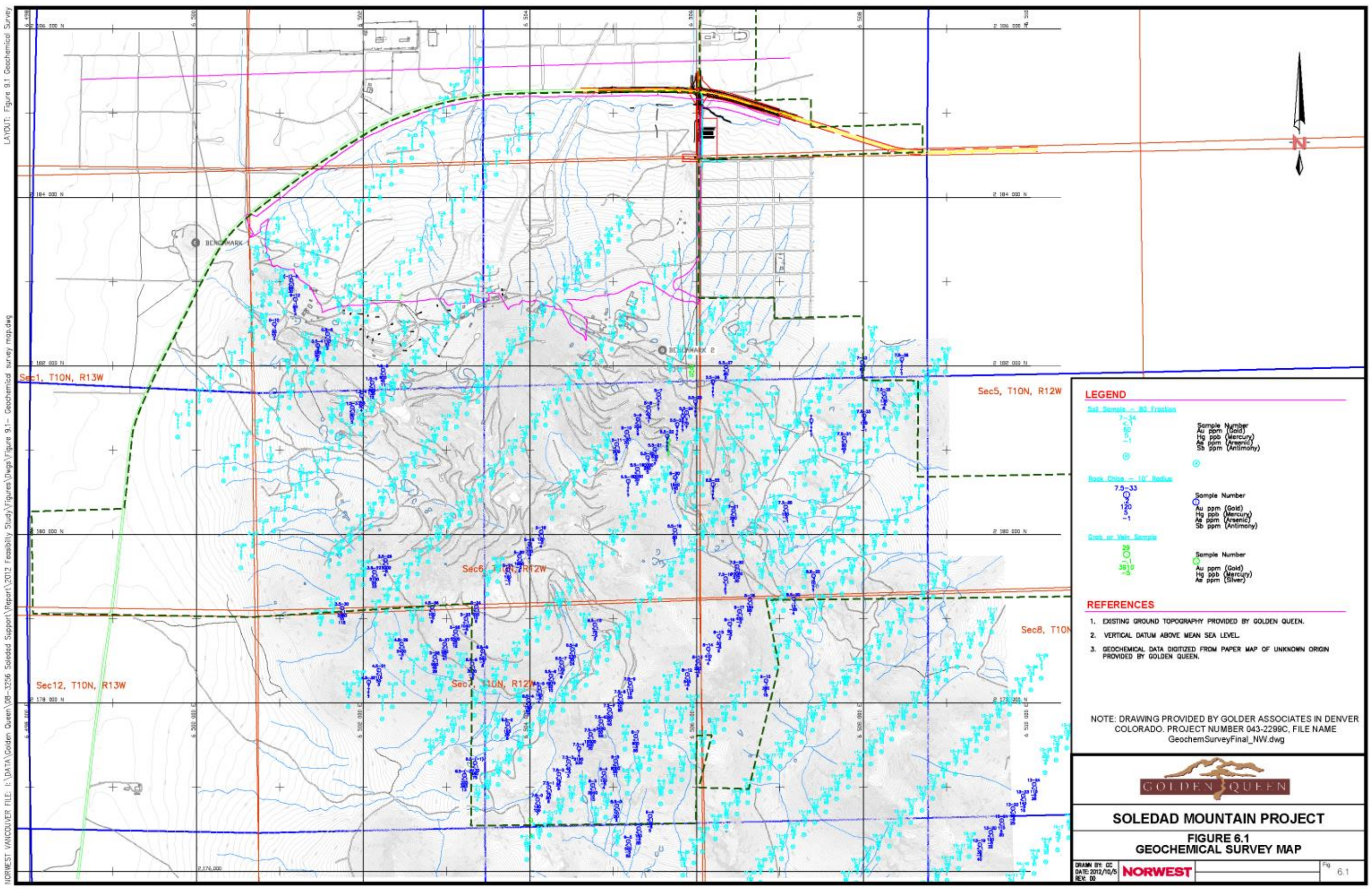
9.2.4 Geochemical Surveys

According to Ennis and Hertel (2012), quoting the AMEC 2012 report of estimated resources, "*Geochemical surveys were completed on the property over a number of years in the 1990s.* [GQMC] *found a map in the records but could not locate the supporting information. Golder Associates Inc., Lakewood created a Geochemical Survey Map from the historical map to provide a more permanent record (Project No. 043-2299C). The Geochemical* Survey Map is shown in Figure 9-1. The information is available in the Nor*west offices in Vancouver."*

The geochemical survey map referenced above (Figure 9-1) shows that a minimum of 438 soil and 101 rock-chip samples were collected and analyzed. No information is available regarding the procedures used to collect, process, or assay these samples. Analyses for gold, mercury, arsenic, and antimony were obtained for the soil and most of the rock-chip samples, and gold, mercury, and arsenic were determined for a small number of the rock-chip samples. Additional elements may have been determined, but no records of the assays other than the map shown in Figure 9-1 are available.

Figure 9-1 Surface Geochemical Sample Map of Soledad Mountain from Ennis and Hertel (2012)

(from Ennis and Hertel, 2012)



Kappes, Cassiday & Associates

9.2.5 Petrologic Studies

In 1989, Russell Honea examined polished sections from metallurgical test samples in order to enhance GQMC's understanding of the mineralization. A suite of 11 additional metallurgical samples were examined by Pittsburgh Mineral and Environmental Technology, Inc., to determine gold and silver mineralogy and liberation characteristics.

9.3 2015 - Present Exploration Summary

From 2015 to the present, substantial RC and diamond core infill and exploration drilling was completed at Soledad Mountain, as well as some conventional rotary. The purpose of this drilling was to gain further information to support resource estimation ahead of mining and to explore for additional precious-metals mineralization outside of the resource base. A total of 70,483 ft of RC drilling in 148 holes, 56,630.6 ft of diamond core drilling in 100 holes, and 1,402 ft of conventional rotary drilling in 22 holes was completed in this timeframe. Further details of all drilling programs undertaken at Soledad Mountain are discussed in Section 10.

A major surface exploration program was initiated and completed in 2019, with subsequent minor programs completed in 2020-2022. These programs were concentrated on the undeveloped western, southern, and eastern flanks of the Soledad Mountain Volcanic Complex and consisted largely of lithological, structural, alteration, and mineralization mapping and surface rock-chip sampling. A total of 313 surface rock-chip samples were collected from these programs and were analyzed for gold, silver, and a 53-element geochemical suite (Figure 9-2 and Figure 9-3 represent gold and silver results from this work, respectively).

Figure 9-2 2019-2022 Surface Rock Chip Geochemistry - Gold

(from Klemmick (2020); map updated in 2022)

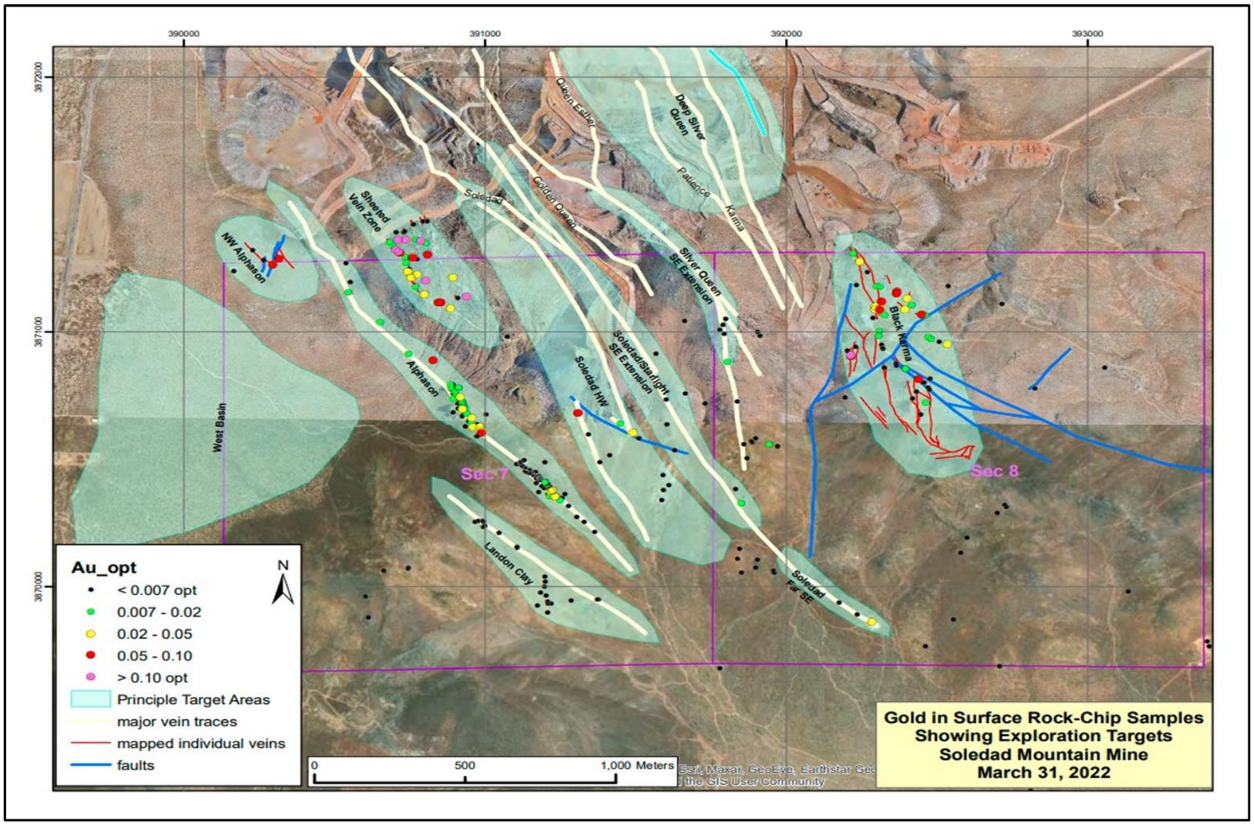
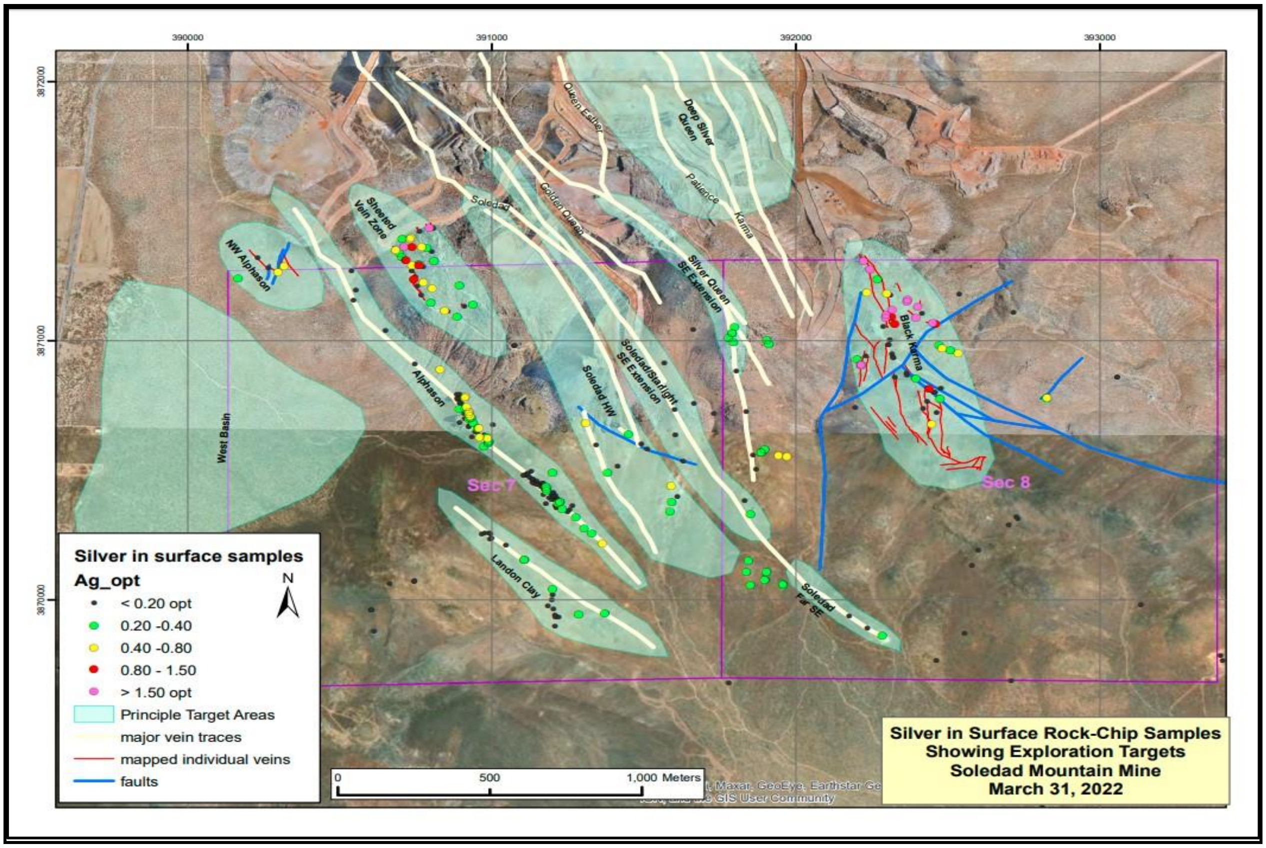


Figure 9-3 2019-2022 Surface Rock Chip Geochemistry - Silver
(from Klemmick (2020); map updated in 2022)



GQMC compilation and interpretive reports by Klemmick in 2020 through 2023 summarize the exploration work completed and results. At least 12 targets were delineated by GQMC's exploration work. Some of these targets outcrop and were of immediate interest, such as the Sheeted Vein zone and Alphason, while others do not outcrop and are more conceptual in nature, such as the Deep Soledad/Starlight vein system and West Basin.

The current status of each of the exploration targets identified by GQMC is summarized in Table 9-1. Figure 8-1 shows GQMC's interpretations of the known locations of some of the Soledad Mountain vein systems and target areas within the geologic model depicted.

Table 9-1 Current Status of Active Exploration Targets

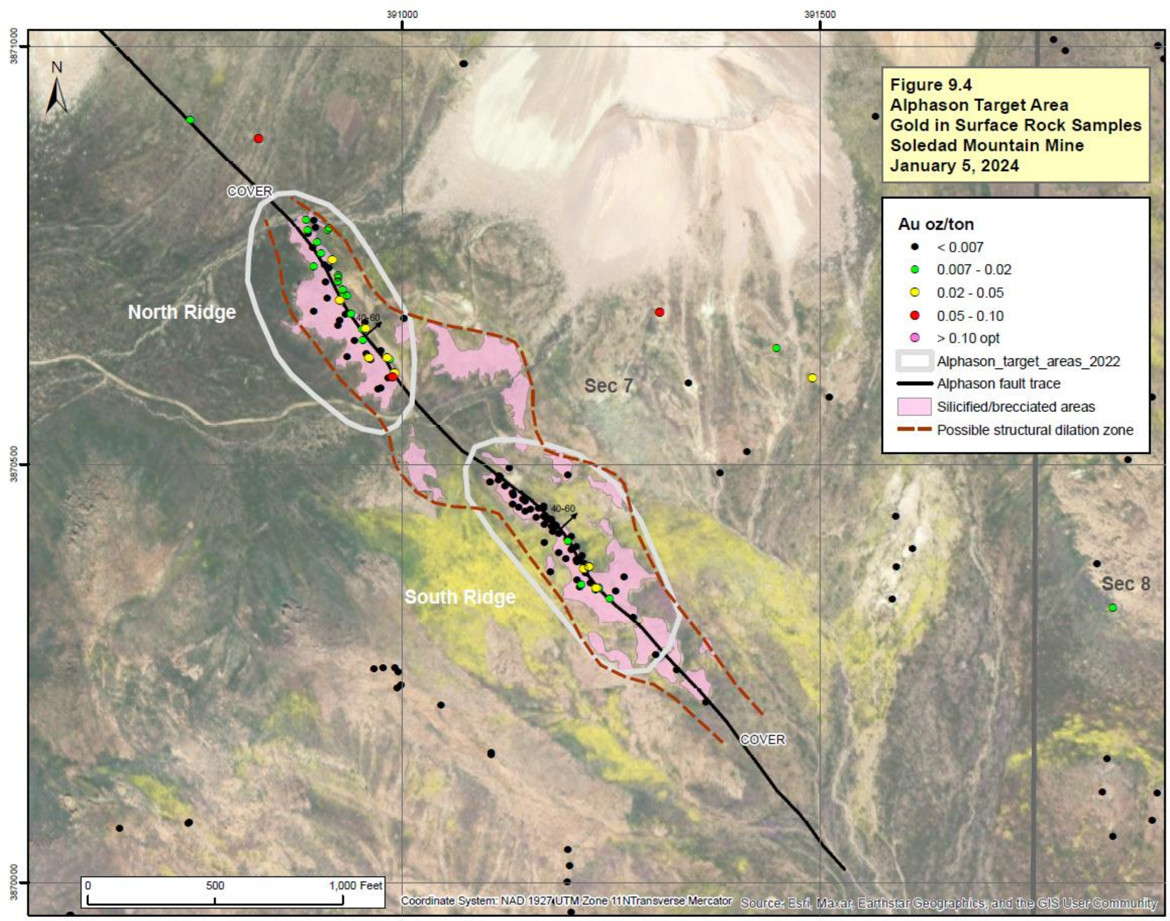
(refer to Figure 9-2 and Figure 9-3 for surface location of targets)

Target Name	Status Comments
Sheeted Vein Zone	Surface sampling and mapping 2019-2021; core and rotary drilling in 2020-2021; new resources defined in 2022 from drilling
Alphason	Surface sampling and mapping 2019-2021; core drilling in 2022 (3 holes); highly mineralized intercepts encountered in all 3 holes; needs continued drilling to develop resources further
Silver Queen SE extension	Core drilling in 2021; new resources defined in 2022 from drilling; needs continued drilling to develop resources further
Soledad/Starlight vein system SE extension	Core drilling in 2019; mineralized intercepts encountered; needs follow-up drilling to develop resources
Deep Silver Queen	RC drilling in 2018; mineralized intercepts encountered; needs follow-up drilling to develop resources; probable down-dip extension of Main Fault; target largely covered currently by East Pit backfill
Black Karma	Surface sampling and mapping in 2019; RC drilling in 2019; mineralized intercepts encountered; needs follow-up drilling to develop resources
Deep Soledad/Starlight vein system	Conceptual target (not shown on map, underneath existing mine infrastructure); exploring for possible high-grade feeder zones; no recent work
NW Alphason	Surface sampling and mapping in 2019; needs more follow-up surface exploration to further define targets; partially covered by mine dump; no recent work
Soledad HW (hanging wall) vein system	Surface sampling and mapping in 2019; needs more follow-up surface exploration to further define targets; no recent work
Soledad Far SE	Surface sampling and mapping in 2019; needs more follow-up surface exploration to further define targets; no recent work
West Basin	Conceptual/buried target; needs more follow-up surface exploration to further define targets; no recent work
Landon Clay	Surface sampling and mapping in 2019; needs more follow-up surface exploration to further define targets; no recent work

The most recent exploration work at Soledad Mountain was completed at the Alphason target in 2022. The work consisted of drilling three HQ-diameter diamond drill holes totaling 463.6m (1521 ft.). This work is compiled and described in detail in a separate report (Klemmick, 2023). The three holes intercepted significant gold mineralization: hole AL22-01 cut 22.31m (73.2 ft.) grading 0.343g/T (0.010 oz/ton); hole AL22-02 cut 35.51m (116.5 ft.) grading 0.789g/T (0.023 oz/ton); and hole AL22-03 cut 15.21m (49.9 ft.) grading 0.617g/T (0.018 oz/ton). Individual silver sample results within these gold-mineralized zones appear to be modest, generally in the 1.4g/T to 20.6g/T (0.04 oz/ton to 0.60 oz/ton) range. Previous to these holes, no known drilling occurred at Alphason since 1990, when Noranda drilled five shallow RC holes as part of an exploration/development venture with Golden Queen Mining. The five shallow RC holes encountered rather thin, erratic and low-grade gold intercepts in four of the five holes. The focus of the 2022 drilling was mainly to test deeper and down-dip extensions of the surface mineralization, but also to test the Alphason structure at other locations along strike. The 2022 drill results do suggest that mineralization appears to be getting thicker, more coherent and of higher grade down-dip as compared to the results of the shallow RC holes and from surface exposures.

Alphason was prospected, geologically mapped, and rock-chip sampled at various times between 2019 to 2021. This work focused on a surface gold-enriched area roughly 600m (2000 ft.) in length and split into two zones, termed the North and South Ridges. Figure 9-4 depicts this area and the work completed. However, the Alphason structure is open-ended and can be traced on surface for at least 1675 m (5500 ft.), although portions are covered by talus, alluvium and waste rock dumps.

Figure 9-4 Alphason Surface Rock-Chip Sampling Results (Gold) and Geologic Mapping



The best gold results from surface rock-chip sampling, and almost all of the drilling, is contained within the North Ridge zone at Alphason (Figure 9-4 and Figure 9-5). While the South Ridge zone is also very prospective, it is located just outside of the current mine permit boundary. Future drilling here will have to be permitted through the Bureau of Land Management (BLM). The North Ridge zone, however, is entirely within the current mine permit boundary.

Figure 9-5 Surface Drill Hole Location Map, Alphason Target

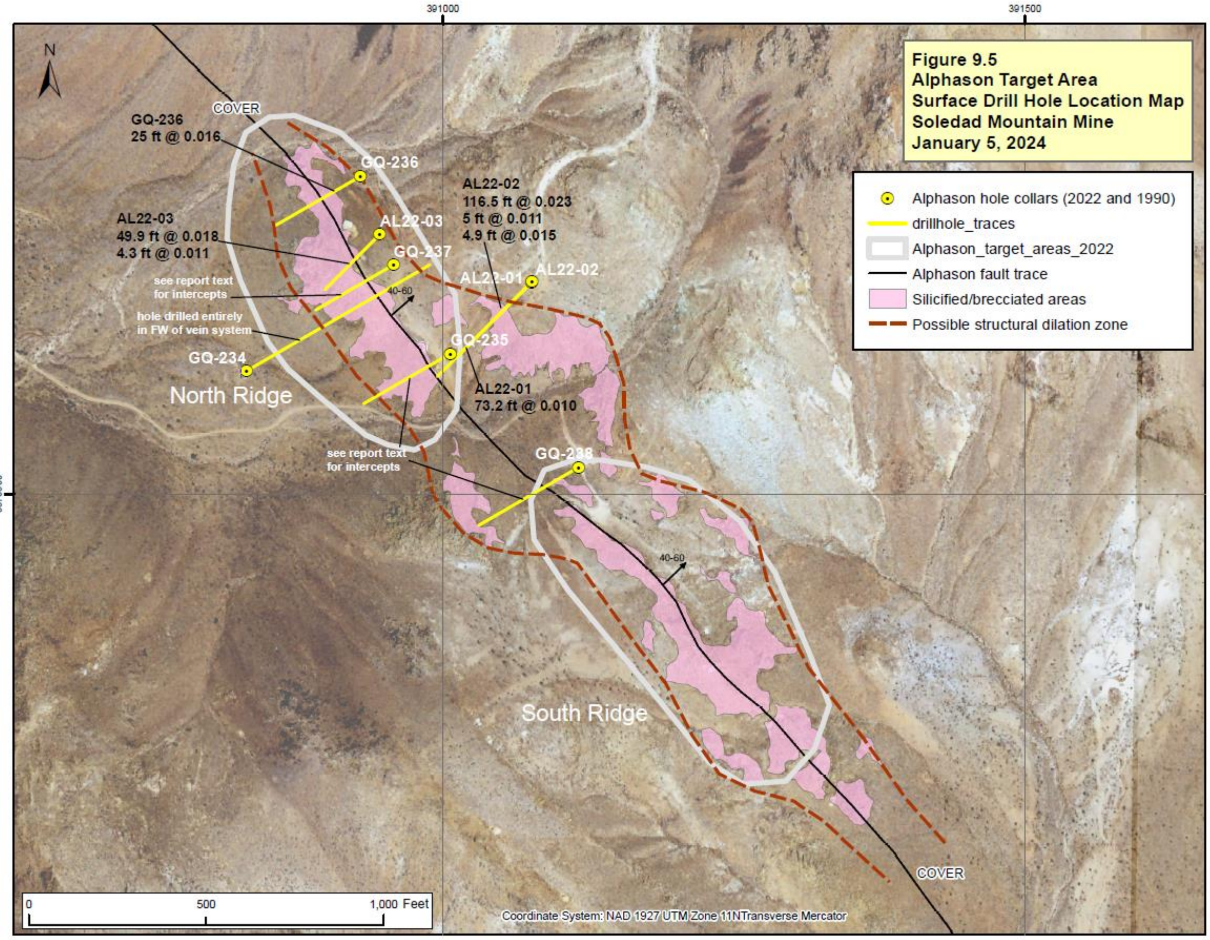
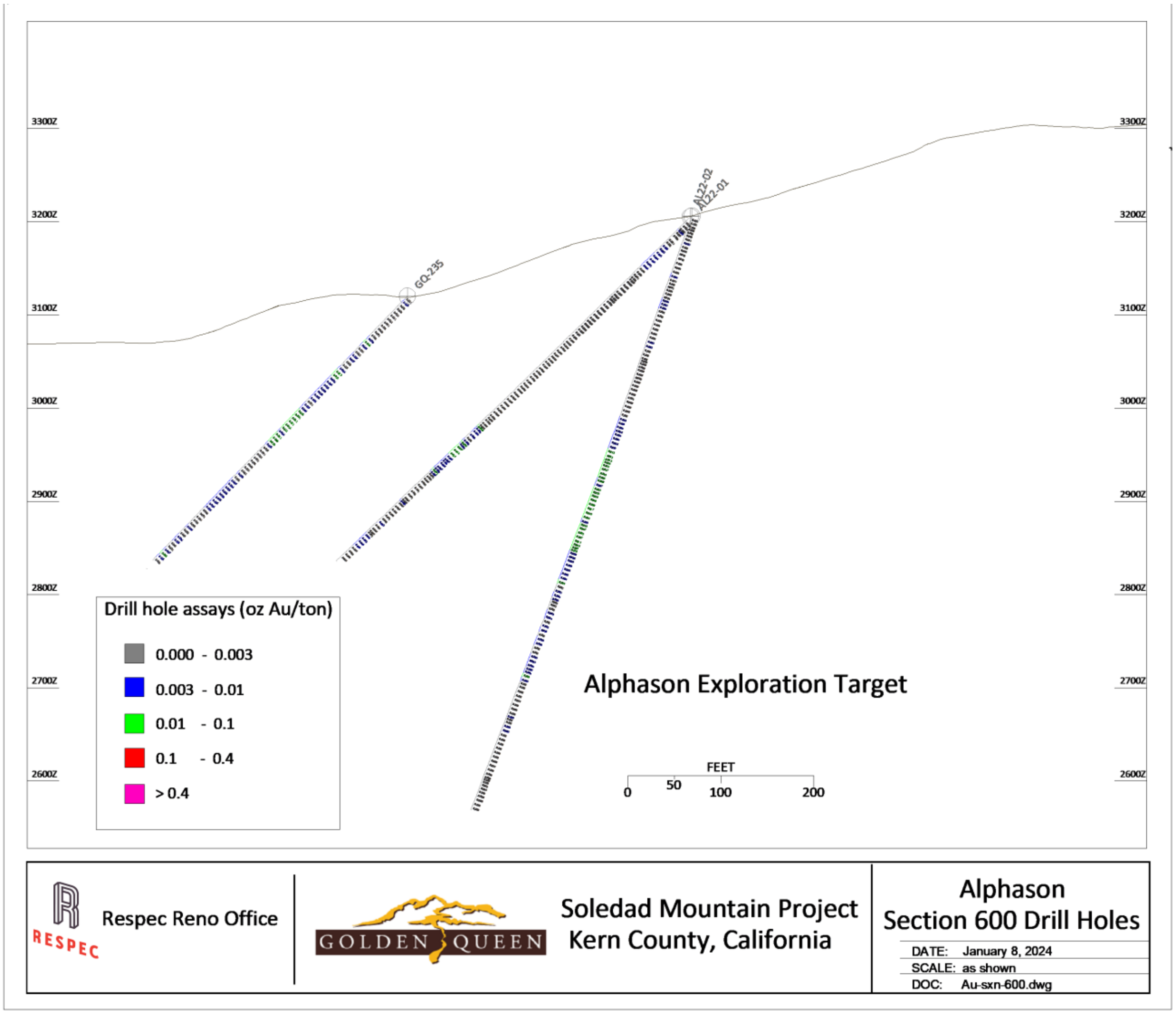


Figure **9-6** is a cross-section through the North Ridge zone at Alphason. The cross-section graphically depicts 2022 diamond core holes AL22-01 and AL22-02, and also historic RC hole GQ-235 **(**Figure 9-5). The cross-section shows the relatively shallow dip of mineralization at this location and also shows the apparent increase in gold grade and thickening of the mineralized package down-dip.

Figure 9-6 Assay Cross-Section, North Ridge Zone, Alphason Target



Mineralization at Alphason is typified by quartz veins (up to several feet in diameter), quartz veinlets, and quartz-stockwork/microveinlets hosted within and adjacent to the Alphason fault/structural zone. This structural zone typically is composed of strongly silicified fault breccias, which range from about 15m (50 ft.) to locally greater than 60m (200 ft.) in true thickness. Alphason generally strikes N30°W to N50°W and dips shallowly 40° to 60° to the northeast. At the North and South Ridge zones, dips are typically closer to 40° to the northeast. The country rock hosting Alphason is generally porphyritic rhyolite flows and intrusive domes. Alteration envelopes adjacent to the strongly silicified zones are typically dominated by argillic (kaolinite-illite) and phyllic (sericite-pyrite) alteration mineral assemblages, which is a common pattern throughout the Soledad Mountain vein systems. However, in holes AL22-01 and AL22-02, an additional and different style of mineralization was observed. Strong quartz-stockwork veining and gold mineralization is associated at, and adjacent to, the contact with a dark gray, slightly porphyritic, mafic intrusion or plug, which may be andesitic in composition. If this is the case, this mineralization setting would represent the first documentation of precious metals mineralization associated with mafic volcanics at Soledad Mountain, and may represent a new mineralization style and exploration target.

There was no exploration program executed at Soledad Mountain in 2023.

9.3.1 Geologic Interpretation and Re-Logging by GQMC

Both GQMC and RESPEC determined that the Bruff (1998, July) mineralized envelopes discussed above provided a well-founded base from which to understand the numerous mineralized structures that act as the critical controls of the gold and silver mineralization at Soledad Mountain. However, no comprehensive sets of cross sections with interpreted alteration and mineralization existed in the pre-2014 Project files. This, in combination with the fact that the only geologic data available in digital form in the Project database were lithologic rock codes, led GQMC in 2014 to carry out an extensive program of transcribing the existing geologic data on paper drill logs into digital format and logging of core and RC chips from holes for which no geologic logs were available. This work in turn led the GQMC geologic team to realize that some of the existing drill logs were inconsistent and lacking sufficient detail. GQMC therefore initiated an extensive program of re-logging core and RC chips in 2014, during which 785 holes were re-logged, and an additional 71 holes for which geological information was lacking in the early-2014 database were logged and added to the database. Only 13 of the post-GFA drill holes were not re-logged, due to lack of chips or drill core, and these holes have lithologic codes only in the current resource database, which were derived from the 2012 AMEC database. The 26 GFA underground core holes in the database lack geologic data.

Since 2015, GQMC geologists have standardized logging procedures and have taken care to preserve and save all drilling-related and geochemical data in a consistent, digital format with hard copy backups.

9.3.2 Petrologic Studies

In 2020 and 2021, 15 select samples of drill core from the Silver Queen vein system and the Sheeted Vein zone were submitted to DCM Science Laboratory, Inc. of Wheat Ridge, Colorado for thin section preparation and petrographic analysis (Schott, R., 2020 and Schott, R., 2021). The samples were generally selected either adjacent to or nearby to the vein systems to better understand alteration mineral assemblages.

Results from this thin-section work demonstrate that host-rock silicification is prominent directly adjacent to mineralized quartz veins, and it generally extends up to tens of feet outward from the veins; although silicification has been locally noted at distances in excess of 100 feet from veins at Soledad Mountain. The silicification is comprised of fine-grained quartz (silica flooding), and it is accompanied by minor fine-grained adularia. Variable amounts of kaolinite, illite, and sericite can be intermixed with the silicification. Outward from the silicified zones, clay-rich alteration of host rocks becomes dominant. The clay mineralogy is kaolinite and/or illite with lesser amounts of smectite and sericite; these clays are commonly intermixed. Sericitization of the rock groundmass and feldspar/feldspathoid minerals is particularly common at the Sheeted Vein zone. Alunite has also been identified locally. Distal portions of the hydrothermal system at Soledad Mountain show variable amounts of propylitic alteration (chlorite, epidote, and calcite).

10.0 DRILLING

10.1 Summary

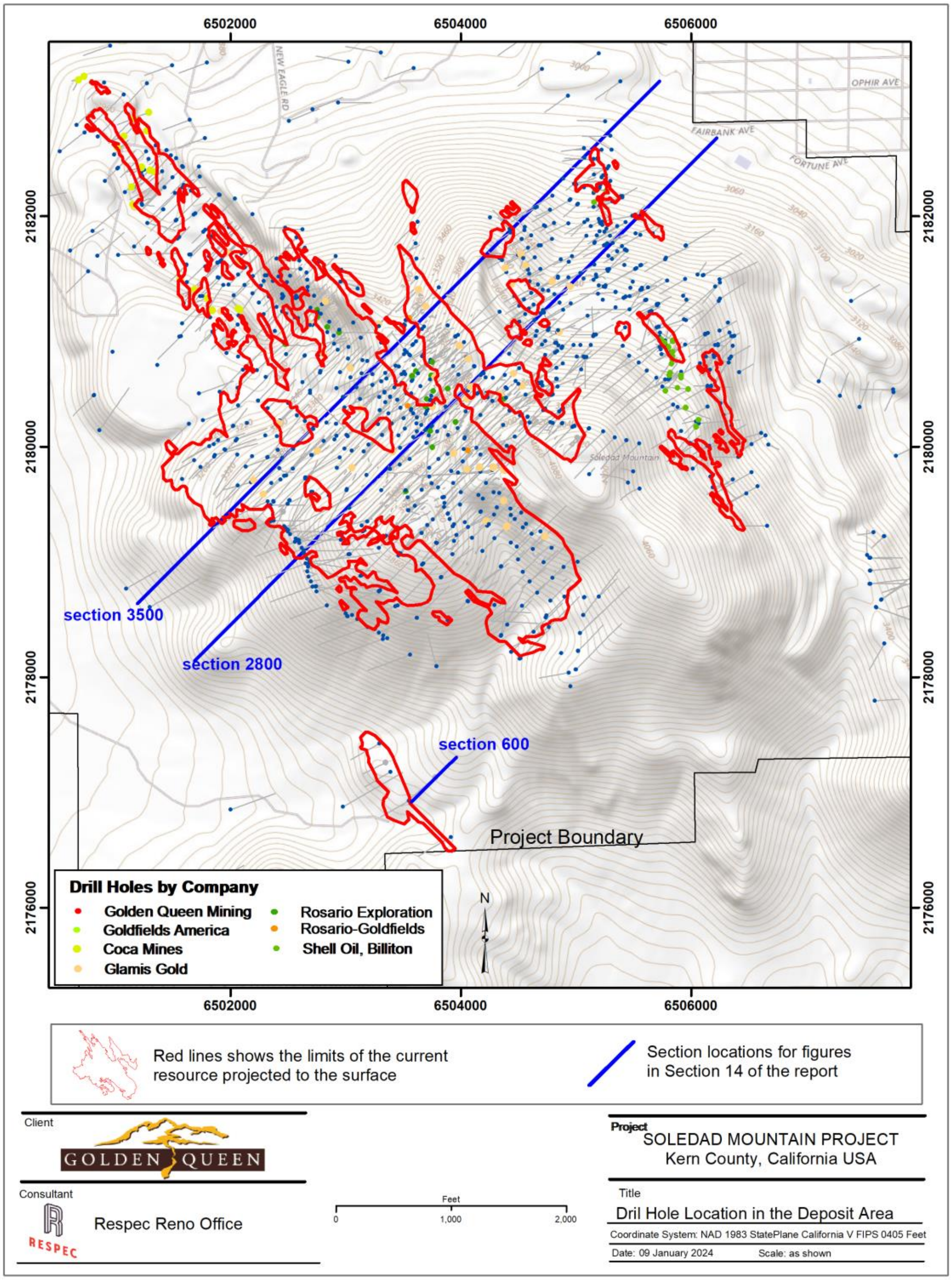
A total of 1,165 drill holes totaling 480,100.9 feet have been drilled by at least ten different drilling contractors at Soledad Mountain from 1935 through 2022 (Table 10-1; Figure 10-1).

Table 10-1. Summary of the Drill-Hole Portion of Resource Database

Year	Company/Operator	Number of Holes	Type	Footage
1930's	Goldfields America	61	UG core	16,193.0
1977	Rosario Exploration	8	RC	2,308.0
1986-1987	Shell Oil - Billiton	25	RC	6,365.0
1988-1989	CoCa Mines	20	RC	3,260.0
1994-1995	Glamis Gold	50	RC	21,115.0
	Subtotal	**164**		**49,241.0**
1988-1991	Golden Queen Mining Co.	12	Core	7,117.5
		282	RC	96,197.0
1994-1997	Golden Queen Mining Co.	15	Core	9,741.7
		28	UG Core	14,105.6
		297	RC	136,770.0
1999	Golden Queen Mining Co.	3	Core	1,373.5
		74	RC	30,735.0
2011	Golden Queen Mining Co.	20	RC	6,304.0
2015	Golden Queen Mining Co.	31	RC	14,515.0
2016	Golden Queen Mining Co.	14	Core	3,487.5
		66	RC	22,668.0
2018	Golden Queen Mining Co.	21	RC	19,520.0
2019	Golden Queen Mining Co.	12	Core	9,491.6
		30	RC	13,780.0
2020-2022	Golden Queen Mining Co.	22	R	1,402.0
		74	Core	43,651.5
	GQMC Subtotal	**1,001**		**430,859.9**
	Grand Total	**1,165**		**480,100.9**

Note: UG = underground; RC = reverse-circulation rotary; R = conventional rotary

Figure 10-1 Drill Hole Map for the Soledad Mountain Project Area



The majority of footage (373,537 ft) drilled from 1977 through 2022 was by surface RC methods. Prior to 1977, drilling was done by GFA using diamond-core methods from underground drill stations (16,193 ft). Additional underground core drilling was performed by GQMC in 1997 that totaled 14,105.6 ft. Surface diamond-core drilling by GQMC totaled 74,863.3 ft from 1988 through 2022. Minor exploratory drilling (1,402 ft) was also completed with a GQMC-owned blast hole drill (open-hole conventional rotary) in 2020. Details of the various company drill programs, drilling procedures and methods are presented in the following subsections.

10.2 Gold Fields America (1935 – 1942)

GFA's underground core drilling was primarily for development of the Silver Queen, Golden Queen, Starlight, and Soledad veins, with lesser amounts of drilling on the Queen Esther vein. Very little information is available on GFA's underground diamond-core drilling methods. Bruff (1998, July) reported that GFA's underground core drilling utilized EX (7/8 inch) and AX (1 3/16 inch) diameter core sizes. Core recovery was low, "*usually less than 50% and sometimes less than 15% in mineralized zones*" according to Bruff (1998, July). Records of how core samples were selected and prepared for assay have not been found, nor has any information relating to the assay methods and procedures used by GFA. No core is available from this period, and no down-hole directional surveys for these holes are available. Drill-hole logs were recorded in field books and other written documents from this period and are available for some of the GFA underground drilling.

The resource database constructed by Mr. Gustin contains 61 underground core holes drilled by GFA, for a total of 16,193 ft. This database includes lithology data captured from the GFA pre-war documents. The GFA underground core assays were not used in the estimation of the current resources due to the poor core recoveries.

10.3 Rosario Exploration (1977)

The current database contains data from eight RC holes drilled by Rosario Exploration in 1977. The Rosario drilling targeted the northern parts of the Silver Queen and Golden Queen veins. Thomassen (1983) reported that the holes were drilled with a Becker rig using 4 ¼ inch tricone bits (4 1/8 inch in hard zones) that recovered 40 lb to 60 lb for each 5 ft interval. Descriptions of sampling methods are not available. In 2014, GQMC entered data from the geologic logs of the Rosario holes into the Project database, as no RC cuttings are available for re-logging.

10.4 Shell Oil – Billiton (1986 - 1987)

Twenty-five RC holes were drilled at Soledad Mountain in 1986-1987 by Billiton, a division of Royal Dutch Shell at the time ("Shell-Billiton"). This drilling was directed at the Karma-Ajax vein in the eastern part of the deposit. Descriptions of drilling and sampling methods are not available. Information on sample weights and sample recoveries is not available. In 2014, GQMC geologists entered the data from Billiton logs into the Project database.

10.5 CoCa Mines (1988 - 1989)

During 1988 and 1989, CoCa Mines completed 20 RC holes at Soledad Mountain. The primary targets appear to have been the Excelsior, Bobtail, Hope, and McLaughlin veins in the northwestern part of the deposit. Descriptions of drilling and sampling methods and information on sample weights and sample recoveries are not available. GQMC geologists re-logged preserved RC cuttings available from all but six of the CoCa Mines holes in 2014; the Project database contains log data for the remaining six holes derived from the AMEC 2012 database.

10.6 Glamis Gold (1994 - 1995)

Glamis Gold evaluated the Soledad Mountain Project as a potential acquisition in the mid-1990s. As part of their evaluation, Glamis drilled one RC hole in 1994 and 49 RC holes in 1995. The Glamis drilling was widely distributed to test portions of the Queen Esther, Silver Queen, Golden Queen, Starlight, and Soledad veins. Information on sample weights and sample recoveries, and descriptions of drilling and sampling methods are not available. Glamis geologists recorded geologic logs for all of the holes. Data from 49 of the original paper logs was captured by AMEC in support of the 2012 NI 43-101 Technical Report of Ennis and Hertel (2012). Archived RC cuttings for all of the Glamis RC holes are available and were re-logged by GQMC geologists in 2014. Glamis also drilled four large-diameter core holes for the purposes of metallurgical testing; no assay data are available and these holes are not included in the resource database.

10.7 GQMC (1988 - Present)

The most extensive and widely distributed drilling was done by GQMC from 1988 through 2011. In the late 1980s and through the 1990s, GQMC's drilling was directed at the central corridor of the Starlight, Golden Queen, Soledad, Number 1 Footwall, Silver Queen, Queen Esther, and Excelsior veins. The Black, Karma-Ajax, and Patience veins in the northeastern part of the deposit were also drilled, and a number of holes unsuccessfully attempted to identify a northern extension of the Karma-Ajax vein, although some of these holes intersected mineralized alluvium. Noranda Exploration is reported to have participated as a joint venture partner in the early GQMC drilling programs.

As stated by Ennis and Hertel (2012), *"Information given here was obtained from MRA's description contained in the M3 feasibility study of March 1998. This information was checked during MRDI's 2000 audit, where the information was available on drill logs. Twelve surface diamond drill holes were drilled from 1985 to 1991 by several contractors. Information is not available concerning drill-rigs utilized. From 1994 onwards, surface diamond drilling has been carried out by McFeron and Marcus Exploration, Inc., using a DMW-65 drill rig. All core was HQ (2.5 inch diameter). Underground core drilling was done, starting in 1994, by Boart Longyear Company using LM75 drill rigs. All core was HQ (2.5 inch diameter). Core from holes drilled by* [GQMC] *was inspected by MRDI in 2000 and SRK in 2005 at a storage warehouse on site. Core boxes are in good condition and stored in a secure, well-organized fashion on wooden shelves. Core sampling techniques were examined by MRDI for holes DDH 97-1 and DDH 97-5. The core was either split mechanically or sawed. Three quarters of the core was collected for assaying, and one quarter was retained for reference. Core logs were reviewed for all 59 holes to check core recovery through zones of mineralization. Recovery was not recorded for core holes 1-16. Only general comments regarding recovery were made for holes DDH 17-21 rather than recording actual measurements for each drill run. "100% recovery" was noted for most mineralized intervals except hole DDH 21, which experienced recoveries as low as 25% in mineralized intervals. The remainder of drill logs recorded measured recoveries for each core interval. The number of mineralized intervals with poor core recovery is relatively small for the 43 core holes for which recovery information is available. MRDI reports that recovery appears to have been adequate to meet industry standards for holes 22 and onward."*

GQMC did not drill any core holes in 2011.

Ennis and Hertel (2012) further stated *"MRDI reports that information on contractors and drill-rigs used for the first 332 RC holes drilled from 1985 to 1991 was not available. From 1994 to 1999, RC holes were drilled by Hackworth Drilling Company and P.C. Exploration Company using track-mounted MPDH 1000 drill-rigs. Drill bits ranging from 4.75 inch to 5.5 inch diameter were used. Samples reportedly were collected at the drill rig at 5 ft. intervals. According to* [GQMC] *staff,* *drilling was carried out with water injection to control dust emissions. This required use of a rotating wet splitter."*

GQMC drilled a total of 6,304 ft in 20 RC drill holes in 2011. Nine drill holes were collared in the northwestern-most portion of the deposit on the Echo vein, and the remaining 11 were drilled at the north end of the Karma-Ajax vein. This drill program was based on recommendations made by AMEC to increase the drill density in these two areas. Harris Drilling from Escondido, California did the drilling for the 2011 campaign using a Foremost Explorer 1500 Buggy-mounted drill with 4-inch diameter drill pipe and a 5½-inch diameter hammer drill bit. RC drilling was completed with water injection to control dust emissions.

GQMC drilled a total of 14,515 ft in 31 RC drill holes in 2015. The purpose of the 2015 drilling was to better understand and infill areas lacking drill density in the Northwest Pit (now termed Main Pit Phase I) prior to mining. The Elephant, Bobtail, Hope, Echo, Soledad, and Soledad Extension vein systems were targeted with this drilling. The drill contractor was Boart-Longyear of Elko, NV. The drill used was a Foremost MPD 1500 track-mounted machine that drilled 5¼-inch holes. The drilling was completed with water injection to control dust emission.

GQMC drilled 80 holes in 2016, including 14 core holes totaling 3,487.5 ft and 66 RC holes totaling 22,668 ft. The purpose of the 2016 drilling was to better understand and infill areas lacking drill density in East Pit Phase I prior to the initiation of mining. Three of the core holes utilized larger-diameter PQ core to provide material for metallurgical testing. The Queen Esther, Karma, Silver Queen, and Patience vein systems were targeted with this drilling. The drilling contractor for both the RC and core drilling was Boart Longyear. The RC drill was a Foremost MPD 1500 track-mounted machine that drilled 5¼-inch holes. The drilling was completed with water injection to control dust emission. The core drill used was a Boart Longyear LF90D truck-mounted machine, which drilled both HQ (approximately 2.5-inch diameter) and PQ (approximately 3.38-inch diameter) core.

There was no drilling at Soledad Mountain in 2017. GQMC drilled a total of 19,520 ft in 21 RC holes in 2018. The purpose of the 2018 drilling was to better understand and infill areas lacking drill density in East Pit Phase II pre-mining. The Queen Esther, Patience, Silver Queen, Deep Silver Queen, and Karma vein systems were targeted with this drilling. The drill contractor was again Boart Longyear, who used a Foremost MPD 1500 track-mounted rig that drilled 5¼-inch holes. The drilling was completed with water injection to control dust emission.

GQMC drilled 42 holes in 2019, including 12 core holes totaling 9,491.6 ft and 30 RC holes totaling 13,780 ft. The drilling was completed to test the Soledad/Starlight/Golden Queen vein system extension to the southeast beyond the mine plan at the time, and to explore the Black Karma and Sheeted Vein Zone targets. The core holes were drilled at the Soledad/Starlight/Golden Queen SE extension target, while the RC holes tested the Black Karma and Sheeted Vein Zone targets. The core drilling contractor initially selected was Idea Drilling of Virginia, MN; however, halfway through the drilling program, Timberline Drilling Inc. of Elko, NV acquired the assets of Idea Drilling, including the on-site drill. The core drill used was an Atlas Copco Christensen CS14 track-mounted machine, which drilled HQ-diameter core. The RC drilling contractor was Harris Exploration Drilling of Fallon, NV. The RC drill used was a Foremost Explorer 1500 buggy rig that drilled 5¼-inch holes. The drilling was completed with water injection to control dust emission.

A total of 67 core holes (40,981.5 ft) were drilled in 2020-2021 to: (i) better understand and infill areas lacking drill density within Main Pit Phase II pre-mining; (ii) conduct advanced exploration on the Sheeted Vein zone; and (iii) initiate drill-testing the southeast extension of the Silver Queen vein system beyond the limits of previous drilling. In addition to the Sheeted Vein and Silver Queen targets, portions of the Soledad, Golden Queen, and Starlight vein systems were drilled. Six of the holes were completed by Harris Exploration Drilling, with and the remaining drilled by Timberline Drilling Inc. Harris Exploration utilized an Atlas Copco Christensen CS14 track-mounted machine. Timberline Drilling used an Atlas Copco Christensen CS14 track-mounted machine and a Sandvik DE140 Compact track-mounted rig. The CS14 rig drilled steeply-inclined holes, while the DE140 drill completed near-horizontally inclined holes. All holes drilled by both contractors produced HQ-diameter core.

The 2020-2021 program also included the drilling of a total of 1,402 ft in 22 conventional-rotary holes in 2020 at the Sheeted Vein zone. These holes were completed with a GQMC-owned blast-hole drill (Furukawa HCR 1500-EDII machine). These holes were drilled to provide preliminary data from an area adjacent to an existing drill road that exposed intense quartz veining, as well as to test the validity of using this drill for future exploration. The drill could only complete holes to a depth of 82 ft., with an approximate hole diameter of 3 inches, and performed poorly in fractured ground. In addition, down-hole deviation surveys could not be completed on holes drilled with this rig. The results obtained from this drilling were only used for general exploration purposes and not in the current resource estimation.

GQMC drilled 7 core holes in 2022 totaling 2,670 ft. Four holes were designed to retrieve mineralized material to be used for metallurgical column leach testing (three of the holes were sited within the Silver Queen vein system and the remaining hole was sited within the Sheeted Vein Zone) and the remaining three holes were completed as exploration tests on the Alphason target. The holes designed for metallurgical test purposes were completed with PQ-diameter (approximately 3.38-inch) core, whereas the Alphason exploration core was of HQ-diameter (approximately 2.5-inch). The 2022 holes were completed by Stone Brothers Drilling Inc. of Tonopah, NV. Stone Brothers utilized a Casagrande C5 XP-2 track-mounted drill.

10.8 Collar Surveys, Down-Hole Surveys, and Project Coordinates

No information relating to down-hole surveys prior to 1985 has been found in GQMC's current datafiles. According to Ennis and Hertel (2012), down-hole surveys were not performed on the holes drilled by Rosario, Shell-Billiton, CoCa Mines, and Glamis Gold.

10.8.1 GQMC Programs 1985 - 2000

According to Ennis and Hertel (2012), quoting Clarke (2006) "*Drill-hole collar locations were surveyed relative to the historical mine grid by DeWalt Corporation, Bakersfield, California. Surveys were carried out using either a Total Station Wild TC-1610 theodolite or Trimble 4000 SSI RTK Global Positioning System. The accuracy of collar surveys for all drill holes was checked by MRDI by plotting drill-hole collar elevations on a digital topographic map (contour interval of 10 ft) and checking drill collar elevations against the topographic elevation. A total of 26 drill holes were found to have collar elevations greater than 10 ft above or below the topographic elevation. Local systematic errors, such as groups of drill holes with errors corresponding to the same direction in error relative to the topographic elevation, were found. Discrepancies in the horizontal location of collars range from 25 ft to as much as 100 ft. One group of 14 RC drill holes targeting the Queen Esther Vein had a systematic error in which drill collars were located from 20 ft to 50 ft southwest of the correct location. MRDI informed* [GQMC] *staff of the survey discrepancies and* [GQMC] *made corrections to the database while MRDI was on site.*"

Ennis and Hertel (2012) further stated *"The collar positions of GQ-88 and GQ-525 were checked in the field and were found to be reasonable relative to the portal of the 200 level. The collar for GQ-19 could not be found and most likely was destroyed by later road work."*

"RC holes GQ-1 to GQ-475 and core holes DDH-1 to DDH-16 were not surveyed. Diamond drill holes DDH-17 through DDH-42 and DDH 97-1 through DDH 97-10 were surveyed for dip and azimuth using a Baker Hughes/Inteq Magnetic Single Shot Survey Tool. RC holes GQ-475 through

GQ-632 were surveyed for dip using a MD-Totco Special Operating Unit Deviation Tool. Inclined RC holes show a downward deviation of from 1.5 to 30 per 100 ft. The lateral deviations in azimuth are unknown."

10.8.2 2011 GQMC Surveys

Collar locations for the 2011 RC holes drilled by GQMC were surveyed by Quality Surveying of Lancaster, California. GQMC hired Golder Associates Inc. ("Golder") to survey down-hole directional deviation after the 2011 holes had been drilled, rather than having the down-hole surveys performed with drill pipe still in place as each hole was completed. Golder encountered blockages in 17 of the 2011 holes and completed down-hole surveys of only three of the holes using a Mount Sopris Instruments 2DVA-1000 borehole logging probe.

10.8.3 GQMC Programs 2015 – Present

All drill-collar locations for holes drilled during this time period were surveyed by the GQMC mine surveying department using a Trimble R7 GNSS high-precision GPS system. This system also serves all the surveying needs of the mine operations department.

Downhole surveys on holes drilled in 2015 were performed by the GQMC geology crew using a Reflex EZ-GYRO north-seeking gyro tool, while those drilled in 2016 were surveyed by the drill crews using a TruShot single/multi-shot tool manufactured by Boart Longyear. In 2018, hole-deviation surveys were taken by MINEX Inc. of Virginia, MN, using a GyroMaster north-seeking gyro tool manufactured by Stockholm Precision Tools AB. Core holes drilled in 2019 were surveyed by the drilling crews using a Reflex EZ-TRAC single/multi-shot tool, while the RC deviation surveys were performed by MINEX Inc. using the above referenced GyroMaster tool. Harris Drilling crews completed downhole surveys for their holes drilled in 2020 using a TruShot single/multi-shot tool manufactured by Boart Longyear. Timberline and Stone Brothers Drilling crews surveyed their holes completed in 2020-2022 using a Reflex EZ-TRAC single/multi-shot tool.

Downhole spacings of the deviation survey measurements ranged from 20 to 100 ft.

10.9 Rotary and Reverse-Circulation Sample Contamination

Due to the nature of RC drilling, the possibility of contamination of drill cuttings from intervals higher in the hole is a concern, especially when groundwater is encountered, or fluids are added, during drilling. While the water table is reported to be at an elevation of 2,580 ft, and few assays used in the estimation of the current resources lie below this elevation, the drillers reportedly injected water during drilling of all post-1985 GQMC RC holes.

Down-hole contamination can often be detected by careful inspection of the RC drill results in the context of the geology, by comparison with adjacent core holes, and by examining down-hole grade patterns. Mr. Gustin used these methods to evaluate the RC drill results but found little evidence of down-hole contamination in any modeled mineralized intervals used in the resource estimation. All comments about contamination or potential contamination were compiled from the Project geologic drill logs. A total of 67 RC sample intervals from six Golden Queen and six Shell-Billiton RC holes had comments noting possible down-hole contamination; these intervals were excluded from use in estimation of the current resources.

10.10 Summary Statement

The resource database includes assay data from samples generated through surface and underground diamond drilling, surface RC drilling, and channel sampling of underground crosscuts and drifts. Sample lengths for the core drilling and underground crosscut samples were dependent on geological factors and range from less than one foot to 25 ft. RC samples were predominantly taken as 5 ft intervals. The average length of all sample intervals that contribute to composites used in the resource estimation is slightly less than 5 ft. Mr. Gustin believes the sample lengths are appropriate for the style of mineralization at the Soledad Mountain Project.

Drill-hole orientations vary throughout the Project, due primarily to the differing orientations of the mineralized structures and logistical challenges. While most holes were drilled at angles that cut the variously dipping mineralized zones at relatively high angles, some holes are poorly oriented with respect to the mineralization encountered, which leads to exaggerated lengths of the down-hole intercepts. This effect is entirely mitigated by the resource modeling techniques employed, however, which constrain all intercepts to lie within explicitly interpreted domains that appropriately reflect the geologic controls.

Data verification undertaken by Mr. Gustin has identified sample-quality issues that include RC sample intervals that were potentially contaminated, excessive sample lengths, poor recoveries, and inadequate assaying precision, as discussed in this and other Sections of this report. These suspect intervals were excluded from use in the estimation of the current resources. Mr. Gustin is not aware of any sampling or sample-recovery factors that would materially impact the accuracy and reliability of the drill-hole data, and he believes that the drill samples are of sufficient quality for the purposes used in this report.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

The current database includes assays from at least 12 different laboratories as summarized in Table 11-1; details of sample preparation and analytical methods used by the various operators are discussed in the sections below.

Table 11-1. Summary of Assay Labs and Methods for Soledad Mountain Assays

Year	Company	Sample Type	Laboratory	Gold Assay Method	Silver Assay Method	Gold LDL oz/ton
1930's	Goldfields (GFA)	core; UG core; cross cuts	mine lab(?)	fire-assay(?)	unknown	unknown
1977	Rosario	RC	unknown	fire-assay(?)	unknown	0.01
1986	Shell-Billiton	RC	GeoMonitor	cyan-leach AA ; FA	cyan-leach AA ; FA	0.001
1988-1989	CoCa Mines	RC	unknown	fire-assay(?)	unknown	0.005
1980's	GQMC	cross cuts	unknown	fire-assay(?)	unknown	0.001(?)
1988	GQMC	core	Jacobs	2AT-FA	unknown	0.001
1988	GQMC	RC	GSI	1AT-FA Grav ; 2AT-FA Grav	1AT-FA Grav ; 2AT-FA Grav	0.0025
			Skyline	FA	unknown	0.001
			MSRD	FA	FA	0.001
1989-1990	GQMC	RC; core	Bondar-Clegg	1AT-FA Grav	FA	0.002
1994-1995	Glamis Gold	RC	Barringer; American Assay	FA-Grav ; 30g FA	FA-Grav ; AA	0.001 ; 0.001
1994-1996	GQMC	RC	Barringer	FA-Grav; FA-AA	FA-Grav	0.001 ; 0.001
1997	GQMC	core; UG core; cross cuts; RC	Barringer	FA-Grav; FA-AA	AA	0.001 ; 0.001
1999	GQMC	core	Inspectorate-Rocky Mtn.	FA-Grav	FA	0.001
		RC	Inspectorate-Rocky Mtn.; Barringer	FA-Grav; FA	FA	0.001 ; 0.002
2011	GQMC	RC	ALS Chemex	30g FA-AA	AA	0.00015
2015-2021	GQMC	RC; core	Bureau Veritas	30g FA-AA; FA-Grav	AA; FA-Grav	0.0001
2021-2022	GQMC	core	Paragon Geochemical	30g FA-AA; FA-Grav	AA; FA-Grav	0.0001
FA-Grav = fire-assay with gravimetric finish			AA = atomic absorption			
FA-AA = fire-assay with atomic absorption (AA) finish						
FA = fire-assay, unspecified finish			GSI = Geochemical Services Inc.			
1AT-FA = 30g fire-assay, unspecified finish			MRSD = Mountain States Research and Development			
2AT-FA = 50-60g fire-assay, unspecified finish			LDL = lower detection limit, oz/ton gold			

11.1 Gold Fields America – 1930s

Descriptions of the sample preparation procedures and analytical methods used by GFA in the 1930s are not available. Nothing is known of the sample preparation, but it is reasonable to assume that gold concentrations were determined by fire assay with gravimetric finish.

11.2 Pre-GQMC - 1970s and 1980s

Descriptions of sample preparation procedures and analytical methods used for drilling and underground crosscut samples by Rosario Exploration in the 1970s are not available. Shell-Billiton's RC drill samples were all analyzed at GeoMonitor for gold and silver by cyanide-leach and atomic absorption ("AA"). Selected samples were also analyzed for gold and silver by fire assay, but there are no details available about sample preparation procedures or particular analytical methods. There are no records regarding the analytical laboratory and sample preparation and assay methods used by CoCa Mines for RC drilling samples.

11.3 GQMC (1988 – 1991)

Core and RC samples from GQMC's drilling during this period were analyzed by fire assay with gravimetric finish at five different laboratories (Table 11-1). The lower limit of detection for gold ranged from 0.001 oz/ton to 0.0025 oz/ton. No information is available regarding sample preparation procedures.

11.4 Glamis (1994 – 1995)

The majority of the Glamis RC drilling samples were analyzed at American Assay Laboratories ("AAL") by fire assay, but it is not clear if these were done with AA or gravimetric finish. Samples from one RC hole were analyzed at Barringer by fire assay with gravimetric finish. The lower limit of detection for gold was 0.001 oz/ton. No records are available concerning sample preparation procedures used at either lab.

11.5 GQMC (1994 – 1999 and 2011)

During RC drilling in the 1990s, GQMC collected a “rig duplicate” sample that was left at the drill site. Clarke (2006) reported that Mountain States Research and Development Inc. (“MRDI”) inspected five drill sites near the 200 Level portal and found that the plastic bags in which rig duplicates were stored had decayed, ruining the sample, or that samples had been destroyed during subsequent road work. As a result, very few rig duplicates were preserved in a condition that would permit their analysis.

GQMC’s RC and core drilling samples from 1994 through 1999 were assayed at Barringer Laboratories (“Barringer”) and Inspectorate-Rocky Mountain Geochemical (“Inspectorate”). Gold was determined at Barringer by fire assay with either AA or gravimetric finish; fire assay with gravimetric finish was used at Inspectorate. The lower limit of detection was 0.001 oz/ton for gold and 0.01 oz/ton for silver.

The procedure for preparation of drill samples at Barringer was drying, reduction to >90% passing 10 mesh using a jaw crusher followed by roll mill, then extracting a 250-300 g subsample with a Jones splitter. The subsample was reduced to a <150 mesh pulp with a ring and puck pulverizer (Bruff, 1998, July). Gold was determined on 30 g charges of sample pulp by fire assay, mainly with AA finish. For some cases in which samples assayed greater than 0.058 oz/ton gold (>2 g Au/t), a second fire assay was done with gravimetric finish. Silver was determined on a separate charge of pulp by aqua-regia digestion and AA. Descriptions of sample preparation procedures at Inspectorate are not available.

All drill samples from the 2011 GQMC RC drill campaign were assayed for gold and silver by ALS Chemex. Samples were weighed upon receipt at the laboratory, dried, crushed to 70% passing 2 mm, riffle split to obtain a nominal 250 g subsample, and this subsample was pulverized to 85% passing 200 mesh. Gold assays consisted of conventional fire assay of a 30 g split of pulverized material, finished by AA spectrometry (ALS Chemex code Au-AA23). Silver was assayed by aqua-regia digestion and AA spectrometry (code Ag-AA62). Those samples returning greater than two ppm gold (> 2.0 ppm Au) were reassayed by fire assay of a 30 g subsample with a gravimetric finish (code Au-GRA21).

11.6 GQMC (2015 – Present)

The assaying of drill samples performed during 2015 through much of 2021 was completed by Bureau Veritas Labs ("Bureau Veritas") of Sparks, NV (ISO/IEC 17025 and ISO 9001 accredited and certified). During the latter stages of the 2021 drilling program, and for all of the 2022 program, samples were sent to Paragon Geochemical ("Paragon") of Sparks, NV (ISO/IEC 17025:2017 accredited and certified) due to extended turnaround times at Bureau Veritas. These labs analyzed the drill samples for gold and silver, with portions of selected holes analyzed for a 53-element geochemical suite. The 2016 drill samples were routinely assayed only for gold, with silver analyses selectively completed later, based on the gold results, using the original pulps.

All holes were completely and continuously sampled and analyzed from top to bottom, except for overburden or voids.

The procedure for the preparation of drill samples at Bureau Veritas consisted of drying, crushing material to >70% passing 2 mm mesh, extracting a 250 g split, and pulverizing this split to >85% passing 75 µm mesh. Gold was then determined on 30 g charges of the final split of the pulp by conventional fire assaying techniques with an AA finish (Bureau Veritas code FA430-Au). For cases where gold assays were greater than 10 ppm, a second fire assay was done with a gravimetric finish (Bureau Veritas code FA530-Au). Silver was determined by aqua regia digestion and AA spectrometry (Bureau Veritas code AQ400-Ag). For cases where the silver assays were greater than 100 ppm, a follow-up fire assay was done with a gravimetric finish (Bureau Veritas code FA530-Ag). The lower detection limits for gold and silver were 0.0001 oz Au/ton and 0.002 oz Ag/ton, respectively. The 53-element geochemical suite was determined by aqua regia digestion with an ICP-MS finish (Bureau Veritas code AQ250-EXT).

Due to extreme laboratory turn-around times (up to 3 months and sometimes longer) and general sample backup at geochemical labs in 2021, GQMC decided to deliver a portion of the 2021 core drilling samples, and all of the 2022 core drilling samples, to Paragon. The procedure for preparation of the samples at Paragon consisted of drying, crushing whole core to 70% passing 10 mesh, riffle splitting 250 g, and pulverizing the split with Bico plate to 85% passing 200 mesh. Gold was then determined on 30 g charges of the final split by conventional fire assaying techniques with an AA finish (Paragon code Au-AA30). For cases where gold assays were greater than 5 ppm, a second fire assay was done with a gravimetric finish (Paragon code Au-GR30). Silver was determined by aqua regia digestion and AA spectrometry (Paragon code AGAR-AAS). For cases where the silver assays were greater than 100 ppm, a follow-up fire assay was done with a gravimetric finish (Paragon code Ag-GR30). The lower detection limits for gold were 0.0001 oz Au/ton and 0.006 oz Ag/ton for silver. No geochemistry, other than the gold and silver analyses described above, was performed by Paragon in 2021-2022.

RC samples from this period were collected directly at the drill and sampling operations were supervised by an on-site geologist at all times. The sample slurry (cuttings plus injected water) was collected after passing through a cyclone and rotating wet splitter. Sample size was controlled at the splitter, and two samples from each drill interval (usually 5 ft in length) were collected. The collected samples generally ranged from 4-9 kg in weight, but samples above and below this amount were also collected. The samples were allowed to dry in a secured area. One sample of the two samples collected for each drill interval was then shipped to the geochemical lab for analysis, and its corresponding duplicate was saved for a period of time.

A number of the duplicate RC samples were submitted to the GQMC mine-site lab for gold and silver analysis during 2018 and 2019. The purpose of this was to gauge the mine lab's performance against commercial labs, as well as to receive rapid gold and silver analyses (in 24-48 hours) to provide guidance to active drilling programs. In general, only potentially mineralized RC samples were submitted to the mine lab; none of the mine lab-generated assay results were used in resource estimation. The duplicates were eventually discarded approximately one year after completion of the corresponding drill program, as were the sample rejects stored at the commercial lab. Sample pulps were sent back to the mine site from the commercial labs and secured in locked buildings for future reference.

No groundwater was encountered in any RC hole drilled from the period.

Core samples collected during the 2016 and 2019 drilling programs were taken from the drill site to a secure logging area. After washing, logging, and photographing the whole core, the core was sent to a nearby sampling station and cut into halves with a masonry saw equipped with diamond-studded blades. The core was also sawed perpendicular to its axis at designated sampling intervals. One half of the core was bagged and sent to the geochemical lab for analysis, with the other half saved for future reference and stored in locked buildings on-site. Occasionally, the half-core to be sent to the commercial lab was further halved into quarters and sent for analysis, which served as core field duplicates as part of the QAQC program. Standard Reference Materials ("SRMs"), chosen to be of similar rock matrix and grade tenors to the Soledad Mountain mineralization, and blanks (both pulp and coarse blanks) were inserted into the sample stream sent to the commercial lab at roughly a 10-15% randomized insertion rate. After approximately one year, the rejects stored at the commercial lab were discarded and the corresponding pulps were sent back to the mine site and secured in locked buildings for future reference.

Core samples from the 2020-2022 drilling programs were treated differently than in previous years. Core samples from Soledad Mountain typically range in texture from hard and competent, to hard or soft and fractured, to very clay altered and crumbly. Historically, soft and/or incompetent core often could not be cut properly with the core saw, and it was instead sampled by hand using small tools. The process of core sampling therefore became laborious and time consuming at times. With Mr. Gustin's input, it was decided to sample whole core for the 2020-2022 drilling programs, with no core saw splitting on site, to save time and resources. After washing, logging, and careful photography, the core was delivered to the adjacent sampling station and whole core was placed into sample bags, with individual samples denoted by designated interval breaks determined from logging and then shipped to the geochemical lab. All other core handling procedures remained the same as in the 2016 and 2019 drilling campaigns. Pulps generated by the commercial labs from 2020-2022 core samples were eventually returned and secured at the mine site for potential use in the future.

Due to extreme turn-around time for assay results at the commercial geochemical labs, GQMC management decided to analyze selected intervals from eight core holes drilled in 2020 at the GQMC mine-site lab in order to obtain quick assay results to help guide the ongoing drilling, as well as to serve as check samples for the mine lab when the results from the commercial lab were received. Drill intervals were selected from seven holes drilled into the Silver Queen vein system and one hole from the Sheeted Vein Zone. Whole core from these selected intervals was logged, photographed, sampled, bagged, and delivered to the mine lab. The lab coarsely crushed the samples to ~ ¼ inch, re-homogenized the coarsely crushed material, and then split the samples into halves. One split was analyzed by the mine lab and the other split was sent to Bureau Veritas for analysis. This procedure was conducted on only eight of the 74 core holes drilled during the 2020-2022 drilling programs.

11.7 Sample Security

No information is available to document sample security procedures prior to 1994. Sample security measures described here are taken from Ennis and Hertel (2012) as follows:

- Since 1994, sample security measures included moving core from the drill site to a locked storage warehouse on the Project site at the end of each shift.

- RC cuttings were allowed to dry at the drill site before being locked in a semi-trailer to be shipped to the laboratory.
- Access roads into the Project site were locked with either a gate across the road or padlocked with a heavy metal chain across the road.

Mr. Gustin visited the Project on a number of occasions in 2014. During one of these visits, he inspected a locked storage facility at the mine site that stores a large number of GQMC drill samples (laboratory rejects and pulps) from the 2011 and prior drilling programs.

Since 2015, all drill-related samples have been stored securely. RC samples were left at the drill site or transported to a secure area within the mine property to dry before shipping; however, the mine infrastructure is routinely patrolled by a security company and is largely fenced. Access is controlled by two manned entrance gates. Core samples were picked up from the drill every day and stored at the mine-site logging and sampling facility in locked or manned buildings. This area is monitored 24-hours a day by camera and patrolled by the security company hired by GQMC. The rejects, pulps, and halved core generated from post-sampling and analysis were either stored in locked buildings at the mine site or at the Bureau Veritas or Paragon lab sites. However, most rejects and RC duplicates from the 2015 to 2019 drilling programs have been discarded (halved core and all pulps remain though). All pulps from the 2020-2022 core drilling programs are currently saved and secured on-site in locked facilities, although most of the rejects have been consumed by recent metallurgical testing or discarded.

11.8 Quality Assurance / Control-Quality Programs and Results

11.8.1 1930s to 2011 Drilling Programs

Records are not available for quality assurance/quality control ("QA/QC") programs that may have been in use by GFA in the 1930s. Mr. Gustin's review of assay documentation from exploration drilling and underground sampling programs undertaken in the late 1970s, 1980s, and 1990s indicates that some unknown quantity of apparent QA/QC control samples were variously inserted into the drill-sample streams by historical operators and GQMC. No information is available as to the sources, metal concentrations, etc., of what appear to have been standards and blanks submitted with some drill samples at various times to the various assay laboratories. The following discussion summarizes the QA/QC work known to have occurred prior to 2015 for which there is documentation.

In reference to assays performed at Barringer for GQMC, M3 Engineering stated in the 1998 feasibility report, "*Every tenth sample was repeated and for every 20 samples analyzed, a known standard or blank was also analyzed*" although no evidence has been found from reviewing the original assay certificates that GQMC submitted standards and blanks with samples assayed at Barringer during this period.

Although well documented QA/QC data associated with pre-2015 drilling programs is lacking, careful review of the original and photocopied historical assay certificates revealed that GQMC undertook checking of drill-hole assays and sampling procedures through the collection of various forms of duplicate analyses and analyses of duplicate samples in the late 1980s through the late 1990s. Mr. Gustin therefore instituted an extensive compilation of these duplicate data from the assay certificates. While the assay records are in generally good condition, the type of duplicate within a given compiled dataset was not always certain and was therefore inferred. The various duplicates compiled include the following:

- **Check assays** are re-analyses of the original assay pulps from the primary laboratory by a second laboratory. In most cases, it could not be determined with certainty that the pulp supplied to the check lab was the same pulp used by the primary lab or a second pulp prepared by the primary lab, but the former is more likely and therefore is assumed to be the case herein.
- **Field duplicates** are secondary splits of drill core or RC cuttings. RC duplicates are taken at the drill rig simultaneously with the primary samples, while core duplicates are obtained by splitting the core remaining after the primary samples have been taken or by taking the entire remaining core in the box.
- **Preparation duplicates** are new pulps prepared from secondary splits of the original coarse rejects created during the first crushing and splitting stage of the primary drill samples.
- **Pulp duplicates** are secondary splits taken from the original, large volume of pulped material from which the primary assay-pulps were derived. These duplicates were difficult to differentiate from replicate analyses in some cases, but pulp-duplicate analyses were assumed to have been done at a different time than the original assays, and they therefore were reported on separate certificates (as opposed to replicate analyses, which were reported on the original certificates).
- **Replicate analyses** are second analyses of the original-assay pulps and are reported on the same laboratory certificate as the original analyses.

Table 11-2 lists the primary labs used to analyze the samples from holes drilled from 1977 through 2011.

Table 11-2. Sources of 1986 - 2011 Drill-Hole Assays in Soledad Project Database

Laboratory	Count of Gold Assays
Barringer	26,342
Mountain States Research and Development ("MSRD")	7,978
Bondar Clegg ("BC")	7,769
American Assay Laboratories ("AAL")	4,139
GSI	2,388
GeoMonitor	1,267
Inspectorate-Rocky Mountain	834
Skyline	680
ALS Chemex	283
Jacobs	156
Subtotal	*51,836*
Not Known	12,450

The GeoMonitor assays listed in the table above are from Shell-Billiton holes, while all other analyses in the table are from GQMC drilling programs.

11.8.1.1 Check Assays

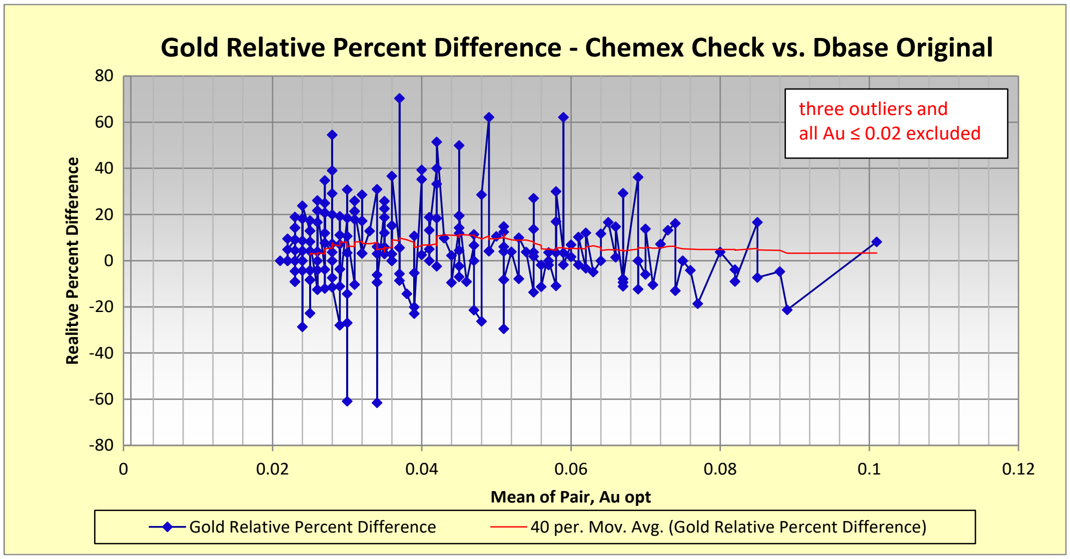
A significant number of analyses by second labs were completed on what are believed to be original assay pulps. A total of 622 check assays were compiled and compared to the original analyses; the analyses that exist in the Project database were deemed to be the original assay. The pulps that were sent for check assaying are derived from samples from both core and RC holes drilled in 1996 and 1997, as well as RC holes drilled in 1988.

Gold Check Assays. Assay precision (or variability), as well as possible bias, in the check-assay pairs was examined using graphs that plot the relative percent differences of the paired data (Figure 11-1). The percent relative difference is calculated as follows:

$$100\ x\ \frac{(duplicate - original)}{lesser\ of\ (duplicate,\ original)}$$

It is important to note that this method of calculation yields higher magnitudes of relative differences than the common method of using the mean of the pairs in the denominator.

Figure 11-1. Gold Relative Percent Difference – Chemex Checks vs. Database Originals



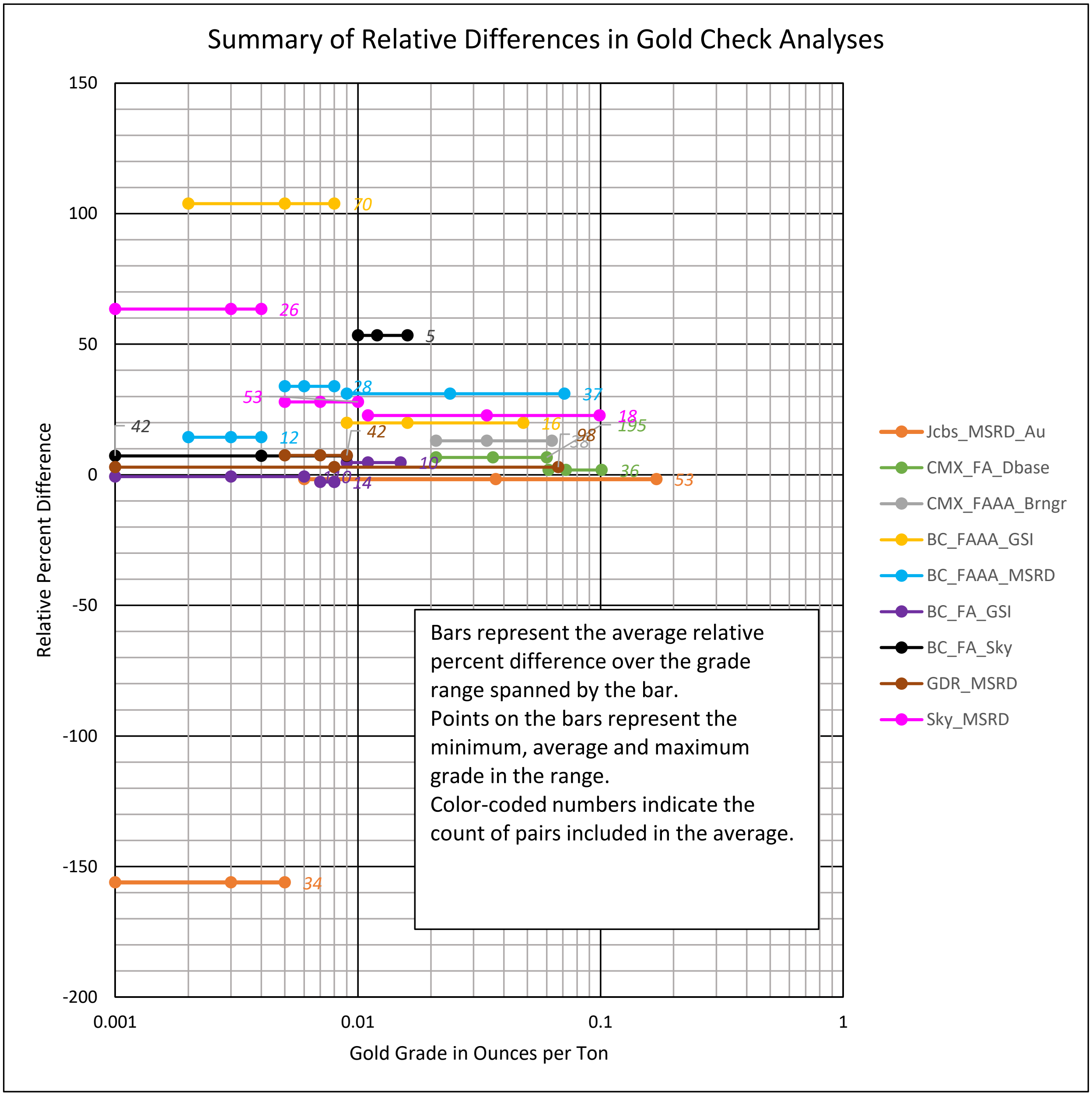
The red moving-average line on the graph aids in the identification of a high bias in the Chemex gold check assays relative to the original gold assays that are in the Project database. The variability in the relative differences is considerably less above a mean of the pairs of about 0.06 oz Au/ton than it is below that mean grade. The relative percent differences in these two grade ranges are summarized in Table 11-3.

Table 11-3. Relative Percent Differences by Gold Grade Ranges, Chemex Pulp Checks vs. Database Originals

Gold Grade Range (oz Au/ton mean of pair)	Count	Averages	
		Rel Pct Difference	Abs Rel Pct Difference
Au ≤ 0.06	195	6.6	13.7
0.06 < Au	36	1.8	10.0

As a way of presenting the results of the evaluation of the many different sets of duplicate data compiled, charts were created that, while considerable simplifications of complex data, serve to provide meaningful summaries. The pattern of data that appears in Figure 11-1 is simplified by averaging to produce the two values that appear in the "Rel Pct Difference" column in Table 11-3 and these two values can be transferred to Figure 11-2 to produce the two, summary, horizontal green bars (labelled "CMX_FA_Dbase" in the figure's explanation).

Figure 11-2 Summary of Relative Differences in Gold Check Analyses, Overview



This relative difference summary chart illustrates the average bias of the duplicates in each dataset, relative to the original analyses, on the vertical axis. Each color on the chart represents one dataset. The grade ranges, referenced to the horizontal axis, were selected from the detailed relative-difference charts by looking for ranges within which the “patterns” on the relative-differences graphs, based on the degrees of difference and the directions of the biases, were similar. In the explanation, the first lab in the name is the check lab and the second lab listed is the original lab. The number of pairs for each range is shown at one end of each colored bar.

With minor exceptions, the gold check analyses tend to have higher grades than the gold analyses in the database. In a dataset comprised of all of the check assays, with no differentiation by laboratory, about 56% of the check assays have higher grades than the original assays. Thus, the portion of the database represented by the samples sent for check assaying is conservative in that it is biased on the side of lower gold values. This low bias is consistent among multiple check labs.

The poorest comparison is between Jacobs and MSRD at grades below about 0.005 oz Au/ton, where the Jacobs check analyses are on average much lower than the MSDR grades, although the gold assays of the two labs compare well at higher grades. Only 156 Jacobs gold assays are known to be in the Project database, but MSRD is the second-most important lab, with 7,978 gold assays in the database (Table 11-2). MSRD tended to have lower gold grades than GDR, Bondar Clegg ("BC") FAAA, and Skyline. Bondar Clegg's gold results from FAAA analyses tend to be high compared with the corresponding gold results from other laboratories in the database.

The dataset that includes all check assays, undifferentiated by laboratory, indicates that in about 60% of the gold check vs. original assay pairs, the relative differences fall between -20% and +20%, and in about 80% of the pairs the relative differences fall between -40% and +40%. The bulk of the relative differences that exceed +40% or are less than -40% are derived from samples whose mean-of-pair grade is less than about 0.01 oz Au/ton. The most extreme relative differences involve labs whose contribution to the gold values in the database is minor (Jacobs, GSI, and Skyline), and some of the most extreme relative differences involve comparisons of different analytical methods (AA vs. gravimetric finish).

Silver Check Assays. In contrast to the gold data, negative relative differences predominate in the silver check-assay pairs (original silver assays greater than the check assays). As is the case with gold, the most extreme relative differences tend to be at lower grade ranges and involve labs that are relatively minor contributors to the database. At higher grades, above about 0.1 oz Ag/ton, most of the comparisons clustered between about 6% and 30% relative percent difference. For labs that are significant contributors to the assay database, the averaged relative differences at mean grades above about 0.1 oz Ag/ton are typically in the range +16% to -20%. As a point of reference, modern check analyses, average relative differences are typically 10% or less.

11.8.1.2 Replicate Analyses

Replicate gold analyses completed by AAL, Barringer, and BC were compiled and evaluated. The Barringer analyses included one set identified as "FA" (fire assay), a second "FAAA" set (fire assay with an AA finish), and a third set of "FAAAS" (fire assay with an AA finish) analyses. The difference between the analyses in these datasets, if any, is not known.

There are two datasets of replicate fire assays from BC, examined separately because they came from different sources. These data led to the discovery that, in those parts of the Project assay table that contain gold assays from BC and for which replicate assays are available, the gold value reported in the database is usually the average of the original and replicate analyses.

The comparisons of greatest relevance are the fire-assay replicates to fire-assay originals, as fire assays dominate the Project database. AAL and Barringer's fire-assay replicates show negligible biases relative to the original gold assays. With the exception of one small subset having a positive bias, and a larger subset with near-neutral bias, BC's replicate analyses show persistent and surprisingly strong negative biases (replicate assay less than original). Due to the value in the database representing the average of the two values in most cases, the database values tend to be closer to the BC assays than the actual original gold assays.

In terms of precision, some of the averaged relative differences are high for replicates at mean gold grades below about 0.01 oz Au/ton, ranging from about +11% to -22%. At mean gold grades above 0.01 oz Au/ton, the averaged relative differences tend to fall in a reasonable range of about +4% to about -3%. One of the Bondar Clegg replicate datasets is an exception, with averaged relative differences of about -7% below 0.04 oz Au/ton and about -9.5% above 0.04 oz Au/ton.

Only one set of silver replicate analyses were found, completed by BC, and these replicates did not exhibit material or statistically-meaningful differences from the original analyses.

11.8.1.3 Pulp, Preparation, and Field Duplicates

Gold Pulp, Preparation, and Field Duplicates. These duplicates, analyzed by the same lab as the original analyses, provide information relevant to variability (precision) introduced by subsampling from the drill bit through to the assay pulps. Preparation and pulp same-lab duplicates were analyzed at MSRD. It is not clear whether the BC dataset represents preparation duplicates or field duplicates, but it is inferred that they are field duplicates.

Below about 0.01 oz Au/ton, differences between the duplicates and originals, even in pulp duplicates, can be of large magnitude and can have significant biases. MSRD preparation duplicates showed negligible biases above about 0.01 oz Au/ton. While MSRD pulp duplicates show a strong negative bias (duplicate grade less than original grade) at grades above roughly 0.02 oz Au/ton, there are only seven sample pairs in this grade range and the bias, if real, should also be exhibited by the preparation duplicates, which is not the case. In contrast to the BC replicate analyses, BC duplicate analyses tend to be biased high relative to the original analyses. This is a peculiarity of the Bondar Clegg duplicate dataset for gold, which is unexpected and not understood.

The magnitudes of the relative differences show expected relationships, with poor precision at grades below roughly 0.006 oz Au/ton in all three duplicate sets. At higher-grade ranges, the precision of the pulp duplicates increases significantly, with relative differences averaging about 10%, while the preparation duplicates have relative differences averaging about 30% in this grade range. The BC duplicates have relative differences averaging about 65%. Assuming the BC dataset is comprised of field duplicates, these increases in variability from pulp to preparation to field duplicates is as expected, as field duplicates include the variability of preparation duplicates and pulp duplicates, while preparation duplicates include the variability of pulp duplicates.

Silver Pulp, Preparation and Field Duplicates. The relative differences for silver in the same-lab duplicates show strong biases at silver grades of less than approximately 0.5 oz Ag/ton. The BC duplicates have low grades and strong biases. Because of the low grades, and the uncertain nature of the duplicates, little significance can be given to the BC dataset. As with gold, the MSRD silver pulp-duplicates have an average negative bias of about -8% (duplicates less than originals). The MSRD preparation duplicates exhibit negligible bias.

The relative differences for silver in the same-lab duplicates are considerable at silver grades less than about 0.5 oz Ag/ton. MSRD pulp duplicates have the highest precision for silver, with average absolute relative differences of about 10% at grades above about 0.5 oz Ag/ton. MSRD preparation duplicates have reasonable precision for silver, showing an absolute relative difference of about 18% at grades above about 0.3 oz Ag/ton.

11.8.1.4 Comments on the Duplicate Results

The check-assay data suggest that the gold values in the database may have a low bias, at least for those assays that are represented by the check analyses. By contrast, database values for silver, which has a much lower economic impact on the Project, appear to have a high bias. However, it is important to note that one cannot ascertain whether the original or check assay gold and silver results are superior.

The average relative differences in the various sets of duplicate assay data can be used to assess the degree of uncertainty in the value of any individual assay that lies within a specific grade range. Uncertainties of this type can be ascribed to the cumulative effects of natural geological variability, sample collection, sample preparation, and sample analyses. The available data suggest that variability in the low-grade gold and silver analyses is high, which is expected due to the low precision of analyses at low grades, in addition to the natural variability that is imparted by heterogeneity related to the free gold and electrum particles that characterize the Soledad Mountain mineralization. The variability remains relevant, however, especially due to the low level of the cutoffs used to define the resources (0.005 oz Au-equivalent/ton). In the absence of bias, the imprecision inherent at low grades does not mean the data are not appropriate for use in resources estimation, since for every sample that overstates the actual grade there is another that understates it, and estimation leads to averaging of the highly variable data. The low-grade variability can significantly impact ore control during mining, however, and therefore protocols for the collection, preparation, and assaying of grade-control samples must be carefully considered and implemented.

11.8.2 GQMC 2011 Drilling Program

Although Mr. Gustin does not have documentation of QA/QC results associated with the 2011 drilling program, Ennis and Hertel (2012) reported that GQMC instituted a program that included the insertion of certified reference materials ("CRMs") and pulverized quartz-sand blanks with the drill samples shipped to ALS Chemex. Ennis and Hertel (2012) stated "*A total of 48 standard reference materials (SRMs) and 20 fine blanks were submitted with a total of 1,232 project samples from the 2011 drilling. AMEC finds the insertion rates of the control samples to be low compared to best practice and recommends* increasing *the rate of SRMs and blanks to 5% each. AMEC also recommends that pulp duplicates be added to the Soledad Mountain QA/QC protocol at the rate of 5% of project samples. Duplicate samples are used to determine the precision of the assays.*

GQM used three SRMs from Minerals, Exploration, and Environment Geochemistry (MEG) from Washoe Valley, Nevada. The SRMs *have a range of gold grades consistent with what is expected from project samples at Soledad Mountain. Silver is not certified for these SRMs. All SRM results for gold except 5 (10%) were within 10% of the recommended value of the SRM. AMEC investigated the five SRMs with gold results greater than 10% different than the certified value and instructed ALS Chemex to reassay one batch of 20 samples surrounding a failed SRM for drill hole GQ-726.*

The reassayed values, though consistently slightly higher in grade, confirmed the original assays for the project samples."

The 2012 technical report (Ennis and Hertel, 2012) also presented a summary of the results of the above standards, as well as a discussion of standards inserted with pulps sent to Inspectorate for check assays. Ennis and Hertel stated "*No significant bias was observed in the check assay data and thus AMEC concludes that the ALS Chemex gold and silver data are acceptably accurate."*

The blank samples reportedly yielded gold and silver assays less than five times the lower detection limit, and Ennis and Hertel (2012) concluded, "*AMEC finds no significant carryover contamination in the ALS Chemex gold and silver assays"*. Mr. Gustin notes that pulverized blank material provides limited control for detecting 'carry-over contamination' because when it occurs, it is typically due to problems at the crushing and pulverizing stages of sample preparation.

11.8.3 GQMC 2015 - 2021 Drilling Programs

The QA/QC data for the years 2015 to 2021 discussed herein were compiled under the supervision of Mr. Gustin from original assay certificates. Table 11-4 summarizes the types and quantities of QA/QC samples analyzed by year during this period.

The commercial standards (CRMs) and blanks (both pulp and coarse preparation blanks) were inserted into the sample stream sent to the commercial labs at roughly a 10-15% randomized insertion rate.

Bureau Veritas completed all QA/QC analyses through late in the 2021 drilling program, when long turnaround times led GQMC to send the drill samples to Paragon (the earliest Paragon assay certificate is dated September 23, 2021). The data summarized in Table 11-4 does not include internal QA/QC analyses generated by the two commercial labs, although those from Bureau Veritas were compiled and reviewed, as the relevance of internal laboratory QA/QC is often limited.

Table 11-4. Summary Counts of Soledad Mountain 2015-2021 QA/QC Samples

QA/QC Type	2015		2016		2018		2019		2020-2021	
	Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag
Standard:										
Number Used	5	5	5	0	5	5	5	5	10	3
Number of Analyses	147	123	168*	0	156	139	166	143	868	217
Duplicate:										
Field Duplicate	265	270	505	0	284	284	201	201	0	0
Blank:										
Pulp Blank	0	0	0	0	83	83	18	18	287	274
Coarse Blank	146	140	50	0	0	0	104	103	99	99
Drill Hole Samples:	2903	2903	5228	3228	3864	3864	4432	4432	11352	11352
Total Insertion Percent:	19.2	18.4	13.8	0	13.5	13.1	11	10.5	11	5.2

* 46 samples in 2016 were marked as “Standard” without further identification and therefore are not included here.

11.8.4 Certified Reference Materials

GQMC technical personnel inserted CRMs into the primary drill-sample stream during each of the 2015 through 2021 drilling programs. CRMs are commercially available pulverized materials certified to contain a known concentration of a metal or metals. GQMC obtained CRMs from MEG Inc., of Reno, Nevada (“MEG”) and CDN Resource Laboratories Ltd., of Langley City, British Columbia, Canada (“CDN”). To the extent possible, CRMs of similar rock matrix and grades to those at Soledad Mountain were chosen. Several CRMs of varying gold concentrations were randomly inserted into the drill-sample stream each year (Table 11-5).

Table 11-5. Certified Reference Materials - 2015-2021

CRM ID	Certified Grade		No. Analyses		Years Inserted
	oz Au/ton	oz A/ton	Au	Ag	
MEG-Au.11.19	0.0035	0.0583	33	30	2015
MEG-LWA-25	0.2009	0.0915	20	20	2015
MEG-LWA-34	0.0660	0.0535	121	73	2015, 2016, 2018, 2019
MEG-Au.12.25	0.021	0.1283	134	100	2015, 2016, 2018, 2019, 2020
MEG-Au.13.01	0.009	0.0239	139	85	2015, 2016, 2018, 2019, 2020
MEG-Au.11.13	0.0527	0.3092	103	71	2016, 2018, 2019
MEG-Au.12.21	0.0042	0.0058	96	35	2016, 2018, 2019
CDN-GS-4H	0.1461	-	26	-	2020
CDN-GS-1Z	0.0337	2.6104	225	208	2020, 2021
CDN-GS-4F	0.1117	-	59	-	2020, 2021
CDN-GS-P4J	0.014	-	231	-	2020, 2021
CDN-GS-10G	0.2914	-	60	-	2021
CDN-GS-3U	0.096	-	101	-	2021
CDN-GS-7K	0.2059	-	18	-	2021
CDN-GS-P8G	0.0239	-	139	-	2021

Bureau Veritas was the primary lab for the 2015 to 2020 drill programs and the initial portion of the 2021 program, while Paragon Labs was used towards the latter portion of the 2021 program. All assay certificates dated prior to September 23, 2021, were from Bureau Veritas, with certificates afterwards from Paragon Labs. Of the total of 27,541 gold assays of RC and core samples from 2015 to 2021 in the Project database, 91% were analyzed by Bureau Veritas. Both labs analyzed gold by fire assay methods with an AA or, less commonly, gravimetric finish.

Based strictly on CRM analyses exceeding three standard deviations of the certified value, there were a total of 26 failures out of the 1,505 gold analyses of the CRMs, for a failure rate of 1.7%. However, a minimum of four of these ‘failures’ were almost certainly mix-ups in the identification of the standard inserted into the sample stream, one of which was likely an analytical blank. In addition, at least ten of the remaining 22 ‘failures’ not attributable to identification errors are caused by bias, whereby the Bureau Veritas analyses of the MEG-Au.12.21 and CDN-GS-4F tended to be low, with this bias creating apparent failures that barely exceed the three standard-deviation limits. Two failures of CDN-GS-P8G are attributable to Paragon.

The silver CRM analyses in 2015 were done by 30 g fire assay with an AA finish or by multi-acid digestion with AAS determination of silver. No silver analyses of CRMs were obtained for the 2016 drilling program; drill samples from this program were routinely assayed for gold, with silver analyses selectively completed later using the original pulps based on the gold results. Silver CRM analyses by Bureau Veritas in 2018 through 2021 and Paragon in 2021 were done by fire assay or using aqua-regia digestion with an AA determination.

A total of 622 silver analyses of CRMs were compiled, with 69 failures, for a failure rate of 11.1%. A total of 49 of these 'failures' are attributable to CRM CDN-GS-1Z, which had a failure rate of 24%, and another 8 failures were generated from MEG-LWA-25, which had a 40% failure rate. Excluding these two high-failure CRMs, the failure rate lowers to a more acceptable 3.0%.

Silver analytical results can be very sensitive to the assaying procedure. Generally speaking, standard fire assaying or analysis following four-acid digestion should provide reliable total-silver values. Three-acid aqua-regia methods may lead to partial digestion of a sample's silver content, however, depending on the silver mineralogy. Unfortunately, the 2015 through 2021 CRMs inserted into the sample stream have certified values determined by multiple methods, and they were also analyzed by Bureau Veritas and Paragon using multiple methods. This complexity limits the significance of the silver CRM data.

11.8.4.1 Blanks

Coarse blanks are barren samples inserted into the sample stream whose particle size is large enough to require all stages of routine sample preparation prior to assaying. These blanks are used to monitor potential sample-to-sample contamination that may occur during sample preparation. Pulp blanks are pulverized barren samples that monitor contamination during splitting of pulp aliquots and subsequent analyses. Since contamination at these latter stages of preparation and assaying are unusual, pulp blanks are of more limited usefulness.

Prior to the 2018 drilling, GQMC inserted coarse blanks into the drill-sample stream. The 2018 program utilized only pulp blanks, while the 2019 through 2021 programs used both coarse and pulp blanks, although more pulp blanks were inserted than coarse blanks. A blank analysis over five times the detection limit is generally considered to be a failure.

A total of 146 coarse blanks were submitted by GQMC in 2015, with no failures for either gold or silver. Only two of the gold blank values had a preceding value higher than 0.025 oz Au/ton, however, and only three of the silver blanks had a preceding value higher than 0.5 oz Ag/ton. In 2016, 50 coarse blanks were submitted with no failures.

A total of 83 pulp blanks were submitted in the 2018 drill program, with a single failure for both gold and silver, although the preceding drill sample returned only very low metal values. The failed blank gold and silver values were in the grade range of the MEG-LWA-34 CRM, and it is very likely this blank was misidentified.

During the 2019 drill program, GQMC inserted 18 pulp blanks (MEG-BLANK.14.04) and 104 coarse blanks (red lava rock and green decorative rock) into the sample stream of both the RC and core samples. No failures were generated.

Blanks used during the 2020-21 drill program included the red lava rock coarse blank and CDN-BL-10, a pulp blank purchased from CDN Resource Laboratories of Langley City, Canada. A total of 99 coarse blanks and 287 pulp blanks were inserted into the drill-sample stream, but not every sample was analyzed for silver. The coarse blank yielded 12 failures for gold, all but one attributable to Paragon, and three for silver, two of which were generated by Paragon. A chart of the coarse-blank gold analyses plotted along with the immediately preceding drill samples (pulps are assumed to be analyzed in sample-number sequence) is shown in Figure 11-3 for gold.

Figure 11-3 Gold in Coarse Blanks and Preceding Samples 2020-2021

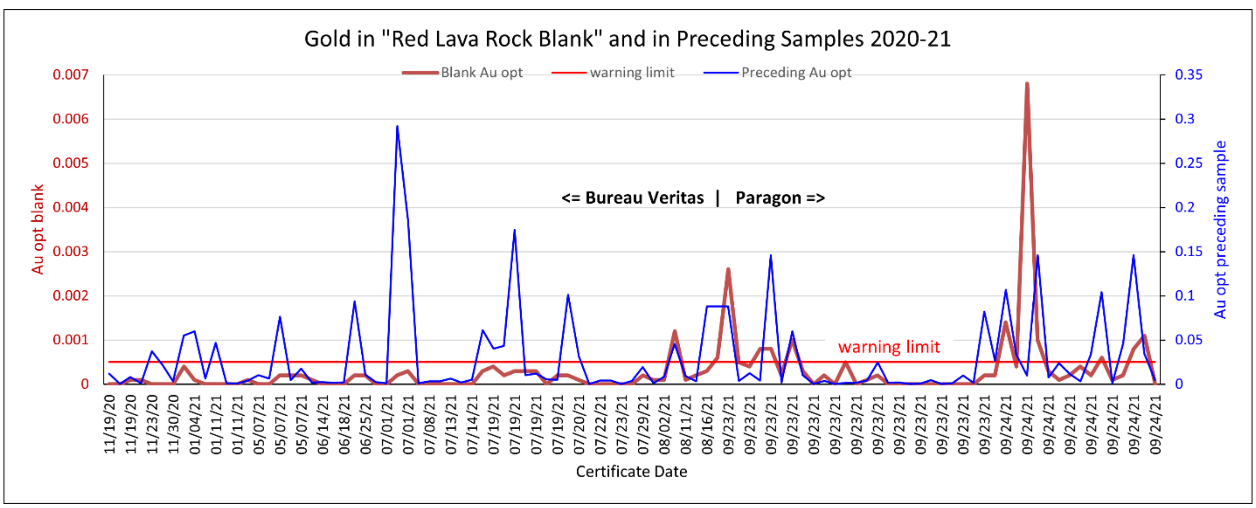


Figure 11-3 shows a strong correlation between even slightly elevated coarse-blank analyses with elevated gold values of drill samples, suggesting some degree of low-level cross-contamination of gold from prior samples into the following blanks. With the exception of the highest gold blank value generated by Paragon, the magnitude of contamination is low. The Paragon failure rate is relatively high, and the overall degree of contamination generally exceeds that seen for the Bureau

Veritas results. GQMC informed Paragon of these concerning results, and if used in the future, cross-contamination will need to be closely monitored.

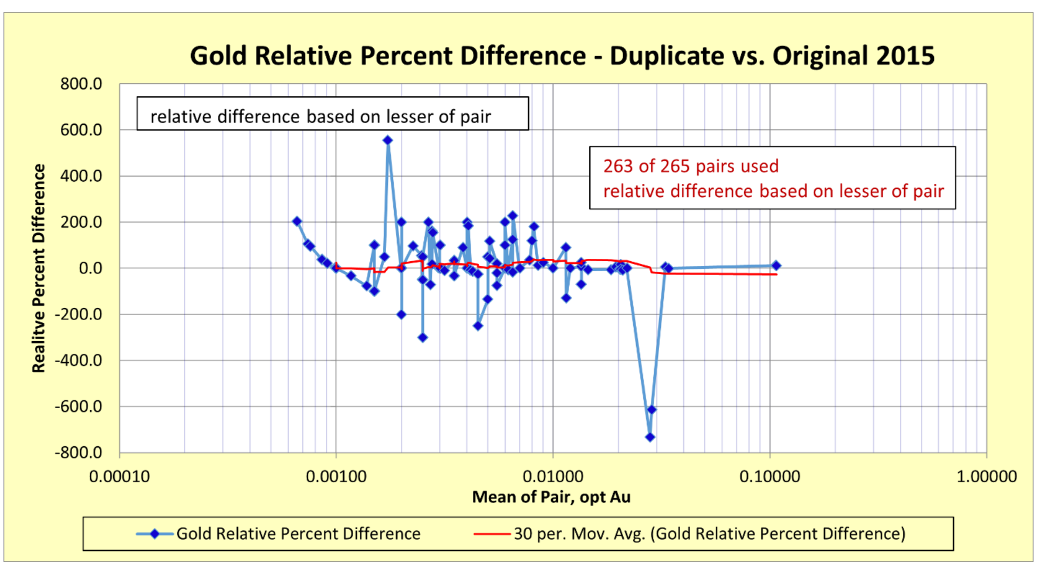
The CDN-BL-10 pulp blank generated six gold failures, three from each lab, but only one of which exceeded 0.0011 oz Au/ton. Bureau Veritas generated six of the eight silver failures, although Paragon's detection limit, and therefore it's failure threshold, was higher than that of Bureau Veritas. Only one of the silver pulp-blank failures exceeded 0.06 oz/ton.

11.8.4.2 Field Duplicates

GQMC collected field duplicates during the 2015, 2016, 2018, and 2019 drilling programs. RC duplicates were collected using a "y" splitter attached to one discharge of the rotary wet splitter, while core duplicates were generally ¼-splits of the half-core that remained following the collection of ½-core primary samples. Approximately five or six field duplicates per hole were collected in the case of RC drilling, and these RC duplicates dominate most of the datasets discussed.

A total of 265 field duplicate pairs for gold and 270 pairs for silver were generated from the 2015 drilling program. The gold analyses of the field duplicates are compared to the assays of the original drill samples using a relative percent difference plot (Figure 11-4); two extreme outlier pairs were removed. The relative percent difference ("RPD") is calculated based on the maximum value of the pair.

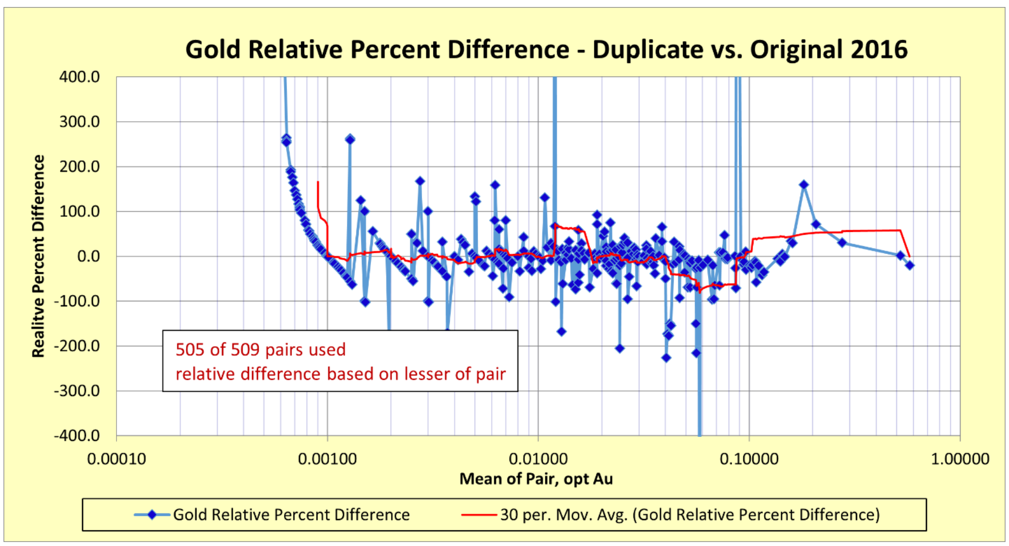
Figure 11-4 Gold Relative Percent Difference - 2015 Field Duplicates



The plot indicates a slight high bias (duplicate value higher than original) at values under about 0.01 oz Au/ton, which is reflected in the red moving-average line. The cause of this bias in not known, but 'y-splitters', while common, are not actual commercially available, standard splitters, rather they are created by drillers and, depending on a variety of factors, may not yield representative splits.

A total of 509 field-duplicate pairs were collected in 2016, for which only gold analyses are available. The relative difference plot for gold (Figure 11-5), which excludes four extreme pairs, shows no systematic bias through all grade ranges (note that in this case, several deflections of the moving average line are caused by single pairs with very high relative differences).

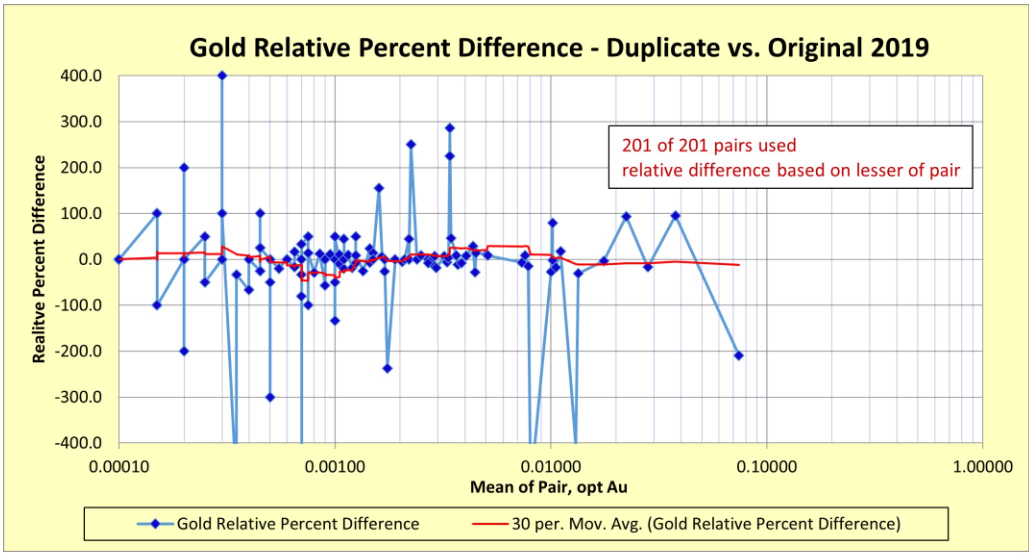
Figure 11-5 Gold Relative Percent Differences - 2016 Field Duplicates



The silver field-duplicate data show high relative differences at grades lower than 0.1 oz Ag/ton, up to close to 200%, but this is not unexpected considering the nature of epithermal mineralization.

GQMC collected 284 field duplicates in 2018 and 201 in 2019. The 2019 duplicates include ¼-core splits. No bias is evident in either of these gold and silver datasets. Figure 11-6 shows the 2019 gold field-duplicate data.

Figure 11-6 Gold Relative Percent Differences - 2019 Field Duplicates



With the exception of the 2015 slight high bias in the duplicates as compared to the original values that are in the Project database, the gold field-duplicate data show no issues. There is a high degree of variability for both gold and silver, however. Field duplicates incorporate variability imparted by the various splitting and size- reduction phases during sample preparation at the laboratory, but notably they also incorporate natural variability related to the epithermal nature of the mineralization.

11.8.4.3 Cross-Lab Duplicates

During the 2018, 2019, and 2020-21 drill programs, duplicate drill-sample splits were sent to both GQMC's mine-site lab and Bureau Veritas. In the case of RC, the duplicates were collected at the rig as field duplicates in the manner described in Section 11.8.4.2. For the core drilling, the core was split into halves and the mine lab crushed and pulverized each half to create two pulps, one for each laboratory. These core duplicates are akin to preparation duplicates, except that in this case the original sample was analyzed by the mine lab and the duplicate by Bureau Veritas (typically, preparation duplicates are created and analyzed by the same lab). Gold at both labs was variably analyzed by fire assaying with AA or gravimetric finishes. The mine lab used the same fire-assay methods for silver, while Bureau Veritas used an aqua regia digestion with AA finish.

The cross-lab field duplicates and show no bias in gold between the two labs, while the mine-lab analyses of the preparation duplicates have slight positive bias (mine lab higher than Bureau

Veritas). In the case of silver, a consistent positive bias in the mine-lab analyses for both duplicate sets is evident, with the field-duplicate bias being of higher magnitude than that of preparation duplicates. It is very likely that the at least some portion of the silver bias is due to the use of fire assay versus aqua-regia digestion, and in any case the differing analytical methods severely limit the significance of the results. In the case of gold, the results are supportive of the mine-labs analyses.

11.9 Summary Statement

The commercial analytical laboratories used by all operators that contributed significant quantities of data to the Project drill-hole database, as well as the analytical procedures used by the laboratories to obtain the gold assays for the Soledad Mountain Project, are, or were at the time, well recognized and widely used in the minerals industry. It is presumed GFA, a successful and reputable mining company at the time, used a mine laboratory for all of their core drill holes and underground channel samples.

Records of drilling prior to that of GQMC have few details on sample preparation, analysis, sample security, or QA/QC protocols. All of the historical operators were reputable, well-known mining and/or exploration companies, and there is ample evidence that these companies followed the normal industry practices relating to sample-preparation and analytical techniques. It is important to note as well that these operators, other than GFA, are minor contributors to the resource database.

Blank and CRM failures were generally not addressed by GQMC. It is strongly recommended that in future drilling programs, QA/QC protocols always include the use of coarse blanks in addition to CRMs and field duplicates, and the QA/QC results should be monitored as they are received, with actions taken when failures, unexpected biases, etc., are detected.

In consideration of the information summarized in this Section, Mr. Gustin believes the sample preparation, security, and analytical procedures adequately support the analytical data as used in this report.

12.0 DATA VERIFICATION

Data verification is the process of confirming that data has been generated with proper procedures, transcribed accurately from its original source into the Project database, and is suitable for use as described in this technical report.

12.1 Golden Queen Database Audit

12.1.1 Database Audits by Others Completed in 1998 – 2012

The following summarizes historical checking of the GQMC drill-hole database prior to Mr. Gustin's involvement in the Project that initiated in 2014. This summary was compiled from historical documents in the possession of GQMC. While this historical auditing work could not be entirely verified, it is presented because these historical validation efforts culminated in the database that was subsequently verified and served as the basis for the current mineral resources.

In April 1998, Humboldt Mining Company completed what appears to have been a comprehensive audit of holes DDH-17 to -44, DDH97-1 to -10, GQ-001 to -632, and SHEL-01 to -26, as well as some of the holes in the series UD03-05 to -21 (Bruff, 1998, April). This well documented audit led to corrections of assay transcription errors and sample interval "from" and "to" errors, replaced capped assay values with original assay values, inserted "-1" for intervals of no sample recovery that had used assay values derived from adjacent samples, replaced Ag values that were assigned to long intervals that were not assayed for Ag, and replaced cyanide-leach assays from the SHEL-series of holes with fire assay values where data were available. Missing intervals of assays, in a few cases for entire holes, were added to the database. As discussed elsewhere in this report, Mr. Gustin developed a high level of confidence in work undertaken by Mr. Bruff.

M3 Engineering reported in the 1998 feasibility study that gold and silver assays were checked by manual comparison to assay certificates and by computer techniques testing for from-to errors, and out-of-range assay values. The types, quantities and significance of any discrepancies were not reported, nor did M3 Engineering discuss if, or how, such discrepancies were corrected.

Following the release of the M3 Engineering feasibility study, GQMC engaged MRDI to audit and evaluate the data and methods used for the resource model in the 1998 feasibility study. As part of that work MRDI audited the assay database by checking 5% of the assays. Clarke (2006) reported that GQMC worked jointly with MRDI between 1998 and 2000 to resolve and correct most of the errors found during the audit.

MRDI sent 50 pulps from drill samples from 33 holes to Chemex for gold by fire assay, and 50 rig duplicates from 28 holes were collected from drill sites and submitted to Barringer using new sample numbers. Both sets of data are from holes in the sequence GQ-497 to 603, but none of the sampled intervals are the same in the two sets. Rig duplicates averaged 0.0425 oz Au/ton versus a mean of 0.0406 oz Au/ton for the original assays. Pulp precision was lower than that of the rig duplicates, so it was concluded that overall precision is controlled by sub-sampling of pulp for fire assaying, a common observation in visible-gold deposits. Precision decreases with increasing grade, suggesting to MRDI that gold particles increase in size with increasing grade. The MRDI analysis is further summarized in the 2012 technical report (Ennis and Hertel, 2012).

For the 2006 NI 43-101Technical Report by SRK, a total of 1,600 assay entries from the 1999 drilling campaign were randomly selected and checked against assay certificates (Clarke, 2006). Two entries for gold were found to differ from values listed on assay certificates. SRK noted that less-than-detection-limit values for gold (<0.001oz/ton) and silver (<0.01 or <0.1 oz/ton) on the assay certificates were entered as 0.001oz/ton Au and 0.01 or 0.1 oz/ton Ag, respectively, in the database, but did not consider this to be a significant issue. SRK reported that no systematic errors were found that would influence resource estimates (Clarke, 2006).

Ennis and Hertel (2012) reported that AMEC audited the 2011 GQMC drilling data for the 2012 NI 43-101 Technical Report. This included checking 390 (38%) of the 2011 gold and silver assay records against original assay certificates (no errors found), 160 (39%) of the lithology and oxidation codes (two errors found); and all 2011 collar coordinates, which were found to be acceptably accurate.

12.1.2 Construction of Current Resource Database

The 2012 AMEC database was used as the starting point for the current resource database. As discussed in Section 9.3.1, the only geologic information included in the 2012 database was lithology. This deficiency led to the initiation of a program in early 2014, with guidance from Mr. Gustin, that included the systematic compilation of geologic data from extensive paper drill-hole logs in the possession of GQMC, including various alteration, mineralization, structural, and oxidation information. Written comments on the logs regarding the intersection of voids/stopes/backfill, recovery, sample quality, and down-hole contamination were also compiled.

Holes that lacked logs, or had logs judged to be incomplete, were re-logged. As this program progressed, GQMC geologists concluded that comprehensive re-logging of all available drill core and RC cuttings was warranted, and this extensive work was then completed.

After cleaning the data, unifying logging codes, and assigning codes to various textural geologic descriptions, the information compiled or logged by GQMC was entered into a preliminary version of a new Project database. This 2014 database was then updated to reflect the results of the auditing discussed below.

12.1.3 Database Verification - 2014

The initial 2014 Project database subjected to the auditing summarized herein included a total of 830 RC and core holes, excluding GFA underground holes that were judged to be inadequate for use in resource estimation due to poor recoveries and sporadic sampling. The results of the 2014 auditing of the drill-hole collar, down-hole survey, and assay tables undertaken by Mr. Gustin are summarized below. Four holes added as a result of auditing.

Collar Table. No original collar survey data were found to check the database locations of the 53 holes drilled by CoCa Mines (KNR-series), Rosario (R-series), and Shell-Billiton (SHEL-series). The collar coordinates of the KNR- and R-series holes have database coordinates in the original GFA mine grid that are whole numbers, which suggests that these locations were approximated (not surveyed). While most of the SHEL-series holes have mine-gride coordinates that include decimals, many do not. Although Quality Surveying is reported to have surveyed the collar locations of the 20 holes drilled by GQMC in 2011, no backup records were found in the Project files. These series of holes aside, available records of the collar locations of the remaining GQMC holes include DeWalt Corporation reports that consist primarily of original faxes sent by Dewalt Survey to GQMC, as well as what appear to be original printouts from the survey equipment used by DeWalt Corporation; all DeWalt surveys are in GFA mine-grid coordinates. The final source of collar-location backup information is derived from 2014 California State Plane coordinate surveys by GQMC of various older GQ-series drill collars that could be reliably identified on the ground.

The collar locations of 204 holes were audited using the survey data described above; collar azimuths and dips were also audited if the information was available on the paper drill logs. As part of this auditing, any significant vertical differences between drill-hole collar elevations and elevations of the Project topography were identified, and any holes with improbable locations (in consideration of locations relative to access roads, drill pads, and steep topography) were also flagged for further investigation. This auditing led to a total of 10 changes to the database hole locations that exceeded one foot. Five of these involved changes to elevation values and three were cases where original database coordinates look approximated (no decimals) and DeWalt Corporation survey data were found to update the database locations. One hole with an improbable location was assigned new coordinates derived from a GQMC 2014 survey, and another improbably located hole was moved to a nearby drill pad. In all cases, the edited locations were checked against the Project topography, drill access roads, and drill-pad locations for reasonableness. Of the 10 modified hole locations, seven had changes to at least one of the x, y, and z coordinates of ≥ 20 ft and are therefore considered material (in the context of resource model blocks with dimensions of 20 x 20 x 20 ft).

The coordinates of 33 drill-holes re-surveyed by GQMC in 2014, including holes in the range GQ-008 through GQ-691, were checked against the database locations. The GQMC surveys differed from the database values by up to 7.4 ft in easting, 8.2 ft in northing, and 4.9 ft in elevation, none of which are considered material.

Research related to a single, improbable hole location (a SHEL-series hole collared on a steep hillside a significant distance from access roads) led to the uncovering of several small plan maps in the Project files. Each of these maps shows a portion of the SHEL-series holes plotted on topographic bases with the mine grid plotted. Careful review of the historical maps with the 2012 database coordinates led to the recognition of widespread problems with the SHEL-series hole locations. The database locations were clearly derived from these maps, but apparently an error in the location of one hole led to the propagation of additional mis-locations of adjacent holes. After careful review and consideration, Mr. Gustin changed the locations of 12 of the Shell-Billiton holes using these maps and added a SHEL-series hole to the database for which coordinates were not previously available.

The locations (and assays) of a large number of crosscut channel samples were also visually checked against the GFA linens for accuracy, and more broadly compared to the digitized level-plan workings developed by AMEC for consistency of locations.

Survey Table. As a result of detailed inspection of the down-hole survey table, Mr. Gustin found that many of the survey intervals were not actually surveyed but instead were assigned averaged dip deviations derived from a few select holes that had been surveyed. A total of five such unique averaged deviation sets were identified, with hole deviations becoming progressively steeper with depth in each case. Without considering the intervals with assigned deviations, there were 2,158 intervals with actual down-hole surveys, 203 of which were initially audited. The only discrepancy identified consisted of a dip that was off by one degree. However, survey-depth issues were numerous. It appears that the depth discrepancies were caused by software during importing and/or exporting the survey data. The down-hole survey table was therefore completely reconstructed by Mr. Gustin.

As part of the rebuilding of the 2014 survey table, Mr. Gustin completed a detailed review of the existing, averaged down-hole deviation sets, the manner they were applied to holes lacking surveys, and the justification for the use of averaged deviations. The data were examined by year and orientation (azimuth and dip) ranges. Consistent trends in the real down-hole survey deviations could not be identified, and Mr. Gustin therefore decided to refrain from applying averaged deviations to the unsurveyed holes.

Assay Table. A total of 8,376 drill-hole sample intervals were audited against original paper assay certificates out of a total of 65,654 such intervals. Material errors identified included apparent transcription errors for one gold value and one silver value, as well as one sequence error involving 11 consecutive gold and silver values, and one sequence error of five intervals involving only gold analyses. Sequence errors consist of consecutive sample intervals in which the metal values are offset by one sample interval. In terms of materiality, the shift of analyses to the following sample intervals is not significant, as the sample intervals are 5 ft in length and the resource model blocks have 20 ft dimensions; it is the missing sample gold and/or silver value that leads to the sequence error that could be material.

The treatment of less-than-detection-limit assays in the database was found to be quite variable. While the assignment of some value lower than the detection limit is the most common, there are cases where “0” or the detection-limit value itself was entered into the database. In any case, the resulting values are not material.

When duplicate analyses are present on the same assay certificate, the first (original) value was usually entered into the database, but the duplicate value was found in the database in 60 of the audited intervals (Mr. Gustin replaced these entries with the original values). The database value represented an average of the two analyses in 94 of the audited intervals (the database value was replaced with the original assay value in this case as well).

Mr. Gustin requested GQMC to digitize GFA drift-sample locations and couple these with transcribed gold and silver values using the original GFA linens. The results from this work were then visually checked against the linens for accuracy and then added to the 2014 Project database.

The acceptance of the GFA channel- and drift-sample data in the current resource database is based on: (1) there is no proof, statistical or otherwise, that the GFA channel-sample results are more or less accurate than any of the subsequent channel samples; (2) there is good evidence that GFA samples were extracted in a more systematic fashion than most (if not all) of the subsequent underground sampling programs; and (3) there is evidence that GFA samples were generally larger in volume, and therefore potentially more representative, than those from subsequent sampling programs. The GFA channel-sample data were therefore accepted in the current resource database with the exception of the exclusion of sample intervals lying within the low-grade gold domain, as discussed in Section 14.1.

12.2 GFA Underground Drift Samples

Subsequent to the 2015 feasibility study, Mr. Gustin requested GQMC digitize GFA drift-sample locations from the historical linens and couple these with transcribed gold and silver values, as only GFA crosscut samples had been previously compiled. Mr. Gustin then checked the accuracy of this transcription by comparing the digitized results to the linens.

The GFA channel- and drift-sample data were evaluated and, with the exception of certain samples excluded from use (discussed below), they were accepted into the current resource database based on: (1) lack of statistical or other concrete evidence that the GFA channel-sample results are more or less accurate than any of the subsequent channel samples of later operators; (2) there is good evidence that GFA samples were extracted in a more systematic fashion than most (if not all) of the subsequent underground sampling programs; and (3) there is evidence that GFA samples were generally larger in volume, and therefore potentially more representative, than those from subsequent sampling programs. Details of the GFA underground sampling are provided in Section 6.0.

12.3 Database Verification - 2021

Additional auditing of the Project database was undertaken in September and October 2021 as part of the updated estimation of the Project resources discussed in Section 14. All drill-sample assay data derived from GQMC 2015 to 2021 were compiled from 279 digital assay certificates, including 261 certificates directly downloaded Bureau Veritas' website and 18 indirectly acquired from Paragon Labs. These original assay values were then compared against the existing Project database. In this manner, the gold and silver values for all 27,779 assayed drill-sample intervals from the 2015-

2021 drilling programs were verified digitally. The few discrepancies found between the compiled assays and the Project database were resolved with the assistance of GQMC personnel.

The entire database was then checked for logical discrepancies, such as missing collar table information, drill intervals missing assay data, anomalous hole orientations, down-hole deviation surveys at depths exceeding collar table depths, long sample intervals, sample interval overlaps, etc. Following the resolution of these potential problems, the resource database was finalized in October 2021.

12.4 Data Excluded

In addition to the more structured verification procedures discussed above, extensive verification of the Project data has been undertaken throughout Mr. Gustin's involvement in the Project from 2014 through to the date of this report. During this period, the mineral resources initially estimated and publicly reported in 2015 were updated eight times, with the current resource update being the eighth model and the second to be publicly reported. These resource updates each entailed the detailed, hands-on work that is required for explicit modeling of the gold and silver mineralization within the context of the Project geology. Of particular importance was the continual refinement of the modeling of principal mineralized structures as a consequence of the additional information provided by GQMC's drilling programs in 2015, 2016, 2018, 2019, and 2020-2021.

This ongoing verification work led to continual checking of the accuracy of a variety of data, such as hole locations, hole orientations, drill-hole lithologic attributes, and specific gold and/or silver assays, with resulting revisions to data as well as identification of data that is not suitable for use in the resource estimations. The following sample types were excluded from use:

- GFA underground core samples;
- GFA crosscut channel samples exceeding 10 ft in length;
- GFA crosscut and drift channel samples lying within modeled low-grade gold domains;
- Rosario drill-hole samples;
- post-GFA samples lying within modeled stopes;
- drill samples logged as being derived from intervals of poor recovery, no recovery, no sample, or "geosamp"; and

- all RC samples logged or later identified as having been, or suspected as having been, contaminated.

The GFA underground core samples were excluded due to sample-quality issues. Available data, which includes handwritten logging notes and sporadically assayed sample intervals, suggest core recoveries were generally poor to very poor (overall average is 45% recovery from 30 holes, excluding data from hole depths of 0 to 10 ft).

GFA crosscut sample lengths exceeding 10ft in length were judged to be too long in the context of their frequent locations within or immediately adjacent to the core of mineralized structural zones.

Over 90% of the GFA channel-sample gold values and 99% of the GFA drift samples in the Project database are reported at a precision of 0.0X oz/ton, which is not surprising given the age of the GFA analyses. Most of the database GFA gold values reported at a higher precision (0.00X oz/ton) are less than 0.01 oz/ton and therefore are likely to be assigned values for less-than-detection results. Whether the lack of precision in the data is an artifact of GFA rounding as the values were originally transcribed onto the historical linens (from which the database values are derived) or is a reflection of the actual assaying precision, the issue is significant for samples that lie within the low-grade gold domain that is modeled as part of the estimation of the current resources (this domain encompasses grades of more-or-less 0.003 to 0.010 oz Au/ton). All GFA gold analyses of samples lying within the low-grade gold domain were therefore excluded from use in resource-grade estimation.

The gold and silver assay data from the eight Rosario RC holes were excluded due to poor assay precision and incomplete/selective assaying of the holes.

All holes drilled subsequent to GFA post-date underground mining. Samples from these holes that lie within modeled stopes (predominantly RC samples) are presumed to represent samples of caved or stope-backfill material, and they were therefore also excluded.

Drill samples logged as having poor recovery, etc., were excluded due to questionable sample quality. These samples, of which there are 449 in the current resource database, frequently occur immediately down-hole from mining-void intersections. In these cases, it would be expected that the RC rig would have difficulties in obtaining sample return to the surface. It is interesting to note that logged comments of "no recovery" are sometimes accompanied by gold and silver assays. The "geosamp" designation is at times accompanied by notations of poor recovery, and Mr. Gustin believes that it was used for very small samples recognized as being unrepresentative but were sent in by the logging geologist for assaying with no intent of the results being used in any meaningful manner.

A total of 67 samples were excluded from use due to either: (i) noted contamination or suspected contamination on drill logs; or (ii) Mr. Gustin's visual inspection of the samples leading to suspicions of down-hole contamination. Eight of the samples logged as contaminated are also logged as alluvial/colluvial material and lie within the first 20 ft of the drill-hole collar, and 42 are from a single hole (GQ-842) suspected by Mr. Gustin to have been contaminated.

12.5 Mine Reconciliation

GQMC mine personnel provided Mr. Gustin with a spreadsheet that compiles the mine-site's bench-by-bench reconciliation calculations through to the end of September 2023. This spreadsheet compare the various then-current versions of the resource models estimated by Mr. Gustin to the ore-control polygons that are based on blasthole results. The spreadsheet includes reconciliations for each of the Main Pit Phases I and II, East Pit Phases I and II, and the second stage of mining at the Northwest Pit (reconciliations were not undertaken when mining first initiated at the Northwest Pit). While single-bench reconciliations vary considerably, the combined comparison of the resource models built solely on exploration drill data to the ore-control shows that the resource models estimated 8% fewer tons at an 8% higher gold grade and 1% higher silver grade. The total gold and silver ounces predicted by the resource model are 0.5% and 7% lower than the blasthole polygons, respectively. These comparisons were made on a total of 29.2 million tons of ore mined at grades of 0.021 oz Au/ton and 0.366 oz Ag/ton, as defined by the ore-control polygons.

The high variation between the resource versus blast-hole models on a bench-by-bench basis is not surprising given the epithermal nature of the deposit and the 'nugget effect' it imparts, as is evidenced by the high variability seen in the various duplicate-sample QA/QC datasets discussed in Section 11.8. The higher tonnage predicted by the exploration model is likely at least partly due to a level of mining dilution that exceeds that estimated by the use of 20 x 20 x 20-foot blocks in the resource model.

12.6 Post-Model Drill Results

Four metallurgical core holes and three exploration core holes drilled in 2022 were not included in the estimation of the current resource model (see Section 14.7). Three of the metallurgical holes were drilled into the Silver Queen zone, with the fourth drilled at the Sheeted Vein zone. The single Sheeted Vein zone hole matched the resource model very well in terms of the width, grade, and number of thin mineralized structures intersected. The three Silver Queen holes also intersected mineralization in areas predicted by the resource model, although the intervals intersected were equal to or exceeded the grades and widths modeled. While limited in scope, the four metallurgical holes drilled in 2022 confirmed the gold and silver resource modeling within the areas drilled and thereby increase the confidence in the modeling of the current Soledad Mountain resources.

The three Alphason exploration holes were drilled with the goal of increasing the understanding of the target, and although results were quite positive, the inclusion of the data into the resource modeling would have no material impact on the current Project resources.

12.7 Site Inspections

Mr. Gustin visited the Soledad Mountain Project 12 times, for a total of 30 days, during the period of March 3, 2014 through December 16, 2023. Five visits were completed in 2014, which focused on working with Golden Queen technical staff in the compilation and verification of historical data, as well as reviewing the Project geology and mineralization as understood at that time, all in preparation for completing the resource model that supported the 2015 feasibility study. Three visits, for a total of 6 days, were made in 2015 to review active drilling sites, provide guidance on Project procedures, and begin planning for future drilling. One site visit was conducted in each of 2018 and 2020 to review active drilling programs, inspect representative drill core, examine outcropping mineralization and alteration at various Project areas, and review pit-wall exposures. The on-site analytical lab was also visited in 2020. The most recent site visits were completed in March 15 and 16, 2021 and December 16, 2023. Recent drill sites were inspected, pit walls and floors were examined, and plans for additional drilling were discussed.

12.8 Summary Statement

Mr. Gustin has visited the Project site numerous times, he has undertaken extensive verification of the Project data throughout his long involvement in the Project, and data found to be inadequate for the purposes used in this report were excluded.

Mr. Gustin experienced no limitations with respect to data verification activities related to the Soledad Mountain Project. In consideration of the information summarized in this and other sections of this report, Mr. Gustin believes that the Project data are acceptable as used in this report.

12.9 Metallurgical Test Data

KCA checked the metallurgical test procedures and results to ensure they met industry standards, both for the tests conducted by Golden Queen site personnel and independent laboratories. Site metallurgical sampling procedures were reviewed to ensure that there was representative material taken at the crusher and that the samples were reasonably representative with regards to material type and grade with the material processed so as to continue to support the current processing method and assumptions regarding future recoveries and costs.

12.10 Site Visits by Qualified Persons

As detailed in Section 2.0, each of the Qualified Persons for this Report visited the Soledad Mountain property and, in regards to data verification, were provided the opportunity to review current and past drill programs, property details, metallurgical results, process operations and other miscellaneous items in relation to the Soledad Mountain heap leach operation.

13.0 MINERAL PROCESSING & METALLURGICAL TESTING

13.1 Primary Ore Types

The primary ore types that have been mined and processed by the Golden Queen Mining Company are rhyolite, pyroclastic and quartz representing approximately 55%, 32% and 13% of the ore tonnage respectively.

Areas to be mined in the future include:

- Golden Queen, Starlight and Soledad
- Silver Queen
- Sheeted Vein

Golden Queen, Starlight and Soledad deposits have been mined in the past. Historical leach plant recoveries will be used to forecast future recoveries from Golden Queen, Starlight and Soledad.

The Silver Queen deposit includes ore types seen historically (rhyolite, pyroclastic, quartz and latite) and has been mined in the last two years. It has been blended with material from other areas when stacked so laboratory tests will be used to forecast recoveries.

The Sheeted Vein deposit includes ore types (sulfide, mixed and non-sulfide) not seen historically. This area has been mined in small quantities. Laboratory tests were used to forecast recoveries.

13.2 Historical Test Programs

Column leach tests were performed from 1997 through 2007.

The following conclusions were drawn from an analysis of results:

- ***Extended Leach Time* -** Test results show that extended leach time is a factor in achieving low tails but possibly of lesser importance when the HPGR is used to crush.
- ***Particle Size Distribution*** - The test results show that it is the particle size distribution for any particular test rather than a point value such as a P_{80} that is key to interpreting and understanding the results of the tests.
- ***Micro-cracking*** - An analysis of test results and microphotographs show that micro-cracks are developed in ore particles crushed by an HPGR that allow relatively more

gold and silver to be extracted than in other crushing methods. The formation of micro-cracks increases recovery and lowers tails.

- ***Specific Press Force -*** An analysis of the tails obtained in the HPGR-based column leach tests shows that recoveries are affected by specific press force.

13.2.1 Historical Recovery Analysis for Gold

The historical laboratory column tests are summarized in Table 13-2 HPGR Column Test Results. KCA determined the following based on the results:

- A grade-recovery relationship for gold, where the recovery increases with increasing head grade in the ore;
- For rhyolite, a linear regression of the heads-tails plot of 200-day projected tails was made (from six column tests);
- For pyroclastics, no recent HPGR column tests were available and so this curve was set equal to the rhyolite curve;
- For quartz latite, the heads-tails curve was made parallel to the rhyolite curve passing through the available HPGR column test result.

The sample locations for the column leach tests are:

Table 13-1 HPGR Column Test Sample Locations

Sample	Material Type	Origin
2006 LG	Rhyolite	Channels
2004 A5T	Rhyolite	Road cuts, northwest ridge, located in Phase II Pit
2004 A1/A2T	Rhyolite	Road cuts, northwest ridge, located in Phase II Pit
2004 A4C	Rhyolite	Road cuts, northwest ridge, located in Phase II Pit
2004 R4.1C	Rhyolite	Road cuts, northwest ridge, located in Phase II Pit
2006 HG	Rhyolite	Channels
(R3/R4)C	Qz Latite	Two (Gypsy/Karma veins), Road cut/Outcrop
(R3/R4)E	Qz Latite	Two (Gypsy/Karma veins), Road cut/Outcrop

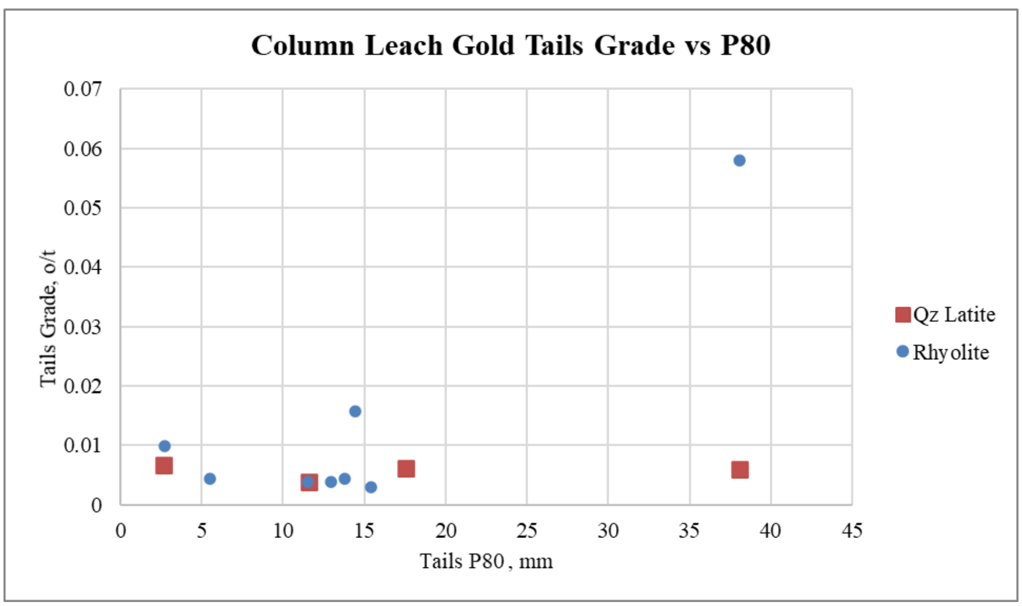
Table 13-2 HPGR Column Test Results

Sample ID	Year Tested	Crush Type	Ore Type	Head Grade		Actual Tails		Actual Recovery %	Actual Days Leached	200 Day Projected Tails		200 Day Projected Recovery %
				oz/ton Au	g/t Au	oz/ton Au	g/t Au			oz/ton Au	g/t Au	
LG	2006	HPGR	Rhyolite	0.010	0.340	0.003	0.100	70.6%	74	0.003	0.096	71.8%
A5T	2004	HPGR	Rhyolite	0.019	0.650	0.004	0.130	80.0%	128	0.003	0.115	82.3%
A1/A2T	2004	HPGR	Rhyolite	0.019	0.660	0.004	0.150	77.3%	128	0.004	0.135	79.5%
A4C	2004	HPGR	Rhyolite	0.020	0.680	0.004	0.130	80.9%	140	0.003	0.116	82.9%
R4.1C	2004	HPGR	Rhyolite	0.024	0.830	0.004	0.150	81.9%	76	0.004	0.124	85.1%
(R3/R4)C*	2004	HPGR	Qz Latite	0.035	1.210	0.004	0.130	89.3%	71	0.003	0.111	90.8%
(R3/R4)E*	2004	HPGR	Qz Latite	0.039	1.330	0.006	0.210	84.2%	71	0.005	0.156	88.3%
(R3/R4) Calc'd	2004	HPGR	Qz Latite	0.036	1.228	0.004	0.142	88.5%	71	0.003	0.118	90.4%
HG	2006	HPGR	Rhyolite	0.106	3.630	0.016	0.540	85.1%	74	0.011	0.372	89.8%
P8**	1990	HPGR	Pyrocl	0.044	1.496	0.011	0.367	75.5%	127	0.010	0.344	77.0%
P7**	1990	HPGR	Rhyolite	0.107	3.668	0.028	0.960	73.8%	127	0.025	0.862	76.5%

* "C" is center product and "E" is edge product. These test results are combined as a weighted average based on expected ratios to be used in commercial operation, to produce the "(R3/R4) Calc'd" sample. "(R3/R4) Calc'd" sample values are used in the recovery analysis.
** Tests excluded from recovery analysis.

The gold grade of the column tests leach tails was compared to the leach tails sizing. The rhyolite tails gold grade may be affected by P_{80}. No trend was seen for the quartz latite.

Figure 13-1. Column Leach Tails vs Crush Size



KCA recommended the field gold recoveries be estimated by ore type based on the following grade-recovery equations in the 2015 technical report:

- Rhyolite: [Tail, g/T[1]] = 0.1146 * [Head, g/T] + 0.063

- Pyroclastics: [Tail, g/T] = 0.1146 * [Head, g/T] + 0.063
- Quartz Latite: [Tail, g/T] = 0.1146 * [Head, g/T] + 0.014

1. *g/T is the SI unit of grams per metric tonne, metric tonnes are designated as T*

The recovery estimates using current head grades, based on these formulas, are presented in Table 13-3; these values were estimated at a gold head grade of 0.017 o/t (0.58 g/T).

Table 13-3 Past Estimated Gold Recoveries Based on 2015 Formulas

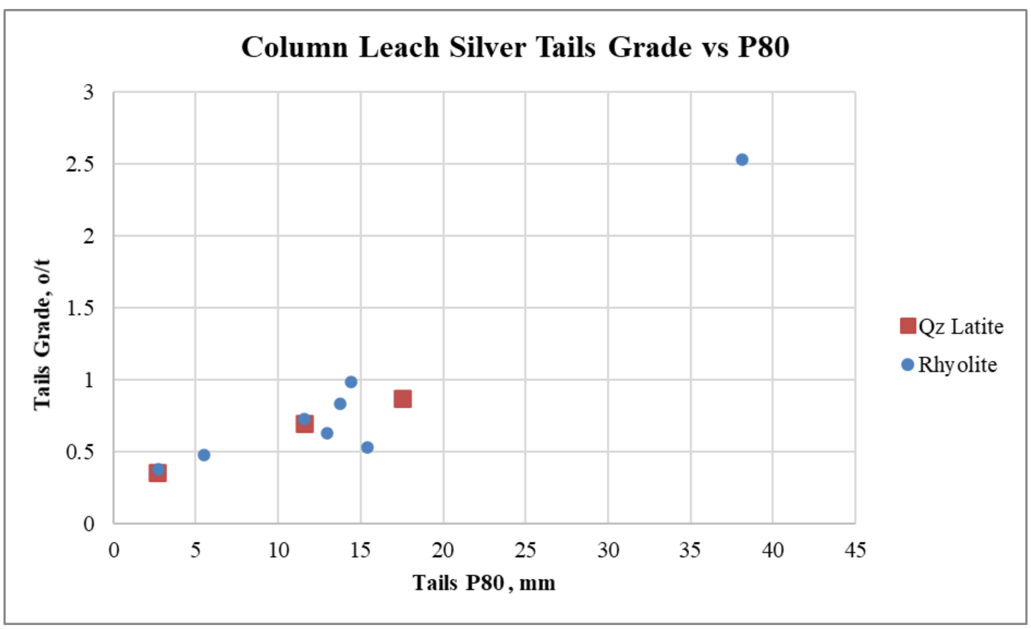
Ore Type	Gold Recovery, %[2]	Gold Recovery, %[3]	% of Ore
Rhyolite	78%	79%	87%
Pyroclastic	78%	79%	
Quartz	86%	86%	13%
Average[4]	79%	80%	100%

2. *Based on a gold head grade of 0.017 o/t (0.58 g/T), g/T is the SI unit of grams per metric tonne, metric tonnes are designated as T*
3. *Based on the head grade of 0.019 o/t (0.661 g/T) used in 2015 Technical Report*
4. *Weighted by the abundance of ore types*

13.2.2 Historical Recovery Analysis for Silver

The silver grade of the column tests leach tails was compared to the leach tails sizing. The silver tails grade for rhyolite and quartz latite both seemed to be affected by crush size.

Figure 13-2. Column Leach Tails vs Crush Size



Test work results show no clear silver grade-recovery relationship nor a clear distinction between recoveries by ore type, so a flat silver recovery of 50% was applied for all ore types.

13.2.3 Historical Metallurgical Variability

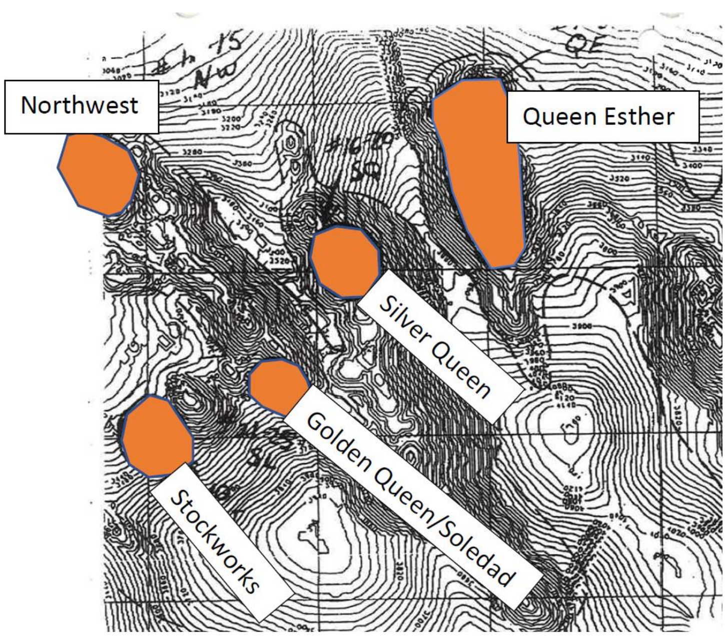
A bottle roll program on reverse circulation drill cuttings was completed by an independent consulting engineer in 1995. The deposit was divided into six areas, four rock types and three vertical zones for this program and 46 standard bottle roll tests were performed.

The samples were described as:

Table 13-4. Historical Metallurgical Variability Tests

Location	Rock Type	Strata / Depth
Golden Queen	Rhyolite	High
Northwest	Quartz-Latite	Mid
Queen Esther	Pyroclastics	Low
Silver Queen	Vein	
Steltzner		
Stockworks		

Figure 13-3. Location of Variability Bottle Rolls



An analysis of the results concluded that there was no discernable difference in metallurgical response for a particular rock type from area to area and from strata to strata. This is of significance because it allows the information from leach test work in one area to be applied to another area that will be mined.

13.2.4 Historical Moisture Content, Specific Weight & Slump

Moisture contents, column densities, slump, and drain down measurements for HPGR column tests were made to develop design parameters for the heap. The results are summarized in Table 13-5.

Table 13-5. Moisture Content, Density, and Drain Down for HPGR Column Tests

		Moisture Content			Specific Weight				Slump	Drain Down	
		To Saturate	To Agglo-merate	Retained	Before Leach Test		After Leach Test			Time - 120 h	
Ore Type	Sample	%	%	%	lb/ft^3	t/m^3	lb/ft^3	t/m^3	%	gal/ton	L/t
Rhyolite	P7	14.6	8.1	9.4	86.98	1.39	87.59	1.40	<0.1	---	---
Pyroclastics	P9	19.5	8.8	9.5	91.10	1.46	92.81	1.49	<0.1	---	---
Rhyolite	A5T	16.6	11.1	13.5	80.5	1.29	80.5	1.29	<0.1	5.35	22.26
Rhyolite	A1/A2T	16.2	11.5	13.9	83.6	1.34	84.9	1.36	1.5	5.07	21.09
Rhyolite	A4C	21.2	12.7	15.2	79.9	1.28	92.4	1.48	15.6	6.61	27.51
Rhyolite	R4.1C	20.3	6.9	15.6	88.0	1.41	88.6	1.42	0.7	8.23	34.26
Quartz latite	R3/R4C	18.2	---	14.3	98.0	1.57	99.8	1.60	1.8	23.78	99.0
Quartz latite	R3/R4E	14.3	---	7.4	99.2	1.59	99.2	1.59	<0.1	18.73	78.0
Quartz latite	Combined	17.6	---	11.6	---	---	---	---	1.5	28.10	95.9
Rhyolite	LG	13.8	12.8	10.7	77.4	1.24	78.0	1.25	0.8	6.91	28.8
Rhyolite	HG	14.0	10.6	11.9	88.0	1.41	89.3	1.43	1.4	4.92	20.5

13.2.5 Historical Compacted Permeability Test Work

Test work for percolation rates under loading was conducted on several HPGR column leach residues, the results are summarized in Table 13-6.

Table 13-6. Compacted Permeability Results for HPGR Column Leach Residues

Ore Type	Sample	Cement lb/ton (kg/t)	Flow Regime	Permeability Heap Height 200 ft (60 m)	
				gpm/ft²	cm/s
Rhyolite	P7	10+ (5+)*	Saturated	0.51	$3,490 \times 10^{-5}$
Pyroclastics	P9	10+ (5+)*	Saturated	0.31	$2,100 \times 10^{-5}$
Rhyolite	A5T	8 (4)	Unsaturated	0.001	10×10^{-5}
Rhyolite	A5T	8 (4)	Saturated	<0.001	3×10^{-5}
Quartz latite	R3/R4C	4 (2)	Saturated	1.8	$12,000 \times 10^{-5}$
Quartz latite	R3/R4E	4 (2)	Saturated	2.5	$17,000 \times 10^{-5}$
Rhyolite	LG	8 (4)	Unsaturated	0.005	$> 34 \times 10^{-5}$**
Rhyolite	HG	8 (4)	Unsaturated	0.003	18×10^{-5}**

** A second, unspecified quantity of cement was added immediately before the test*

***LG sample maintained a minimum 0.005 gpm/ft² percolation rate through 200 ft (60 m) equivalent load, HG sample applied solution had to be decreased to 0.003 gpm/ft² at 200 ft (60 m) load to prevent column flooding.*

The samples above were column leach residue; their origin is described above in Section 13.2.1.

The design percolation rate for the Project is approximately 0.005 gpm/ft², and generally KCA prefers to see the maximum percolation rate to be 10 times the design rate (in this case, 0.050 gpm/ft²).

KCA recommended a cement dosage of 9.5 lb/ton based on the above.

13.2.6 Historical Wash and Neutralization Test Results

McClelland conducted washing and neutralization tests on column leach residues in 1990 and 1996, to determine the effectiveness of cyanide removal for closure and reclamation purposes.

In 1990, wash tests were conducted on rhyolite and siliceous pyroclastic column leach test residues. Both residues met allowable limits for all tested elements with the exception of TTLC (Total Threshold Limit Concentration) Beryllium (80 ppm actual vs. 75 ppm limit) for the rhyolite residue. Neither residue showed any detectable STLC (Soluble Threshold Limit Concentration) Beryllium.

In 1996, a master composite of column leach residue (all ore types), was subjected to a two-stage rinse in three columns in series (to simulate a multi-lift heap). The rinsed residue was submitted for a CAM-WET analysis for TTLC and it was determined the concentration of all analyzed constituents were well below the permitted TTLCs.

13.3 Recent Test Program

Due to the new areas of Silver Queen and Sheeted Vein material, a test program consisting of bottle roll leach tests and column leach tests was completed.

13.3.1 Bottle Roll Results – Silver Queen

Samples of mineralized drill core from the Silver Queen deposit was composited by depth, ore type (latite, pyroclastic, quartz and rhyolite) and position (north, central and south). The drill core received had been crushed during prior handling.

Thirty-four composites were made from the material and leached, without further crushing, in 96-hour bottle roll tests.

The results are presented in Table 13-7.**Error! Reference source not found.Error! Reference source not found.**

Table 13-7 Silver Queen Bottle Roll Results

Composite		Material Type	P_{80}, mm	Elevation, ft ASL		Extraction %		NaCN lb/t
				From	To	Gold	Silver	
1		Latite	2.0	3,127	3,061	47%	27%	0.38
2		Pyroclastic	1.6	3,237	3,128	81%	63%	0.35
3		Pyroclastic	1.5	3,358	3,297	55%	41%	0.59
4	S	Pyroclastic	2.0	3,398	3,383	55%	42%	0.35
4	N	Pyroclastic	1.5	3,400	3,359	54%	40%	0.23
5		Pyroclastic	1.4	3,477	3,422	52%	47%	0.37
6		Pyroclastic	1.2	3,545	3,477	55%	63%	0.53
7	C	Pyroclastic	1.3	3,594	3,550	52%	59%	0.56
7	N	Pyroclastic	1.5	3,602	3,553	62%	50%	0.53
8		Pyroclastic	1.1	3,654	3,600	58%	37%	0.52
9		Quartz	2.4	3,261	3,127	53%	39%	0.92
10		Quartz	1.7	3,394	3,289	53%	61%	0.32
11	C	Quartz	1.9	3,450	3,398	45%	44%	0.31
11	N	Quartz	2.1	3,451	3,433	62%	46%	0.65
12		Quartz	1.6	3,498	3,450	61%	56%	0.77
13	S	Quartz	1.9	3,545	3,502	48%	64%	0.50
13	C	Quartz	2.5	3,545	3,518	47%	49%	0.59
13	N	Quartz	2.1	3,548	3,510	50%	50%	0.53
14		Quartz	2.3	3,608	3,545	45%	43%	0.62
15		Rhyolite	2.0	3,289	3,237	53%	84%	1.19
16		Rhyolite	1.3	3,345	3,291	68%	53%	0.74
17	S	Rhyolite	1.2	3,402	3,373	55%	52%	0.47
17	C	Rhyolite	1.4	3,402	3,347	70%	39%	0.62
17	N	Rhyolite	1.7	3,402	3,360	59%	45%	1.10
18	S	Rhyolite	1.8	3,439	3,406	77%	24%	0.37
18	C	Rhyolite	2.5	3,440	3,407	49%	23%	0.01
18	N	Rhyolite	1.5	3,440	3,401	65%	45%	0.32
19	S	Rhyolite	1.6	3,496	3,441	68%	42%	0.26
19	C	Rhyolite	1.7	3,493	3,480	57%	54%	0.31
19	N	Rhyolite	1.5	3,493	3,441	61%	45%	0.16
20	S	Rhyolite	1.6	3,540	3,500	59%	53%	0.16
20	C	Rhyolite	2.3	3,542	3,498	44%	44%	0.10
20	N	Rhyolite	1.6	3,541	3,495	62%	46%	0.25
21		Rhyolite	2.2	3,601	3,553	58%	48%	0.25

The extractions sorted by material type are:

Table 13-8. Silver Queen Bottle Roll Results

		Bottle Roll			Estimated Field		
Ore Type	**Assumed, %[2]**	**Gold Extraction**	**Silver Extraction**	**NaCN Cons. lb/t**	**Gold Recovery**	**Silver Recovery**	**NaCN Cons. lb/t**
Latite	3.0%	47%	27%	0.38	54%	23%	0.31
Pyroclastic	22.0%	58%	49%	0.45	68%	43%	0.36
Quartz	18.0%	52%	50%	0.58	60%	44%	0.47
Rhyolite	57.0%	60%	46%	0.42	70%	40%	0.34
Average[1]		58%	47%	0.45	67%	41%	0.37

1. *Precent weighted averages of ore type values*
2. *Percentages are based on estimates from onsite drilling*

Pyroclastic and rhyolite materials had higher gold extractions.

The bottle roll extractions by position (north, center, south) were averaged for rhyolite. The averages are:

Location	Gold Extraction	Silver Extraction
North	62%	45%
Center	55%	40%
South	65%	43%

The material from the south of the Silver Queen deposit had higher gold extraction relative to the north and center.

Bottle roll gold extraction was grouped by material and plotted by depth.

Figure 13-4 Silver Queen - Gold Extraction vs Depth

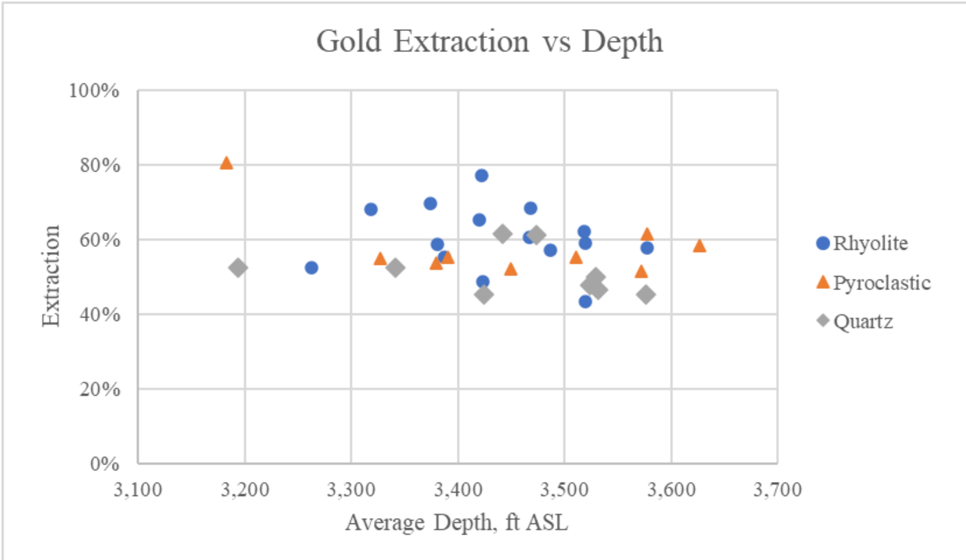
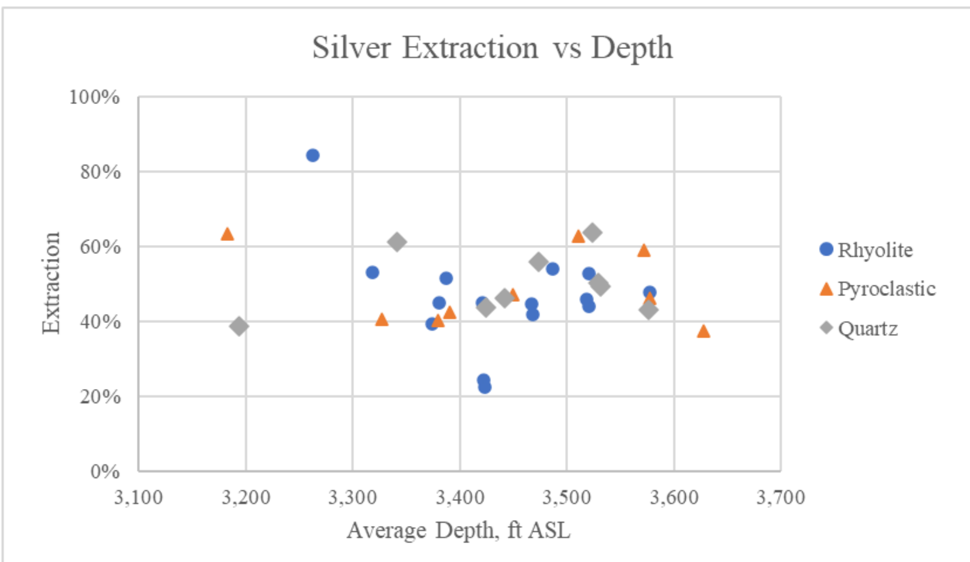


Figure 13-5 Silver Queen - Silver Extraction vs Depth



Depth had no obvious effect on the extraction of gold or silver.

13.3.2 Column Leach Tests – Silver Queen

Two column leach tests were conducted by site personnel on samples taken during early mining from the Silver Queen deposit. Final gold extractions in the two column leach tests were essentially identical at 72.5% and 72.8% at 86 days and 95 days, respectively. Calculated head grades were 0.02 opt Au and 0.009 opt Au. A series of column tests on core material selected to be representative were conducted on Silver Queen material at KCA. The results of these column tests are presented in Table 13-9.

Table 13-9. Silver Queen Column Leach Test Results

Description	Crush Size Target p80-85, mm	Calculated Head, oz Au/ton	Weighted Avg. Tail Screen, oz Au/ton	Extracted, % Au	Days of Leach	Consumption NaCN, lb/ton	Addition Cement, lb/ton
SQMET22-01 HG-Top	6.3	0.214	0.103	52%	132	2.59	10.04
SQMET22-01 LG-Bottom	6.3	0.018	0.010	48%	132	2.20	10.03
SQMET22-02	6.3	0.043	0.022	50%	98	3.24	10.04
SQMET22-03 HG-Top	6.3	0.035	0.020	43%	99	3.61	10.11
SQMET22-03 LG-Bottom	6.3	0.176	0.081	54%	101	2.98	9.72

Description	Crush Size Target p80-85, mm	Calculated Head, oz Ag/ton	Weighted Avg. Tail Screen, oz Ag/ton	Extracted, % Ag	Days of Leach	Consumption NaCN, lb/ton	Addition Cement, lb/ton
SQMET22-01 HG-Top	6.3	1.447	0.014	48%	132	2.59	10.04
SQMET22-01 LG-Bottom	6.3	0.149	0.013	44%	132	2.20	10.03
SQMET22-02	6.3	0.379	0.014	49%	98	3.24	10.04
SQMET22-03 LG-Top	6.3	0.382	0.008	29%	99	3.61	10.11
SQMET22-03 HG-Bottom	6.3	1.036	0.011	36%	101	2.98	9.72

The column tests completed at KCA showed a trend in grade and recovery for the samples taken at the top and bottom. If the column tests completed at site are included there is no trend in grade and recovery. This comparison in presented in Figure 13-6.

Figure 13-6 Silver Queen – Gold Extraction vs Head Grade

The average recovery for all silver queen column leach tests is 56% in an average 106 days. The samples taken during mining are not believed to be representative, while the core samples were taken with that purpose. The average gold recovery for the column tests on the core samples is 49%.

13.3.3 Bottle Roll Results – Sheeted Vein

Samples of mineralized drill core from the Sheeted Vein deposit was composited by both depth and ore type (non-sulfide, sulfide and mixed). The drill core received had been crushed to approximately 80% passing 1.7 mm during prior handling.

Eleven composites were made from material and leached, without further crushing, in 96-hour bottle roll tests.

Table 13-10. Sheeted Vein Bottle Roll Results

	Elevation				Extraction, %		
Composite	From, ft	To, ft	Material Type	P_{80}, mm	Gold	Silver	NaCN Cons., lb/t
1	3590	3426	Non-Sulfide	1.85	49	37	0.10
2	3320	3213	Non-Sulfide	1.59	73	63	0.14
3	3177	3027	Non-Sulfide	1.43	80	53	0.16
4	2990	2988	Non-Sulfide	1.68	83	31	0.16
5	3557	3525	Sulfide	1.99	40	30	0.26
6	3475	3169	Sulfide	1.74	47	36	0.26
7	2904	2883	Sulfide	1.18	6	36	1.76
8	3571	3425	Mixed	2.00	51	44	0.16
9	3395	3255	Mixed	1.30	59	46	0.32
10	3188	3061	Mixed	2.06	61	49	0.34
11	2898	2898	Mixed	2.09	48	24	0.92

The sulfide material had the lowest gold extraction while the non-sulfide the highest. Mixed material was between the sulfide and non-sulfide. GQMC provided the occurrence of the material types. This is used to produce an average extraction for Sheeted Vein.

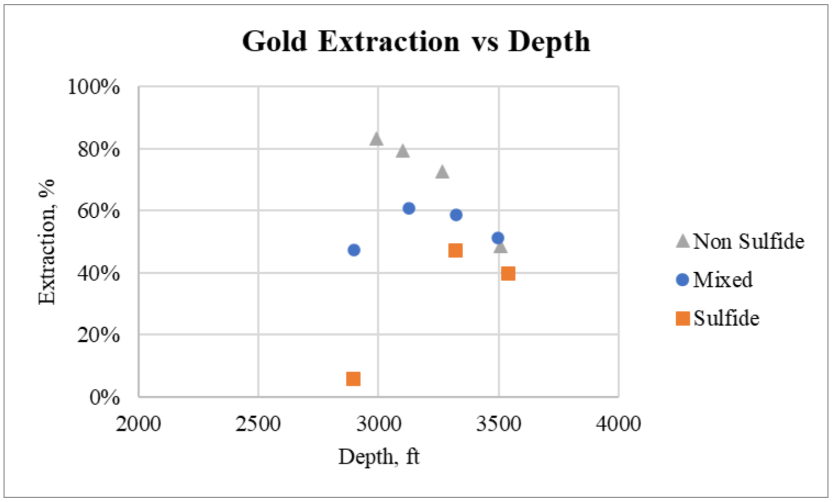
Table 13-11. Sheeted Vein Bottle Roll Results

	Bottle Roll Extraction			
Material Type	Gold	Silver	NaCN Cons., lb/t	Material Distribution[1]
Non-Sulfide	71%	46%	0.14	58.5%
Sulfide	31%	34%	0.76	5%
Mixed	55%	41%	0.44	36.5%
Weighted	63%	43%	0.28	

1. *The "material distribution" is the estimated percentage of each material type. These values were used in the weighted average calculation*

The only relationship between extraction and depth seen was between gold in the non-sulfide material. This is shown in the following plot.

Figure 13-7 Silver Queen - Silver Extraction vs Depth



Gold and silver tails grade seemed to be related to the sample crush size.

13.3.4 Column Leach Tests – Sheeted Vein

Two column leach tests were conducted at KCA on samples taken from the Sheeted Vein deposit. Final gold extractions in the two column leach tests averaged 76%, but varied greatly at 67% and 86% at 108 days. These recoveries are for the Top and Bottom composites, respectively, indicating a higher recovery at depth. The results of these column tests are presented in Table 13-2.

Table 13-12. Sheeted Vein Column Leach Test Results

Description	Crush Size Target p80-85, mm	Calculated Head, oz Au/ton	Weighted Avg. Tail Screen, oz Au/ton	Extracted, % Au	Days of Leach	Consumption NaCN, lb/ton	Addition Cement, lb/ton
SVMET22-01 Top Composite	6.3	0.034	0.020	67%	108	3.08	10.09
SVMET22-01 Bottom Composite	6.3	0.012	0.025	86%	108	3.30	10.17

Description	Crush Size Target p80-85, mm	Calculated Head, oz Ag/ton	Weighted Avg. Tail Screen, oz Ag/tpm	Extracted, % Ag	Days of Leach	Consumption NaCN, lb/ton	Addition Cement, lb/ton
SVMET22-01 Top Composite	6.3	0.099	0.006	21%	108	3.08	10.09
SVMET22-01 Bottom Composite	6.3	0.053	0.006	20%	108	3.30	10.17

13.4 Site Monthly Column Tests

Column leach tests have been conducted on monthly composite samples for the life of the project. KCA reviewed the site column leach data to estimate the recovery of the Golden Queen, Starlight and Soledad material. The monthly column tests were also compared against the production data to confirm recovery estimates as well as calculate gold and silver inventories.

13.4.1 Recovery for Golden Queen, Starlight and Soledad

It was observed on site that the gold recovery of the Golden Queen, Starlight and Soledad deposits has a higher gold recovery at lower elevations. To quantify this, the monthly column leach test leach results were plotted against the average bench depth stacked for that month. Only months with more than 80% Golden Queen, Starlight and Soledad material were included. The data was also broken down by pit if sufficient separation was available in stacking. The east pit gold recoveries are presented in Figure 13-8. The combined Main Pit and Northwest Pit values are presented in Figure 13-9.

Figure 13-8 East Pit Gold Recovery At Elevation

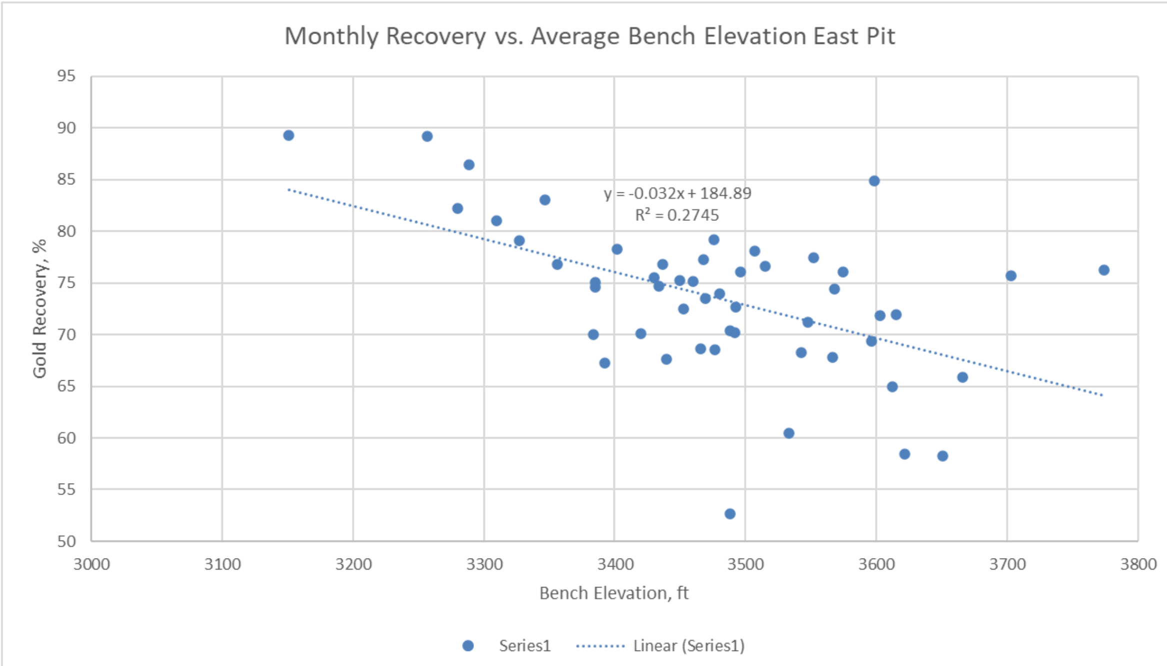
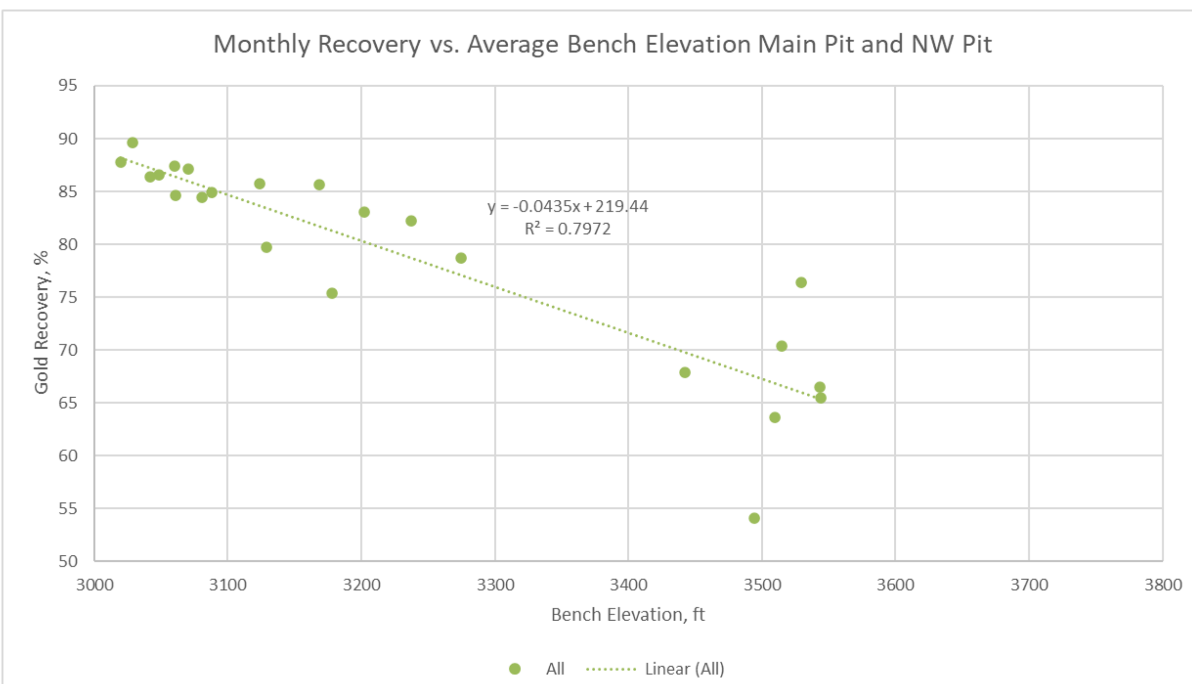


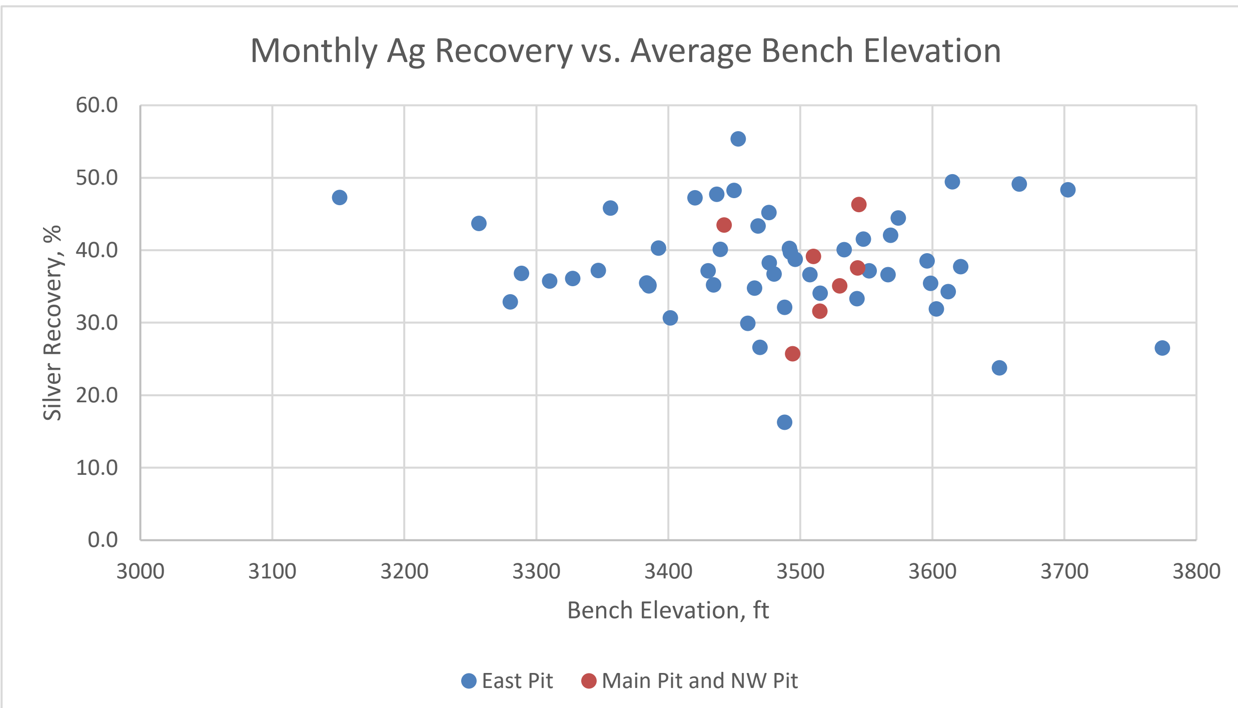
Figure 13-9 Main Pit and Northwest Pit Gold Recovery At Elevation



Both pits show a trend confirming the recovery dependence on elevation, with a stronger trend observed in the Main and Northwest Pits. The future mine plan shows all Golden Queen, Starlight, and Soledad material coming from the Main Pit.

The same exercise was completed for silver recoveries. The silver recoveries do not show the same dependence on elevation as observed with gold recoveries. The silver monthly column results are plotted against the average bench elevation in Figure 13-10.

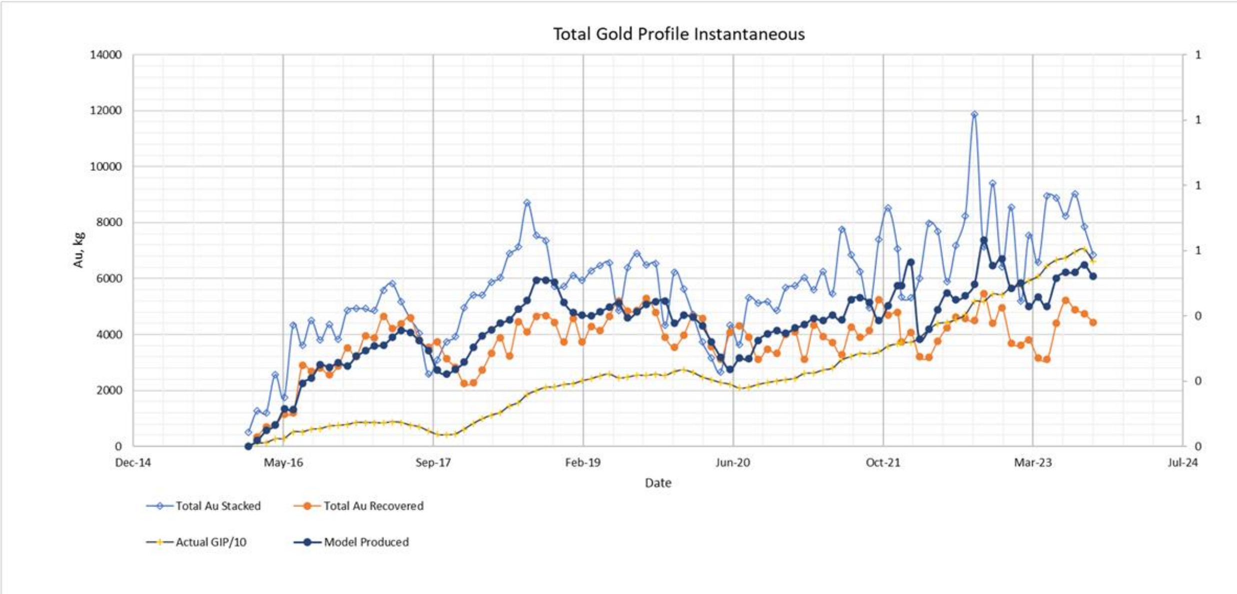
Figure 13-10 Silver Recovery at Elevation



13.5 Production and Recovery Estimates

A gold production model for the project was created utilizing the recoveries from the 2022 internal study. These recoveries are 80% for Golden Queen, Starlight and Soledad, 70% for Silver Queen, and 74% for Sheeted Vein. The results of this model are presented in Figure 13-11.

Figure 13-11 Gold Model Internal 2021 Study Recoveries



This model shows that the actual production is falling short of the estimated numbers and has been since late 2020. The 80% recovery for the Golden Queen material was based on the fact that the mine plan was to mine similar material as was treated in 2016 and 2017, where the model fits quite well.

Since the study was finished, additional column test work has been conducted on Silver Queen and Sheeted Vein material as reviewed in this report. The Silver Queen and Sheeted Vein material was not stacked in significant quantities to be able to utilize the production data and monthly on-site column tests to estimate the recovery, so these updated columns were used. The Silver Queen recovery in the column tests is significantly lower than what was used in the study. The Silver Queen column leach tests were still slowly leaching at completion of the tests so no deduction from the columns is necessary but the Sheeted Vein material was complete and will get a 2% recovery deduction.

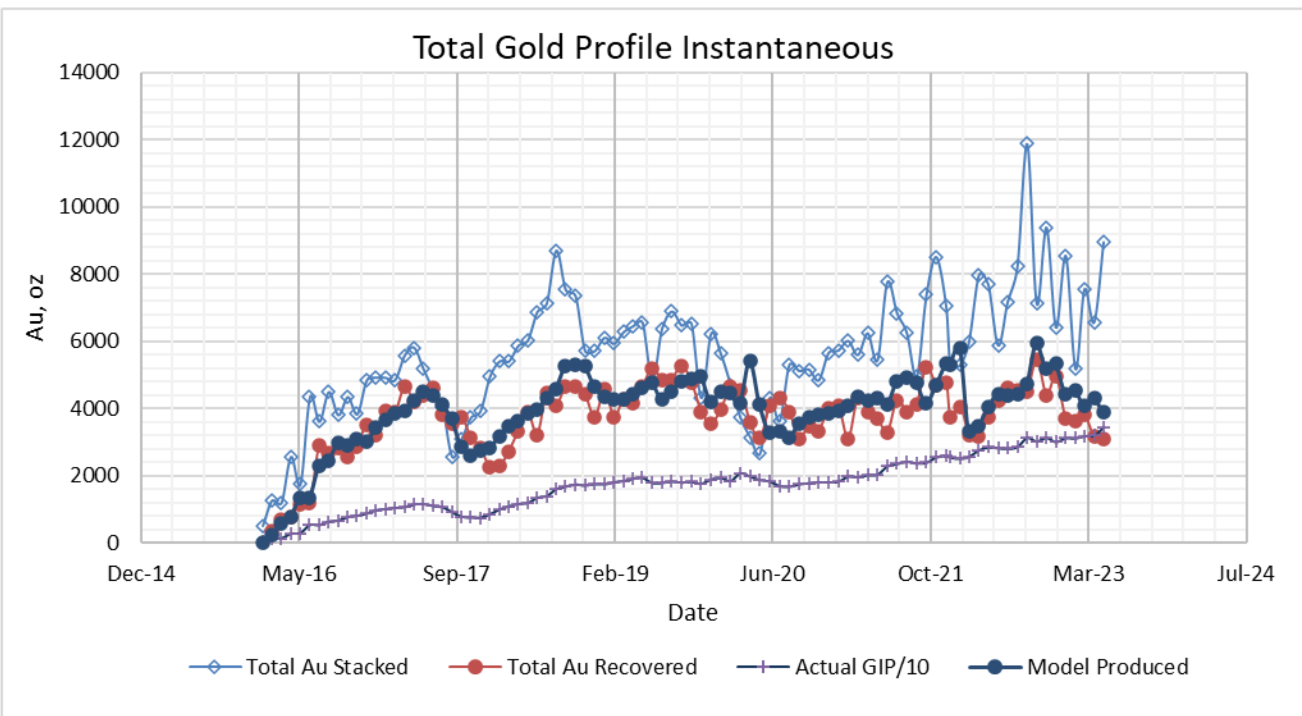
The future Golden Queen, Starlight and Soledad ore is expected to come from the main pit. The recovery dependence for the Main and Northwest Pits from Figure 13-9 was used as a basis for gold recovery. It was decided to cap this recovery at 85% due to historic production.

A model utilizing the updated recoveries from the column test work and the newly calculated Golden Queen, Starlight and Soledad recovery was put together. The updated recoveries are summarized in Table 13-13. The updated model is presented in Figure 13-12.

Table 13-13. Updated Gold Recoveries

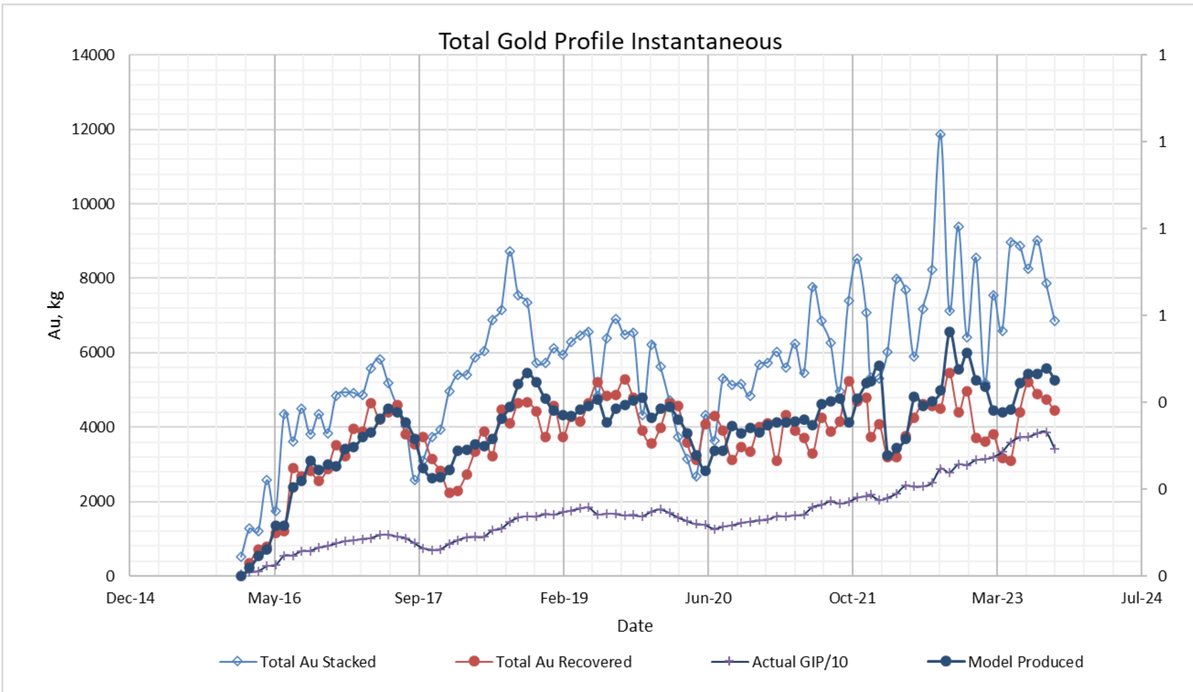
Ore Type	Gold Recovery, %
Golden Queen, Starlight, and Soledad	y =(-0.0435x+219.44)/100 y </= 85 y = Au Recovery, % x = Bench Elevation, ft
Silver Queen	49%
Sheeted Vein	74%

Figure 13-12 Soledad Mountain Gold Model, Updated Recoveries



This model fits relatively closely to the actual production for most of the project. Another check was conducted creating a model utilizing the results from the monthly column leach tests. This is presented in Figure 13-13.

Figure 13-13 Soledad Mountain Gold Model, Monthly Columns



The monthly column gold model matches closely with the model with recovery dependence on depth and confirms the estimated recoveries presented in Figure 13-12.

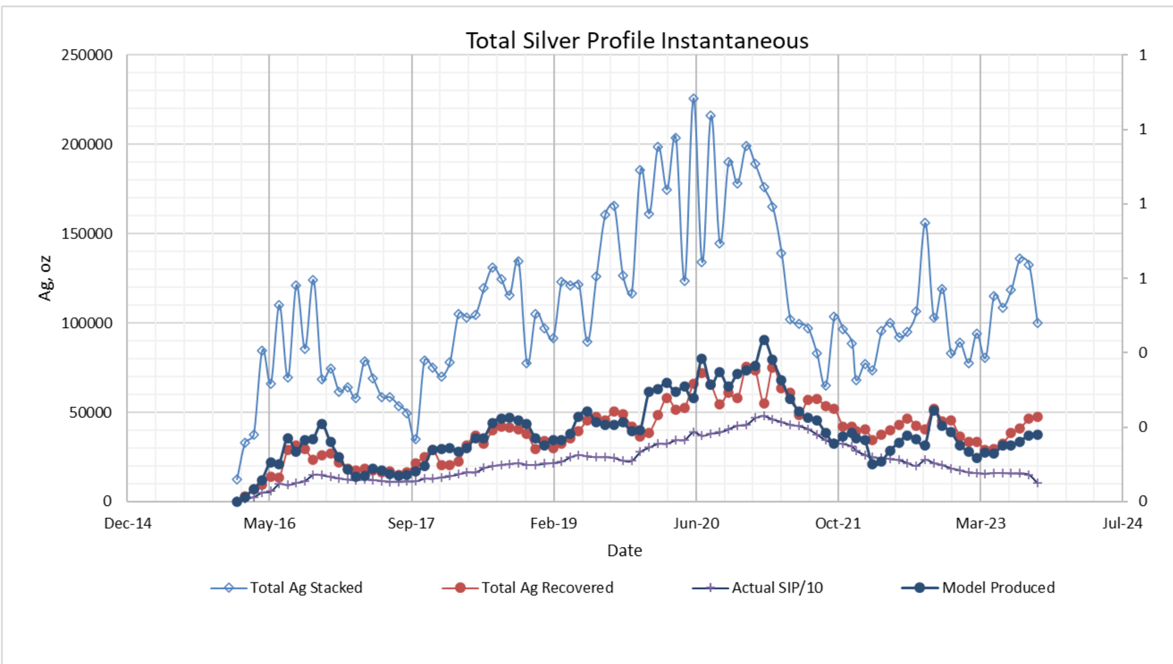
There is a gap between estimated production based on the monthly column tests and actual production. There are known operational issues including high clay and poor agglomeration practices and this may be why production has been short since October of 2022. The indications that this variance is due to operational practice, it does not need to be considered for future ore.

The gold models indicate that the Silver Queen material has a recovery near the column leach tests despite a high monthly composite test for a month that was stacked with only that ore type. There is insufficient Sheeted Vein material to make any conclusion outside of the column leach tests.

Based on the monthly column test gold model, a gold inventory of about 38,000 ounces is shown in September 2023. The model was run to the end of mine life based on the mine plan and estimated recoveries. Leaching continues past the last month of stacking, which gives about 11,000 ounces from the ore recently stacked. The aforementioned production shortfall as compared to the model from October 2022 through September 2023, is likely not recoverable in the future and is estimated at 12,000 ounces. This gives a gold inventory of approximately 15,000 ounces that can be recovered at the end of the project.

A silver model was put together utilizing the monthly column leach test results. The monthly column silver model is presented in Figure 13-14.

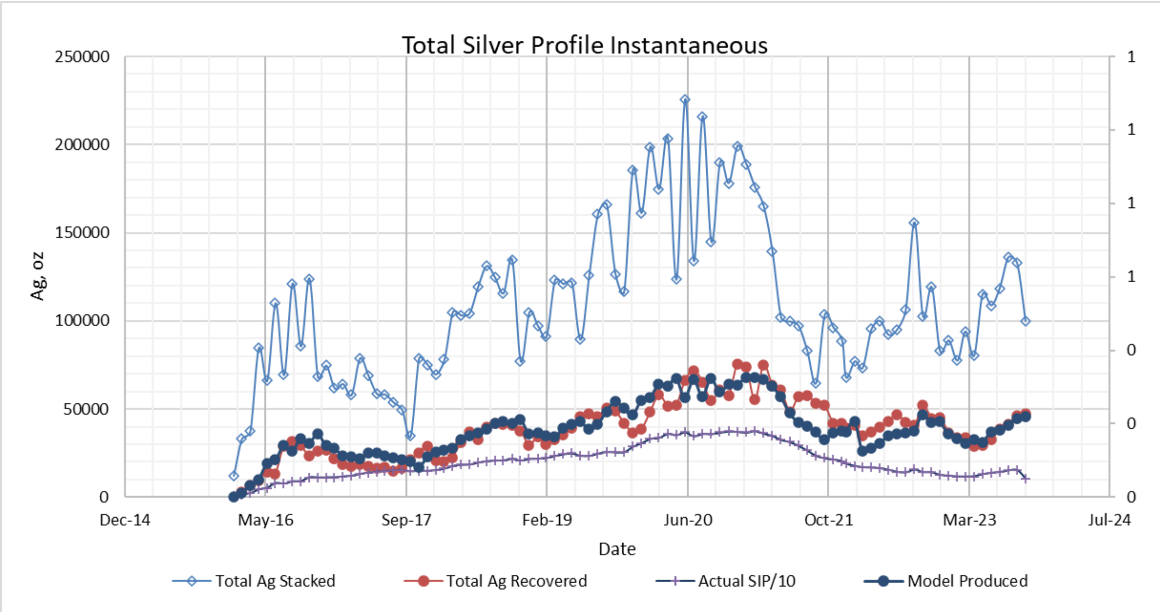
Figure 13-14 Soledad Mountain Silver Model, Monthly Columns



Based on this model, a best fit recovery was achieved with 36.6% recovery. This best fit model is presented in Figure 13-15.

Based on the monthly column test silver model, a silver inventory of about 150,000 ounces is shown in September 2023. The model was run to the end of mine life based on the mine plan giving a total inventory of 167,000 ounces. Leaching continues past the last month of stacking, which gives 137,000 ounces from the ore recently stacked. This gives a silver inventory of approximately 30,000 ounces that can be recovered at the end of the project.

Figure 13-15 Soledad Mountain Silver Model, 36.6%



13.6 Leach Parameters

13.6.1 Reagent Consumption

Plant cyanide and cement consumptions are

Table 13-14. Project-to-Date Cyanide and Cement Consumption

Year	Ore Stacked, tons	Cement, #	Cement, #/t	Cyanide, #	Cyanide, #/t
2016	2,665,676	26,797,924	10.1	346,473	0.13
2017	3,552,893	42,702,624	12.0	666,483	0.19
2018	3,524,297	40,595,520	11.5	341,814	0.10
2019	4,119,262	47,284,240	11.5	544,205	0.13
2020	3,979,769	43,517,760	10.9	756,147	0.19
2021	4,502,778	44,597,460	9.9	841,613	0.19
2022	4,210,279	46,049,940	10.9	1,200,520	0.29
2023	3,812,560	42,856,294	12.5	642,787	0.19
total/avg	30,368,621	338,393,722	11.1	5,340,042	0.18
max			12.5		0.29
min			9.9		0.10

13.6.2 Summary

KCA recommends using the following field leach parameters:

Table 13-15. Expected Recoveries and Reagent Consumptions

Ore Type	Gold Recovery, %	Silver Recovery, %	NaCN Cons., lb/st	Cement Cons., lb/st
Golden Queen, Starlight, and Soledad	y = (-0.0435x+219.44)/100 y </= 85 y = Au Recovery, % x = Bench Elevation, ft	37%	0.16	11
Silver Queen	49%	37%	0.37	11
Sheeted Vein	74%	37%	0.23	11

There is no information regarding differences of clay occurrence versus deposit; cement consumption is driven by clay content. It is assumed that cement consumption is constant.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The mineral resource estimation for the Soledad Mountain project was completed in accordance with the guidelines of NI 43-101. The mineral resources were estimated under the supervision of Mr. Gustin, a qualified person with respect to mineral resource estimations under NI 43-101. Mr. Gustin is independent of GQMC and Andean by the definitions and criteria set forth in NI 43-101; there is no affiliation between Mr. Gustin and GQMC or Andean except that of an independent consultant/client relationship.

The Soledad Mountain gold and silver mineral resources have an effective date of 30 September 2023, the date of the as-mined topographic surface used in the resource estimation.

The Soledad Mountain mineral resources are classified in order of increasing geological and quantitative confidence into Inferred, Indicated, and Measured categories in accordance with the "CIM Definition Standards - For Mineral Resources and Mineral Reserves" (2014) and therefore NI 43-101. CIM mineral resource definitions are given below, with CIM's explanatory text 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. 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.

14.2 Soledad Mountain Project Data

The Soledad Mountain gold and silver resources were estimated using data generated by GQMC and, to a lesser extent, historical operators. The data derived from historical operators include GFA underground crosscut and drift channel samples and associated detailed documentation of the underground mine workings, Rosario underground crosscut channel samples, and Shell-Billiton, CoCa Mines, and Glamis RC drill samples. Of the 1,075 core and RC holes used in the resource estimation, 95 were drilled by historical operators.

GQMC also provided Mr. Gustin with digital topographic data relevant to the resource estimation, including the project surface topography as of 30 September 2023 (the 'present-day' topography) and an 'as-mined' topography as of the same date. The difference between these topographic surfaces defines waste dumps, pit backfill materials, mine-road fill, etc.

The resource database uses State Plane, California Zone 5, NAD83 coordinates expressed in US Survey feet. The cutoff date of the resource database is 1 December 2022. Four metallurgical core holes drilled at the Silver Queen and Sheeted Veins zones, as well as three exploration core holes drilled at the Alphason target, were drilled subsequent to the cutoff date.

All modeling of the Soledad Mountain project resources was performed using GEOVIA Surpac™ mining software.

14.3 Deposit Geology Pertinent to Resource Modeling

The gold and silver mineralization at the Soledad Mountain deposit is directly controlled by a series of north to northwest-striking faults of variable dips that cut Tertiary volcanic units. Over 20 of the most prominent of these mineralized structures were formally named in the past, and most of these are accompanied by series of splays and secondary structures that are also mineralized. Mr. Gustin believes that essentially all of the Soledad Mountain gold and silver mineralization is directly related to structures that cut all rock types, although alteration and, to a lesser extent, mineralization styles vary. Proper modeling of the Soledad Mountain mineralization is therefore dependent on the recognition of the controlling mineralized structures and their highly variable widths of mineralization along any given structure.

14.4 Modeling of Lithology, Structure, Alteration, and Oxidation

In early 2014, at the initiation of the resource study that would support the February 2015 Feasibility Study, GQMC geologic staff and Mr. Gustin jointly decided that geological modeling needed to be updated from that completed in the mid- to late 1990s. GQMC geologists therefore immediately embarked on relogging all available RC chips and drill core while simultaneously updating lithologic cross-sections. Sectional alteration and oxidation interpretations were also produced during this program.

Due to project timelines, the RESPEC resource modeling proceeded simultaneously with the geologic work of the GQMC. Fortunately, documentation of an internal, non-43-101-compliant estimate of the project gold and silver resources completed by Stephen Bruff in 1998 was uncovered (Bruff, 1998, July), including digital copies of the cross-sectional mineralized envelopes used by Bruff to constrain his estimate. Bruff incorporated surface and underground geologic interpretations by Vance Thornsberry and Bois Hall, prior GQMC geologists, which had culminated in hand-drawn geologic interpretations on a set of 100-foot-spaced paper cross sections that covered the full extents of the Soledad Mountain gold and silver mineralization. Bruff used these sectional interpretations, in combination with original GFA documentation of mine workings (cross sections, long sections, and level-plan maps) and existing digital modeling of underground drifts and crosscuts by AMEC, to model his cross-sectional mineralized envelopes. After careful review, RESPEC found Bruff's sectional work to be of extremely high quality, particularly with respect to the identification and orientation of the numerous primary mineralized structures. Mr. Gustin and GQMC geologists used the work of Bruff, Thornsberry, and Hall extensively during the 2014 modeling of the project resources, historically mined stopes, and geology. While Mr. Gustin made many modifications and refinements to the interpretations of Bruff, partially due to new drill data, Bruff's work (which incorporates the work of Thornsberry and Hall) remains as the foundation of the structural model that serves as the primary control of the current gold and silver resource estimation.

The newly updated GQMC cross-sections included geological and structural interpretations, as well as representations of quartz veining and surrounding stockwork zones. Although some interchange of ideas occurred between the concomitant RESPEC modeling of the gold and silver mineralization and GQMC's modeling of geology, the two sets of interpretations were largely completed independently. However, only relatively minor modifications to GQMC's structural and mineralization sections were needed for the two sets of interpretations consistent, and this consistency served as a validation of the work of both GQMC and RESPEC.

There is no evidence that modeling of oxidation or alteration had ever been completed prior to 2014. GQMC therefore also completed cross-sectional interpretations of both oxidation and alteration based on their updated relogging program.

The GQMC cross-sectional lithology and oxidation polygons were sliced and rectified on a set of 20-foot-spaced long sections, while the alteration cross-sectional polygons were sliced and rectified on a set of 20-foot-spaced level plans. The finalized lithological, alteration, and oxidation interpretations were used to code the resource block model.

14.5 Modeling of Mining Voids

GQMC provided RESPEC with polylines of the historical underground development that were created by AMEC based on available historical documentation. RESPEC used these AMEC planar polygons of drifts, crosscuts, and access tunnels to make seven-foot-high digital solids.

RESPEC modeled historical underground stopes based on a variety of information in the possession of GQMC. This included stoped areas documented on various historical cross sections, long sections, and mine-level maps on paper and linens. These historical archives include a full set of original hand-drawn GFA linens from the 1930s, which provide excellent documentation of their underground mining on sets of level plans and long sections. Other level-plan and sectional paper maps of various types and origins that record significant stoping in areas not mined by GFA are also present in the archives. GQMC digitized these plans, cross sections, and long sections at RESPEC's request, and RESPEC subsequently translated the digitized drawings into real-world space. Using similar information, Bruff (1998, July) modeled the stopes as polylines on cross sections and AMEC modeled them as solids. RESPEC used all of this information to re-model the historical stopes as polygons on 20-foot level plans. These level plans were then modified to reflect mining voids intersected by drilling, a process that was repeated for each of the subsequent resource-model updates that followed drilling campaign undertaken by GQMC from 2015 through 2021. In areas where stopes were documented and pre-mining GFA crosscut and/or drift sampling data were available, the positioning of the level-plan stope polygons were adjusted to encompass the higher-grade underground samples.

All holes in the resource database, other than the 61 GFA exploratory core holes that were not used in the estimation of resource grades, postdate all historical underground mining. Some RC holes have assay data from samples taken in what was identified in logging or by modeling as stope. These samples are commonly, but not always, anomalously low grade compared to samples of the same high-grade structural zones that remain in solid rock on either side of the modeled mined stopes. The assayed samples within the modeled stopes likely reflect the grade of backfilled or caved material. Irrespective of grade, all drill-hole samples lying within RESPEC's modeled stopes were removed from the interpolation of resource gold and silver grades.

14.6 Gold and Silver Modeling

The gold and silver mineral resources at Soledad Mountain were modeled and estimated by:

- evaluating the drill data statistically and spatially to determine natural gold and silver populations;
- creating low- (domain 100), medium- (domain 200) and high-grade (domain 300) mineral-domain polygons for both gold and silver on sets of cross sections spaced at 100-foot intervals, with 50-foot-spaced sections used in the central portion of the deposit (as dictated by increased drill density);
- projecting the sectional mineral-domain polygons horizontally to the drill data within each cross-sectional window;
- slicing the three-dimensionally projected mineral-domain polygons along 20-foot-spaced horizontal planes and using these slices to rectify the gold and silver mineral-domain polygons on level plans;
- coding a block model to the gold and silver domains using the level-plan mineral-domain polygons;

- analyzing the modeled mineralization geostatistically to aid in the establishment of estimation and classification parameters; and
- using inverse-distance to the third power to interpolate grades into a digital model comprised of 20x20x20-foot blocks using the gold and silver mineral domains to explicitly constrain the grade estimations.

14.6.1 Mineral Domains

A mineral domain as used herein encompasses a volume of rock that ideally is characterized by a single, natural grade population of a metal that occurs within a specific geologic environment. In order to define the mineral domains at Soledad Mountain, the natural gold and silver populations were first identified on population-distribution graphs that plot the gold-grade and silver-grade distributions of all samples in the resource database of sufficient quality to be used in resource grade estimations. These grade populations were then reviewed in the context of the deposit geology to confirm continuity and reasonableness. This analysis led to the identification of low-, medium-, and high-grade populations for both gold and silver. Ideally, each of these populations can then be correlated with specific geologic characteristics that are captured in the project database, which can be used in conjunction with the grade-domain populations to interpret the bounds of each of the gold and silver mineral domains. The approximate grade ranges of the low-grade (domain 100), medium-grade (domain 200), and higher-grade (domain 300) domains are listed in Table 14-1.

Table 14-1. Approximate Grade Ranges of Gold and Silver Domains

Domain	Gold (oz Au/ton)	Silver (oz Ag/ton)
100	~0.003 to ~0.01	~0.1 to ~0.5
200	~0.01 to ~0.1	~0.5 to ~5
300	> ~0.1	> ~5

Mr. Gustin modeled the Soledad Mountain gold and silver mineralization by interpreting mineral-domain polygons on a set of vertical, northwest-looking (Az. 315°) cross sections that span the extents of the deposit. The cross-section locations and orientations mimic the set of 100-foot-spaced sections created by GFA in the 1930s and subsequently used by GQMC, although 50-foot infill sections were added in the central area of the deposit where drill density is high. The common section locations allowed RESPEC and GQMC to easily consider historical sectional interpretations in the updated geologic and grade modeling.

Because the mineralization is fundamentally controlled by structures, the identification and correlation of specific mineralized structures from section to section is critical, especially due to the significant variations in the strikes and dips of the numerous mineralized structures. In Mr. Gustin's initial resource modeling completed in late 2014, the Bruff mineral polygons and various plan maps showing the mapped surface traces of the principal mineralized structures, along with drill-hole assay data and geologic data (*e.g.*, presence and percentage of vein material and interpreted structural zones), were considered in the explicit modeling of a total of 26 mineralized structures and associated splays and subsidiary structures. Three-dimensional surfaces defining the central planes of each of the 26 structures were also created. This initial 2014 modeling was then updated and refined in subsequent updates that followed each of the drilling programs completed by GQMC (with the exception of this current resource estimation, these were 'in-house' updates that were not publicly released). Including the updated resources reported herein, RESPEC has updated and refined the modeling seven times since 2014.

Due to limitations of RC drill data, which predominated the resource databases prior to the emphasis on core drilling in 2020 and 2021, geologic details that are important to the identification of Soledad Mountain mineral domains could not always be discerned with certainty. For example, without knowledge gained at the drill site, the logging geologist may not be able to determine if the 25% quartz content of the RC chips being examined from a sample interval is derived from a single quartz vein or from a dense stockwork of many quartz veinlets. The characterization of argillic alteration can also be problematic if the drill chips are logged only after washing and screening of the chips. These are only two examples of geologic details that can be obscured by RC drilling, and to some extent this fact hindered the coupling of grade populations with unique geologic features in the mineral-domain modeling.

As stated previously, the primary control of the gold and silver mineralization at Soledad Mountain is structural. The highly tectonized, central portions of the numerous mineralized structural zones are generally characterized by moderately high percentages of quartz vein and veinlet material, moderate silicification, weak to moderate argillization, and medium-grade precious-metal mineralization. High-grade ± banded ± sulfidic quartz veins and quartz-cemented breccias, often broken by post-mineral structures, occur within portions of this structurally controlled, mid-grade mineralization. Low-grade stockwork mineralization generally envelopes the strongly tectonized and mineralized structural zones.

The resource model explicitly defines each of these three styles of mineralization: medium-grade structural cores (modeled as mineral domain 200), with less-prevalent internal high-grade veins and breccias (domain 300), all enveloped to varying extents by low-grade, low-density quartz-veinlet stockwork zones (domain 100). Gold and silver are modeled independently, each with their own domains 100, 200 and 300, as the extents of the gold and silver low- medium- and high-grade mineralization differ sufficiently by metal to warrant unique modeling.

The high-grade domains lie primarily within the Soledad, Starlight-Golden Queen, No. 1 Footwall, Silver Queen, and Queen Esther vein systems. Prior to open-pit mining by GQMC, slightly more than one-third of the modeled volume of high-grade gold mineralization (domain 300) was within modeled historical stopes and therefore removed from the resources.

Portions of the highly tectonized zones are low grade and are therefore also incorporated into domain 100. The low-grade domain also encompasses weakly mineralized secondary and tertiary structures where higher-grade mineralization is lacking. Weak silicification and weak argillization typify domain-100 mineralization.

Mid-grade (domain 200) silver occurs primarily within the mid-grade gold domain, but with somewhat lesser extents. Exceptions to this general case are especially prevalent in the eastern, silver-rich portion of the deposit, where mid-grade silver also occurs along structures modeled with only low-grade gold domains or, in rare cases, where gold is completely absent.

There is far less high-grade (domain 300) silver mineralization than gold. Domain 300 silver occurs primarily in the Queen Esther (now mined out), Silver Queen, and, to a lesser extent, Starlight structures, usually within high-grade gold domains.

Low-grade silver (domain 100) generally mimics that of low-grade gold, although it is commonly less extensive. The most prevalent exceptions to this occur again in the eastern portion of the deposit, where silver low-grade mineralization is more extensive than gold in many areas, and in the western portion of the deposit (including the Sheeted Vein zone), where there are limited areas where gold is not associated with silver mineralization.

Domain 0 is assigned to volumes of model blocks that are not included within the mineralized domains 100, 200, and 300 for each metal. This allows for the estimation of a local, background, dilutional gold and silver grades into blocks lying at the borders of the modeled mineral domains.

Representative cross sections showing mineral-domain interpretations for gold are shown in Figure 14-1 and Figure 14-3, and for silver in Figure 14-2 and Figure 14-4 (section locations are shown on Figure 10-1).

Figure 14-1. Cross Section 2800 Showing Gold Mineral Domains

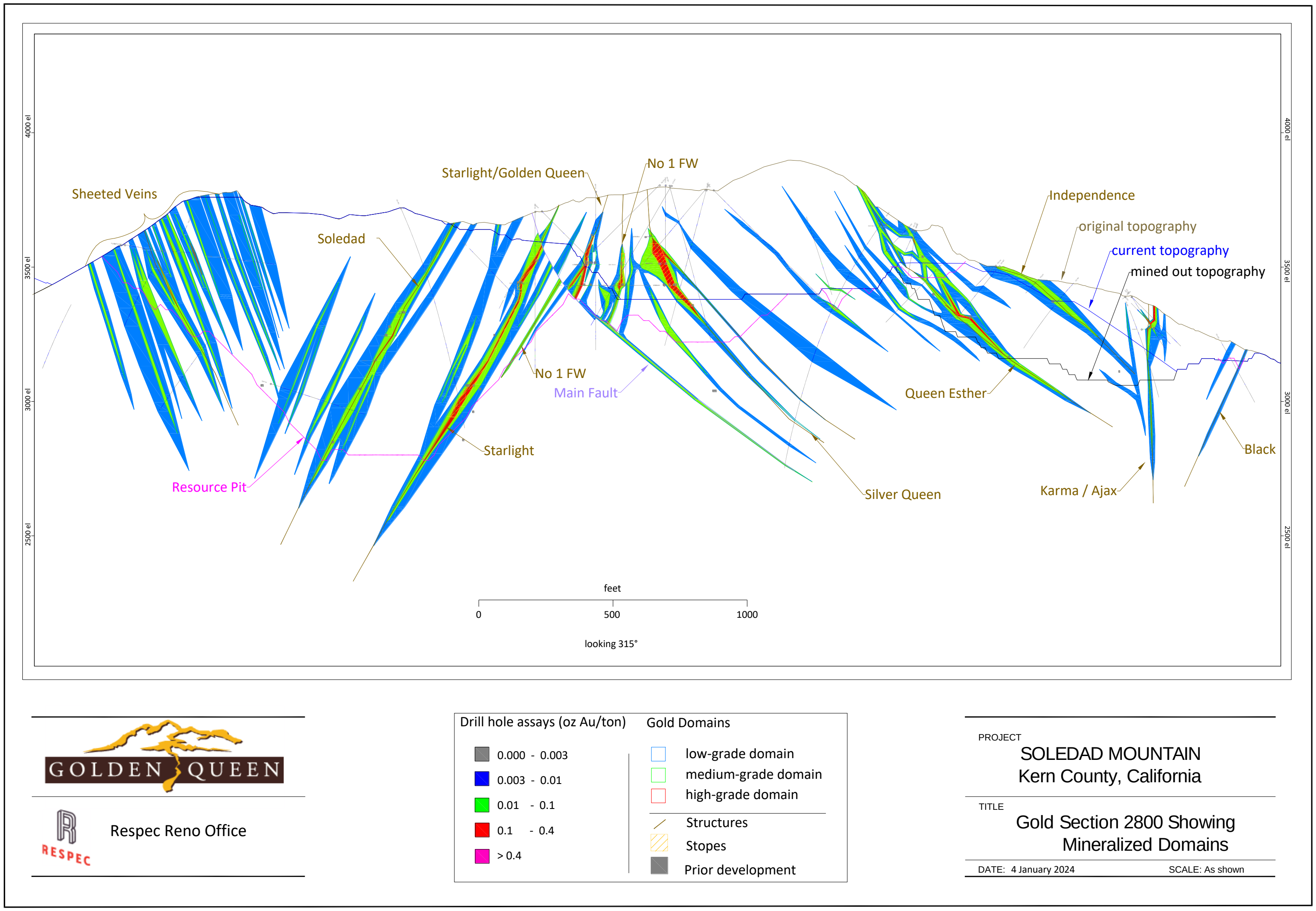


Figure 14-2. Cross Section 2800 Showing Silver Mineral Domains

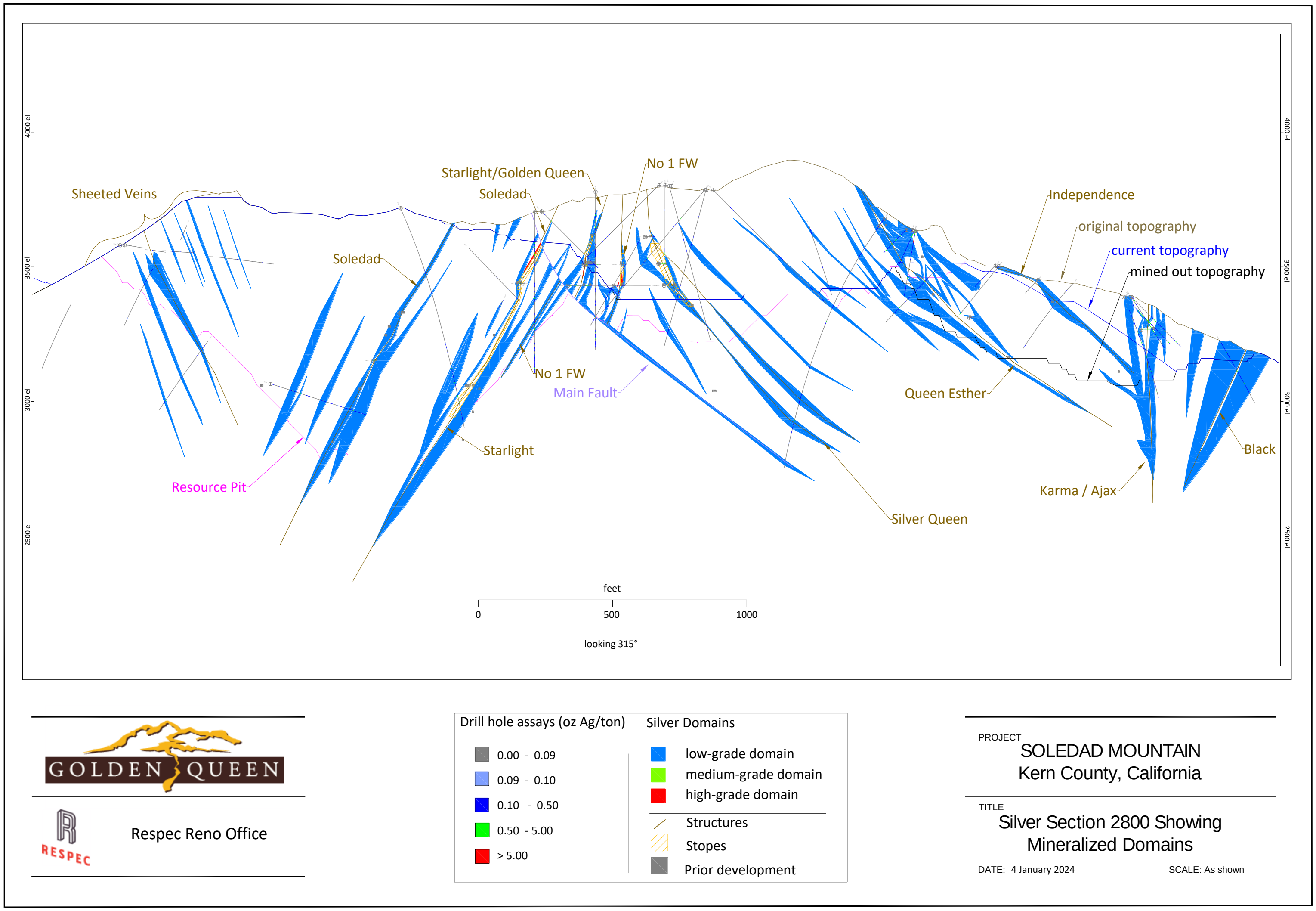


Figure 14-3. Cross Section 3500 Showing Gold Mineral Domains

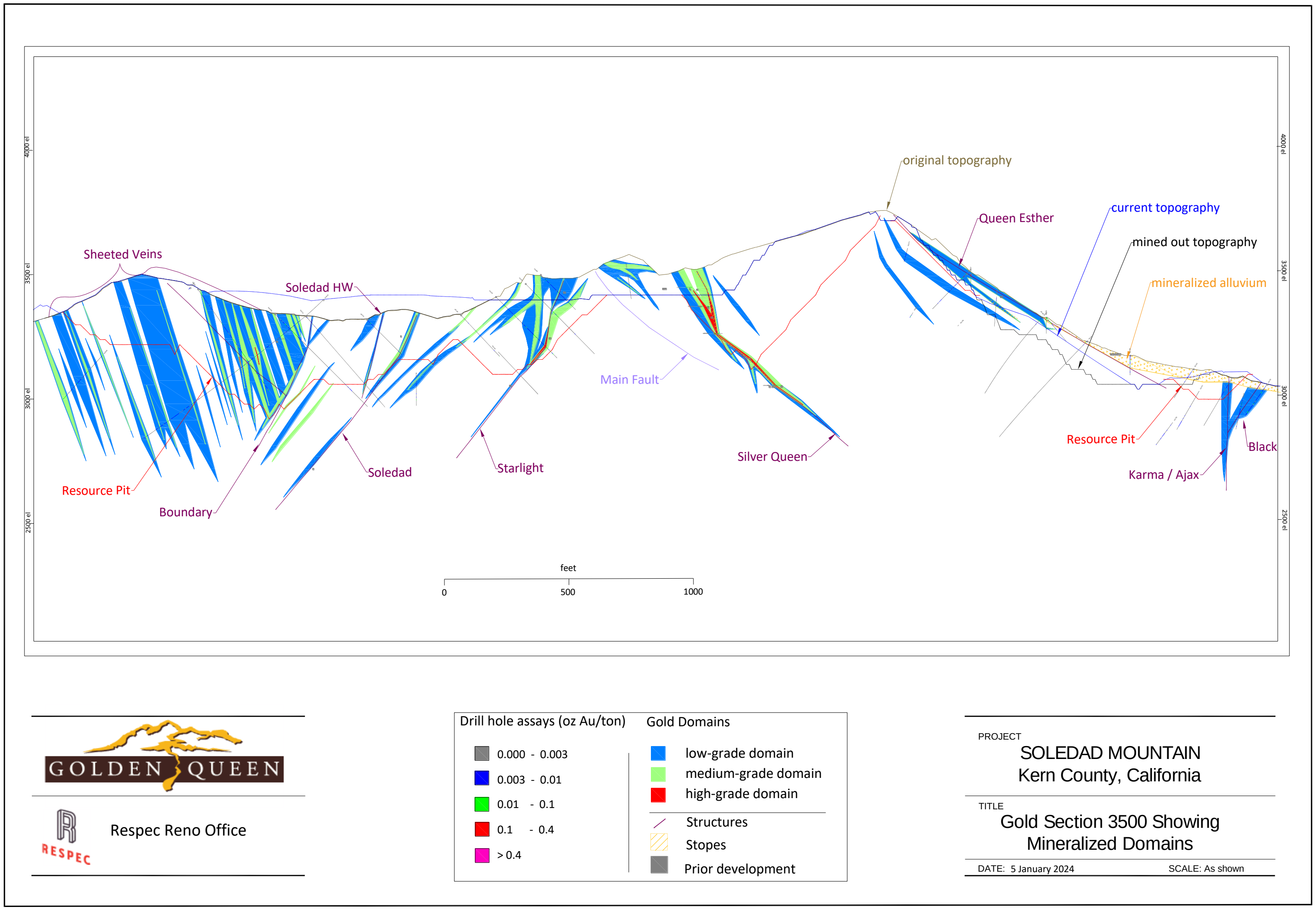
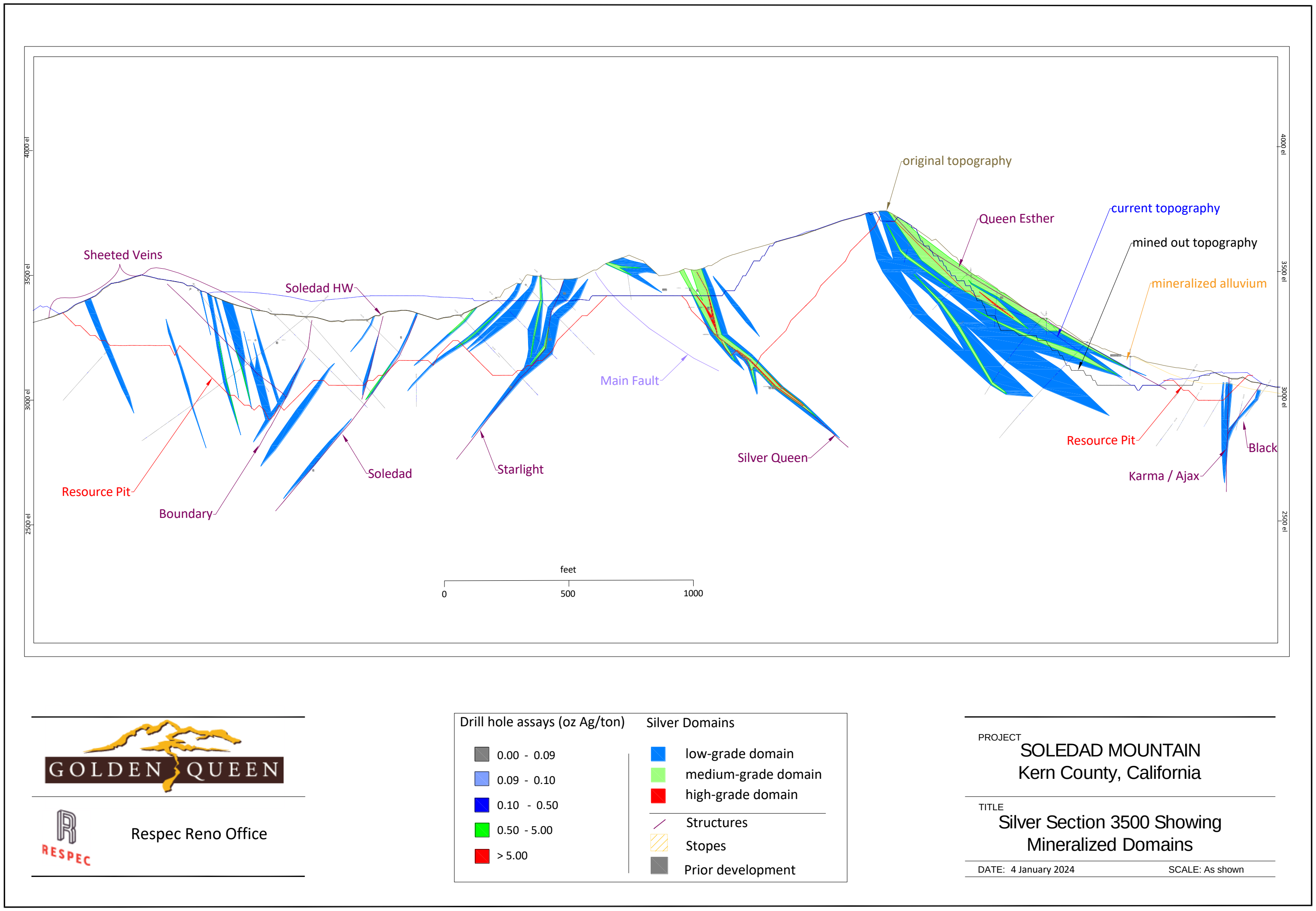


Figure 14-4. Cross Section 3500 Showing Silver Mineral Domains



In addition to the mineral domains in bedrock, a surficial alluvial/colluvial unit comprised of mineralized material eroded from the Queen Esther and related structures was also modeled. The alluvial materials are not included in the current mineral resources.

The cross-sectional mineral-domain envelopes were pressed horizontally to the drill data within each sectional window and then sliced horizontally at 20-foot intervals at each mid-bench elevation of the block model. These slices, along with slices of the triangulated surfaces of the mineralized structures modeled by RESPEC and the drill-hole and underground sample data, were used to guide the modeling of the final gold and silver mineral domains on a set of 20-foot-spaced level plans that were used to code the resource block model.

14.6.2 Assay Coding, Capping, and Compositing

Drill-hole gold and silver assays were coded to the gold and silver mineral domains using their respective cross-sectional polygons. The following samples were excluded from this coding (see Section 12 for further details):

- post-GFA samples lying within modeled stopes;
- GFA crosscut channel samples that exceed 10-feet in length;
- GFA underground core samples;
- GFA crosscut and drift channel samples that lie within gold domain 100;
- Rosario RC drill-hole samples;
- RC samples logged as being derived from intervals of poor recovery, no recovery, or no sample;
- RC samples logged as “geosamp”; and
- RC samples logged as having been, or suspected as having been, contaminated.

Assay caps were determined by the inspection of population distribution plots of the coded assays grouped by domain to identify high-grade outliers that might be appropriate for capping. The plots were also evaluated for the possible presence of multiple grade populations within any of the domains. Descriptive statistics of the coded assays by domain and visual reviews of the spatial relationships of the possible outliers, and their potential impacts during grade interpolation, were also considered in the definition of the assay caps. Table 14-2 shows the assay caps applied to the coded samples, while descriptive statistics of the coded assays are provided in Table 14-3 and Table 14-4 for gold and silver, respectively.

Table 14-2. Gold and Silver Assay Caps by Mineral Domain

Domain	oz Au/ton	Number Capped (% of samples)	oz Ag/ton	Number Capped (% of samples)
100	0.090	6 (<<1%)	5.000	5 (<<1%)
200	0.300	19 (<1%)	12.000	7 (<1%)
300	2.250	9 (<1%)	20.000	5 (4%)
0	0.030	1 (<1%)	0.700	6 (4%)

Table 14-3. Descriptive Statistics of Coded Gold Assays

Domain	Assays	Count	Mean (oz Au/ton)	Median (oz Au/ton)	Std. Dev.	CV	Min. (oz Au/ton)	Max. (oz Au/ton)
100	Au	18675	0.005	0.004	0.008	1.42	0	0.378
	Au Cap	18675	0.005	0.004	0.006	1.12	0	0.090
200	Au	13109	0.031	0.02	0.039	1.26	0	1.100
	Au Cap	13109	0.030	0.02	0.032	1.06	0	0.300
300	Au	3914	0.235	0.14	0.362	1.54	0	5.900
	Au Cap	3914	0.230	0.14	0.304	1.32	0	2.250
All	Au	35698	0.036	0.009	0.142	3.97	0	5.900
	Au Cap	35698	0.035	0.009	0.125	3.55	0	2.250

Table 14-4. Descriptive Statistics of Coded Silver 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	17553	0.205	0.160	0.213	1.04	0	7.180
	Ag Cap	17553	0.205	0.160	0.208	1.01	0	5.000
200	Ag	7618	1.255	0.900	1.770	1.41	0	59.000
	Ag Cap	7618	1.240	0.900	1.233	0.99	0	12.000
300	Ag	501	8.567	6.400	10.922	1.28	0	149.300
	Ag Cap	501	7.697	6.400	4.760	0.62	0	20.000
All	Ag	25672	0.622	0.230	2.236	3.59	0	149.300
	Ag Cap	25672	0.604	0.230	1.490	2.47	0	20.000

The capped assays were composited at 10-foot down-hole intervals respecting the bounds of the mineral domains. Descriptive statistics of Soledad Mountain composites are shown in Table 14-5 and Table 14-6.

Table 14-5. Descriptive Statistics of Gold Composites

Domain	Count	Mean	Median	Std Dev	CV	Min	Max
100	10081	0.005	0.004	0.004	0.83	0	0.081
200	8910	0.030	0.024	0.029	0.97	0	0.300
300	3368	0.230	0.147	0.292	1.27	0	2.250
All	22359	0.035	0.012	0.140	3.99	0	2.250

Table 14-6. Descriptive Statistics of Silver Composites

Domain	Count	Mean	Median	Std Dev	CV	Min	Max
100	9650	0.205	0.165	0.160	0.78	0	3.870
200	5706	1.240	0.900	1.192	0.96	0	12.000
300	466	7.697	6.575	4.635	0.60	0	20.000
All	15822	0.604	0.280	1.725	2.86	0	20.000

14.6.3 Tonnage Factors

RESPEC was provided with documentation of a total of 340 bulk specific-gravity determinations of drill core by McClelland, KCA, and Bureau Veritas. The 58 McClelland determinations were measured using the volume displacement method and were checked using weight differentials. The 187 KCA and 100 Bureau Veritas determinations were done using water-immersion method, coating the samples with wax where appropriate (ASTM Method C914). There are five sample intervals that were tested by both KCA and McClelland; the mean values of the two determinations were used in the following statistical analysis in these cases. While additional determinations were completed on surface hand samples, RESPEC could not verify the representativity of these samples and the data were therefore excluded from consideration.

RESPEC analyzed the specific-gravity data by gold domain and unmineralized lithology; the SG data were first translated into density expressed as tonnage factors in units of cubic feet per ton. Domain 300 mineralization is characterized by high-grade quartz-vein dominant mineralization, Domain 200 models mid-grade mineralization that encompasses the more restricted high-grade zones but remains relatively quartz-vein rich (domain 200), and low-grade (domain 100) mineralization that is characterized predominantly by quartz-veinlet stockwork hosted in variably altered wallrock of the mid- and high-grade zones. Domain 0 represents barren to very weakly mineralized rock of various lithologies that is not within any of the mineral domains.

Table 14-7 and Table 14-8 show the descriptive statistics of the density data by mineral domain and unmineralized lithology, respectively. The "Model" tonnage factors in these tables are those actually used in the resource block model.

Table 14-7. Tonnage Factor (ft^3/ton) by Gold Mineral Domain

Au Domain	Mean	Median	Min	Max	Count	Model
100	13.75	13.69	20.28	10.93	107	13.8
200	13.52	13.35	18.74	11.12	89	13.5
300	13.18	13.02	18.00	11.24	26	13.2
0	13.87	13.81	18.74	10.75	118	13.9

Table 14-8. Tonnage Factor (ft^3/ton) by Unmineralized Lithology

Lithology	Mean	Median	Min	Max	Count	Model
Upper Pyroclastic Unit	14.11	14.18	16.51	12.76	24	14.1
Quartz Latite	14.63	14.83	15.63	13.46	4	13.8
Middle Pyroclastic Unit	15.55	15.55	15.55	15.55	1	14.1
Rhyolite Porphyry	13.69	13.63	14.9	12.37	64	13.6
Flow-Banded Rhyolite	13.87	13.63	18.74	10.75	21	13.6
Alluvium/Colluvium	-	-	-	-	0	18.0

Mine-fill/waste was assigned a tonnage factor of 18 ft^3/ton.

The "Model" tonnage factors in Table 14-7 were assigned by domain to all blocks that are coded to any of the mineral domains. The full-block tonnage factor of these blocks is the volume-weighted average of the tonnage factors of domains 0, 100, 200, and 300, as well as the tonnage factor of mine-fill/waste in cases where mineralized blocks also have some percentage of fill. The tonnage factor of blocks with no mineral-domain coding were assigned full-block tonnage factors representing the volume-weighted average of the "Model" tonnage factor of lithology (Table 14-8; only one lithology is coded to each block) and mine-fill/waste.

The middle pyroclastic unit has only one density measurement, so it was assigned the tonnage factor of the lithologically similar upper pyroclastic unit. The rhyolite porphyry and flow-banded rhyolite also have similar lithologies and therefore their data were considered jointly in the assignment of their tonnage factor. Insufficient density measurements are available for quartz latite; it was assumed that the tonnage factor for quartz latite lies between those of the rhyolite and pyroclastic units.

14.6.4 Block Model Coding

The resource block model is comprised of 20-foot (wide) x 20-foot (long) x 20-foot (high) blocks. The model is rotated to a bearing of 315° to reflect the approximate average strike of the project mineralization.

Two topographic surfaces were used to code the block model: an 'as-mined' topographic surface and a 'present-day' surface, both as of September 30, 2023. These digital topographic surfaces were used to define: (1) the percentage of each block that is comprised of backfill/dump/road-fill material, which is the block volume that lies above the 'as-mined' surface and below the 'present-day' surface; and (2) the percentage of each block that is comprised of bedrock or Quaternary alluvial/colluvial materials, which is the block volume lying below the 'as-mined' surface.

The level-plan mineral-domain gold and silver polygons were used to code the percentage volume of each mineral domain (0, 100, 200, and 300) for each metal (gold and silver) into each model block. In a similar manner, the level-plan stope polygons were used to code the percentage of stopes into each model block. The final mineral-domain percentages in each block reflect the removal of stope percentages. Due to the way the stopes were modeled, i.e., to 'mine' the highest-grade portions of the modeled domains, the volumes removed by the modeled stopes were the highest-grade portions of each block.

Lithology, alteration, and oxidation (oxide, mixed, and non-oxide) were coded into model blocks using the long-section polygons for lithology and oxidation and level plans for alteration. This coding was completed in a block-in/block-out basis, so that each block is assigned a single lithology, alteration, and oxidation code. In the case of fill, blocks are coded to lithology "fill" if the coded fill percentage is greater than the bedrock/alluvium percentage.

Tonnage factors were assigned to blocks on a volume-weighted basis according to the percentage coding of the gold mineral domains and bedrock/alluvium lithologies. Blocks coded as "fill" were assigned a tonnage factor of 18.

To allow for the assignment of metal-recoveries, each model block was coded as lying within the Sheeted Vein zone, Silver Queen vein system, or within all other areas.

The presence of multiple mineralized-structure orientations necessitated the use of multiple search ellipses for the purposes of gold and silver grade interpolations. A total of 18 'estimation areas' were therefore coded into the block model using solids, with each area defining a unique search ellipse.

14.6.5 Grade Interpolation

The wide variety of strikes and dips of the many mineralized structures presented challenges with variography. An approximated global average strike of 315° and dip of -90° was used as a compromise for the opposing southwest- and northeast-dipping structures. Using gold composites from all domains, variogram ranges of 120 to 170 feet were obtained in the strike and dip directions, while silver composites yielded ranges of 55 to 90 feet. If the composites were analyzed in groups of similar orientations, it is expected that these ranges would be substantially exceeded.

Gold and silver grades were interpolated using inverse distance to the third power and ordinary krige methods. The mineral resources reported herein were estimated using the inverse-distance interpolation, as this method led to results that were judged to more appropriately reflect the drill data than those obtained by ordinary kriging. A nearest-neighbor estimation was also completed as a check on the inverse-distance and krige interpolations. The parameters applied to the gold-grade estimations at Soledad Mountain are summarized in Table 14-9.

Gold and silver grade interpolation was completed in three passes using length-weighted 10-foot composites. The third pass was used to estimate grades into blocks that were not entirely estimated in Pass 1 or 2. The estimation passes were performed independently for each of the mineral domains of gold and silver, with only composites coded to a particular domain used to estimate grade into the portions of blocks coded by that domain. The estimated grades for each gold and silver domain coded to a block were coupled with the partial percentages of those mineral domains in the block, as well as the outside (dilutionary) domain 0 grades and partial percentages, to enable the calculation of a single volume-averaged gold grade and a single volume-averaged silver grade for each block. The gold and silver grades for each block are therefore considered to be fully diluted due to the incorporation of the domain 0 grades.

Table 14-9. Summary of Soledad Mountain Estimation Parameters

All Au and Ag Domains

Estimation Pass	Search Ranges (ft)			Composite Constraints		
	Major	S-Major	Minor	Min	Max	Max/hole
1	150	150	50	1	12	3
2	300	300	100	1	12	3
3	600	600	600	1	12	3

Restrictions on Search Ranges

Domain	Search Restriction Threshold	Search Restriction Distance	Estimation Pass
Au 0	>0.007	75 feet	1, 2, 3
Au 100	>0.010 oz Au/ton	100 feet 125 feet	1 2
Au 300	>0.250 oz Au/ton	75 feet	1, 2, 3
Ag 0	>0.150 oz Au/ton	75 feet	1, 2, 3
Ag 200	>2.500 oz Ag/ton	100 feet 125 feet	1 2

Statistical analyses of coded assays and composites, including coefficients of variation and population-distribution plots indicated that multiple populations of significance were captured in the low- and high-grade gold domains (domains 100 and 300, respectively) and mid-grade silver domain (domain 200). The recognition of multiple populations within these domains, coupled with the results of initial grade-estimation runs in which higher-grade samples in these multi-population domains were affecting inappropriate volumes in the block model, led to the use of restrictions on the search distances for the higher-grade populations of these domains. The search restrictions placed limits on the maximum distances from a block that the high-grade population composites can be 'found' and used in the interpolation of gold and/or silver grade into that block. The final search-restriction parameters were derived from the results of multiple interpolation iterations that employed various search-restriction distances. Severe search restrictions were used for the gold and silver estimated in domain 0, as domain 0 composites of any substantive grade involve assay data that are not modeled within the mineral domains due to the lack of continuity and/or lack of geologic context.

14.6.6 Model Checks

Volumes derived from the sectional mineral-domain modeling were compared to both the level-plan and coded block-model volumes to assure close agreement, and all block-model coding was checked visually on the computer. A polygonal estimate using the cross-sectional interpretations and nearest-neighbor and ordinary-krige estimates of the modeled resources were undertaken as checks on the inverse-distance-cubed estimation results; no unexpected relationships between the check estimates and the inverse-distance estimate were identified. Various grade-distribution plots of assays and composites *vs*. nearest-neighbor, ordinary-krige, and inverse-distance block grades were evaluated as a check on the both the global and local estimation results. Finally, the inverse-distance grades were visually compared to the drill-hole assay data to assure that reasonable results were obtained.

14.6.7 Soledad Mountain Project Mineral Resources

The Soledad Mountain mineral resources were estimated to reflect potential open-pit extraction and heap-leach processing. To meet the requirement of the resources having reasonable prospects for eventual economic extraction, a pit optimization was run using the parameters summarized in Table 14-10. These parameters were determined in consultation with GQMC engineers and consultants.

Table 14-10 Pit Optimization Parameters

Parameter	Input	Unit
Rock Mining Cost	$2.00	$/ton mined
Fill/Waste Mining Cost	$1.70	$/ton mined
Processing Cost	$6.75	$/ton processed
Taxes, Royalties, Refining, and Site Costs	$1.66	$/ton processed
Gold Price	$2,000	$/oz produced
Silver Price	$23	$/oz produced
Gold Recovery		
Silver Queen	55%	
All Other Areas	85%	
Silver Recovery	40%	
Pit Slopes	47°	

The optimized pits were used to constrain the project resources. The in-pit resources were compiled by the application of a gold-equivalent cutoff of 0.008 oz Au/ton to all model blocks lying within the Silver Queen vein zone, with a gold-equivalent cutoff of 0.005 oz Au/ton applied to all other in-pit blocks.

Gold-equivalent block grades, which are solely used in the application of the resource cutoffs, are calculated based on the metal prices and recoveries provided in Table 14-10. The gold-equivalent grade ("oz AuEq/ton") calculations of model blocks lying within the Silver Queen vein zone and all other areas are as follows:

Silver Queen zone: oz AuEq/ton = oz Au/ton + (oz Ag/ton/120)

All Other Areas: oz AuEq/ton = oz Au/ton + (oz Ag/ton/185)

The Soledad Mountain Project gold and silver resources are shown in Table 14-11. The tonnage, grades, and ounces of gold and silver that were modeled as lying within the historical underground stopes were removed from the resources.

The Soledad Mountain mineral resources are inclusive of the mineral reserves discussed in Section 15.0. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The effective date of the resources is September 30, 2023, the date of the as-mined topographic surface used in the resource estimation.

Table 14-11. Soledad Mountain Project Gold and Silver Resources

			In-Situ Grade				Contained Metal	
			Gold		Silver		Gold	Silver
Classification	**Tonnes**	**Tons**	**g/t**	**oz/ton**	**g/t**	**oz/ton**	**oz**	**oz**
Measured	2,667,000	2,940,000	0.99	0.029	12.93	0.377	86,000	1,108,000
Indicated	39,147,000	43,152,000	0.58	0.017	8.06	0.235	736,000	10,133,000
Measured & Indicated	**41,814,000**	**46,092,000**	**0.62**	**0.018**	**8.37**	**0.244**	**822,000**	**11,241,000**
Inferred	3,625,000	3,996,000	0.45	0.013	6.27	0.183	53,000	732,000

1. Mineral resources are inclusive of mineral reserves.
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability.
3. Mineral resources are reported by applying cutoffs of 0.008 oz AuEq/ton (0.274 g/t) at the Silver Queen zone and 0.005 oz AuEq/ton (0.171 g/t) at all other areas to all model blocks lying within optimized resource pits, in consideration of potential open-pit mining and heap-leach processing.
4. Gold equivalent grades were calculated as follows: oz AuEq/ton = oz Au/ton + (oz Ag/ton / AuEq Factor). The AuEq Factor is derived from metal prices ($2,000/oz Au and $23/oz Ag) and recoveries of 55% for Au and 40% for Ag for model blocks lying within the Silver Queen zone (AuEq Factor = 120), and 85% for Au and 40% for Ag in all other areas (AuEq Factor = 185).
5. The effective date of the mineral resources is September 30, 2023.
6. Tonnage and grade estimations are presented in both U.S. and metric units. Grades are reported in troy ounces per short ton (U.S.) and in grams per metric tonne (metric).
7. Rounding may result in apparent discrepancies between tons, grade, and contained metal content.

The Soledad Mountain resources are classified based on the number and distance of composites used in the interpolation of a block, as well as the number of holes/underground channels that contributed composites (Table 14-12).

Table 14-12. Soledad Mountain Classification Parameters

Class	Min. No. of Comps	Additional Constraints
Measured	2	Minimum of 2 holes/underground channels lying within an average distance of 30 feet from block
Indicated	2	Minimum of 2 holes/underground channels lying within an average distance of 125 feet from block
Inferred	all other estimated blocks	

Figure 14-5, Figure 14-6, Figure 14-7, and Figure 14-8 show cross sections of the block model that correspond to the mineral-domain cross sections presented above.

Figure 14-5. Soledad Mountain Cross Section 2800 Showing Block Model Gold Grades

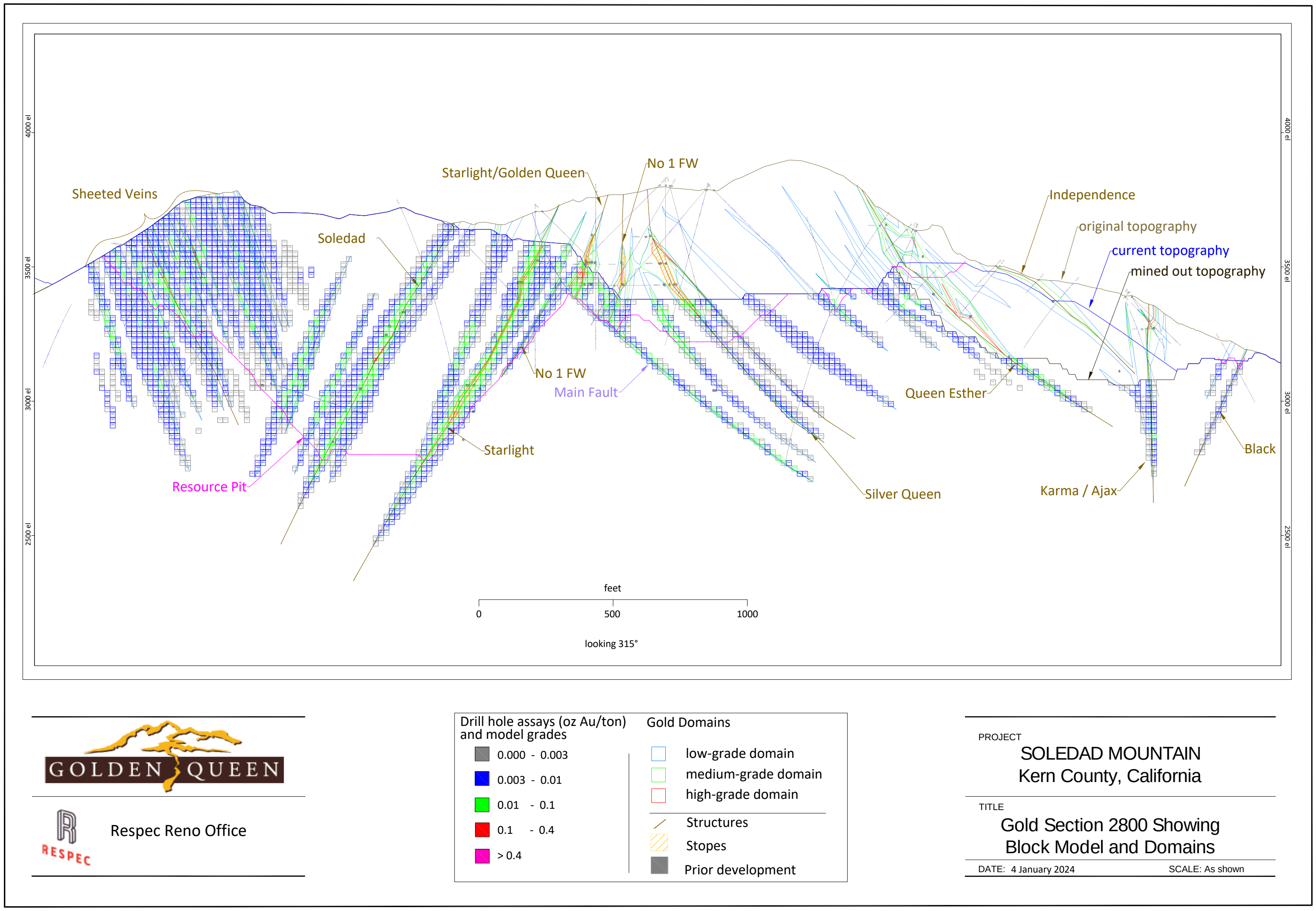


Figure 14-6. Soledad Mountain Cross Section 2800 Showing Block Model Silver Grades

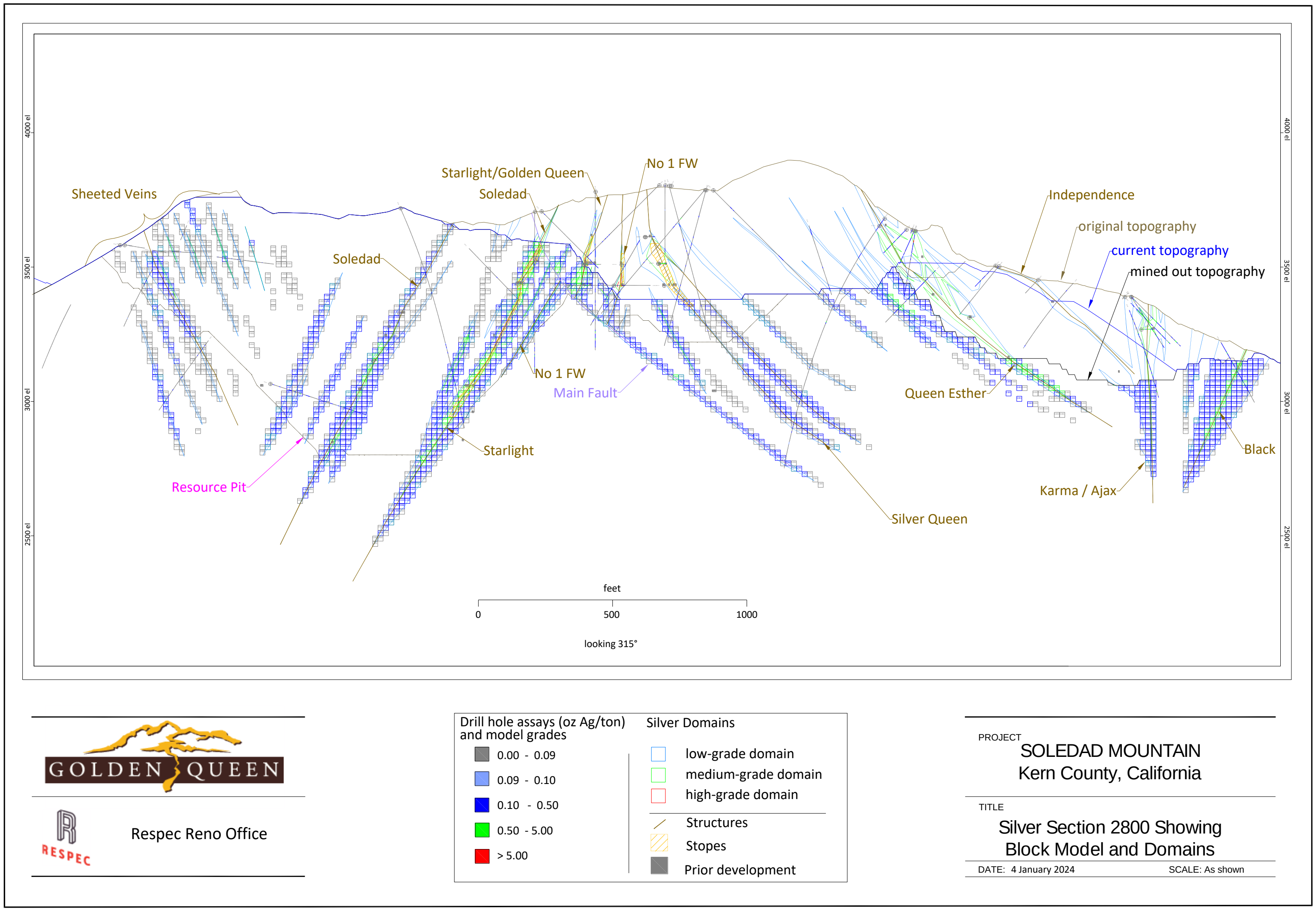


Figure 14-7. Soledad Mountain Cross Section 3500 Showing Block Model Gold Grades

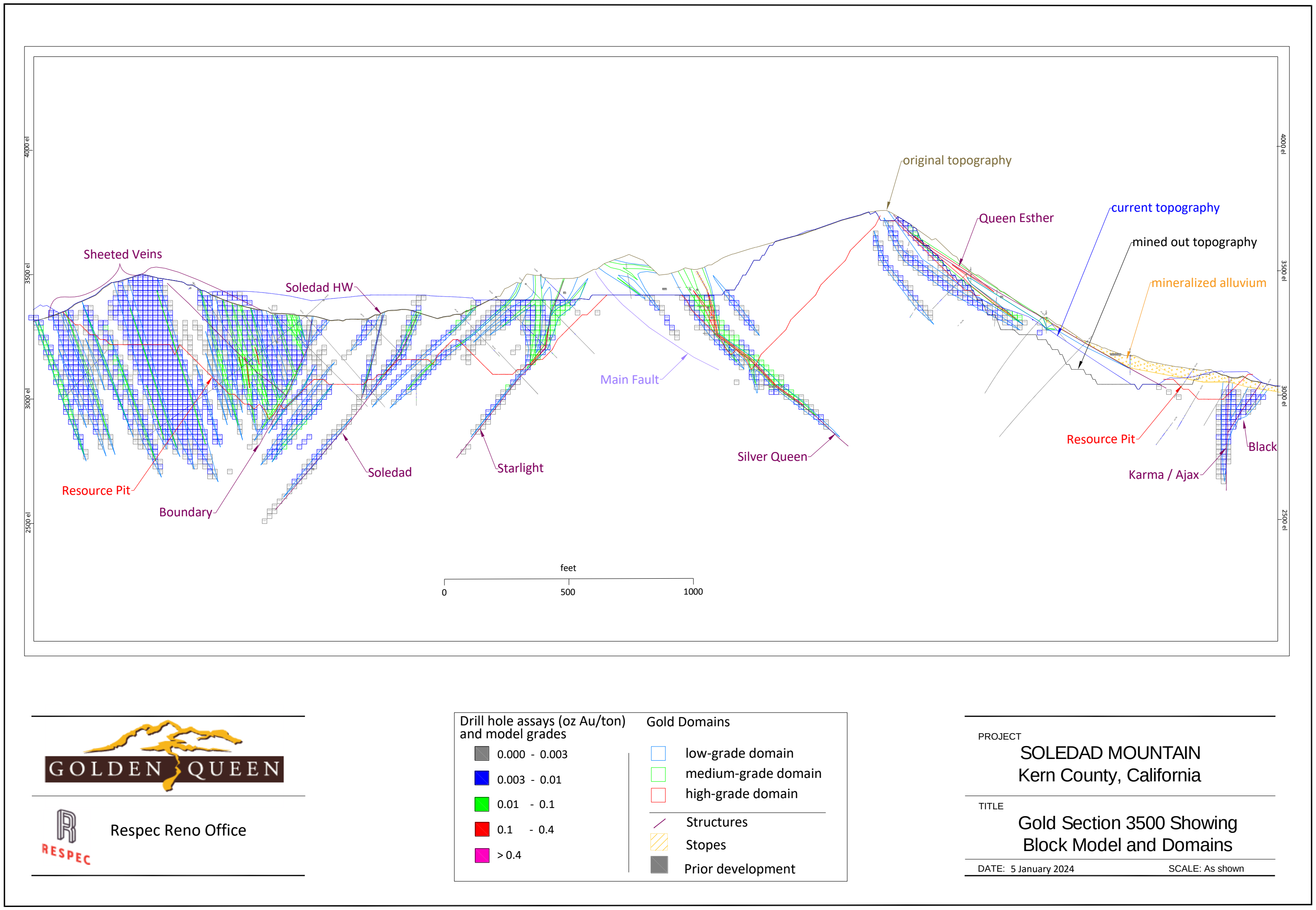
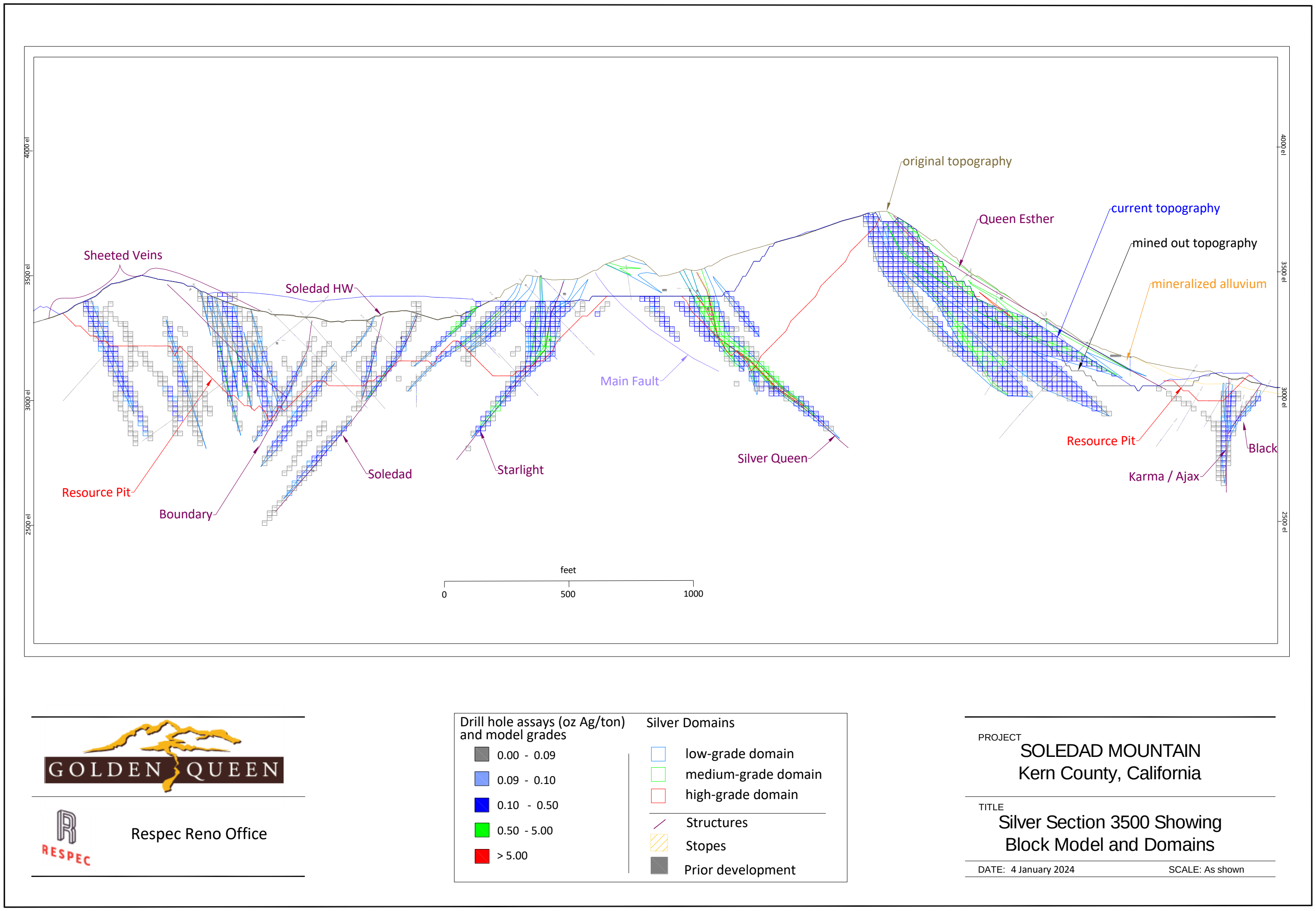


Figure 14-8. Soledad Mountain Cross Section 3500 Showing Block Model Silver Grades



The modeled mineralization within the optimized pits that constrain the total current project resources is tabulated at various cutoffs in Table 14-13. This information is presented to provide grade-distribution information, which allows for more detailed assessments of the project resources. The materials tabulated meet the requirement of reasonable prospects of economic extraction as they are part of the current resources that are constrained as lying within optimized pits. As such, the mineralized materials tabulated at cutoffs higher than the resource cutoffs represent subsets of the current resources (shown in bold in Table 14-13).

Table 14-13. Soledad Mountain Mineralization at Various Cutoffs

Cutoff	Measured				
(oz AuEq/ton)	Tons	oz Au/ton	oz Au	oz Ag/ton	oz Ag
0.005 / 0.008	***2,940,000***	***0.029***	***86,000***	***0.377***	***1,108,000***
0.010	2,145,000	0.038	81,000	0.469	1,006,000
0.015	1,713,000	0.045	77,000	0.537	920,000
0.020	1,427,000	0.051	72,000	0.596	850,000
0.030	1,022,000	0.062	63,000	0.705	721,000
0.050	571,000	0.083	47,000	0.880	502,000
0.100	132,000	0.144	19,000	1.421	188,000

Cutoff	Indicated				
(oz AuEq/ton)	Tons	oz Au/ton	oz Au	oz Ag/ton	oz Ag
0.005 / 0.008	***43,152,000***	***0.017***	***736,000***	***0.235***	***10,133,000***
0.010	24,661,000	0.025	627,000	0.319	7,874,000
0.015	16,589,000	0.033	540,000	0.385	6,381,000
0.020	11,825,000	0.039	466,000	0.447	5,282,000
0.030	6,684,000	0.053	352,000	0.561	3,749,000
0.050	2,798,000	0.077	216,000	0.740	2,072,000
0.100	479,000	0.144	69,000	1.063	509,000

Cutoff	Measured & Indicated				
(oz AuEq/ton)	Tons	oz Au/ton	oz Au	oz Ag/ton	oz Ag
0.005 / 0.008	***46,092,000***	***0.018***	***822,000***	***0.244***	***11,241,000***
0.010	26,806,000	0.026	708,000	0.331	8,880,000
0.015	18,302,000	0.034	617,000	0.399	7,301,000
0.020	13,252,000	0.041	538,000	0.463	6,132,000
0.030	7,706,000	0.054	415,000	0.580	4,470,000
0.050	3,369,000	0.078	263,000	0.764	2,574,000
0.100	611,000	0.144	88,000	1.140	697,000

Cutoff	Inferred				
(oz AuEq/ton)	Tons	oz Au/ton	oz Au	oz Ag/ton	oz Ag
0.005 / 0.008	***3,996,000***	***0.013***	***53,000***	***0.183***	***732,000***
0.010	2,030,000	0.020	41,000	0.259	526,000
0.015	1,237,000	0.027	33,000	0.310	384,000
0.020	681,000	0.036	24,000	0.394	268,000
0.030	353,000	0.048	17,000	0.475	168,000
0.050	115,000	0.074	9,000	0.587	68,000
0.100	19,000	0.124	2,000	0.513	10,000

Rounding may result in apparent discrepancies between tons, grade, and contained metal content.

14.7 Comments on the Resource Modeling

Down-hole survey data are available for 166 of the 834 holes drilled prior to 2015 (excluding GFA underground core holes, which were not used in the resource estimation) and 105 out of 241 holes drilled in 2015 through 2021 (excluding 22 holes drilled by GQMC's blast-hole rig that also were not used in the resource estimation). The available deviation data indicate the holes tend to steepen with depth, which is not surprising for RC holes that dominate the drilling. The rates of steepening are not consistent, however, which precludes the confident application of factors to create calculated deviations for the unsurveyed holes. To the extent that the unsurveyed holes did in fact deviate to steeper angles with depth, the holes will yield intersections that are shallower than reality. GQMC mining to-date has not identified evidence of systematic problems with the modeled dip of mineralized structures to date.

Most of the Shell-Billiton sample intervals in the resource database were analyzed for gold and silver by cyanide shake-leach methods; fire-assay analyses were only completed intermittently. Cyanide-leach analyses may not fully extract the gold and/or silver during sample digestion, so these analyses may understate the gold and silver grades. However, the Shell-Billiton drilling represents a very small part of the resource database, and almost all of the sample intervals analyzed by cyanide-shake methods lie above the current mine topography, i.e., they have been mined out, and therefore the impact to the resource grade estimation would be close to nil. Most silver analyses of 2021 drill samples sent to Paragon Labs were done using *aqua regia* digestion and atomic absorption finish. As this method also may not fully extract silver, some underestimation of silver grades could result in areas dominated by these samples.

The use of the GFA underground channel samples imparts some risk to the estimation of the project mineral resources, particularly in areas dominated by these samples, as is the case in portions of the Soledad-Starlight and Silver Queen vein systems. If the resource model reconciles poorly with the short-term blasthole model during mining of these areas, the underground sampling data should be carefully evaluated as a potential contributor to the discrepancies.

Four metallurgical holes and three exploration holes drilled in 2022 were not included in the resource database that was used to estimate gold and silver grades. Three of the metallurgical holes were drilled at the Silver Queen zone, and each of these holes intersected mineralization at expected locations, with the mineralized intervals intersected being equal to or greater than the grades and widths modeled. One metallurgical hole was drilled at the Sheeted Vein zone and returned very similar results to what was modeled in terms of the number of mineralized structures intersected, widths of the intersections, and gold and silver grades. The three exploration holes drilled at the Alphason target indicate that that the mineralized zone dips at shallower angles than are represented in the resource model, with a suggestion of increasing mineralized widths and grades with increasing depths. While the 2022 drill results at Silver Queen would increase grades locally if the resources were to be remodeled to include the three holes, the tonnage and ounces involved would not be material because the 2022 holes were located in areas with a high density of drilling. The single hole drilled at Sheeted Veins would have no impact on the current resource model, and while the three holes drilled at Alphason would add to the small amount of resources at this exploration target, this addition would be immaterial to the overall Soledad Mountain resources.

Approximately 8% of the Soledad Mountain resources are modeled as unoxidized. The unoxidized resources are scattered throughout the resources and are not entirely related to depth below the pre-mining surface. GQMC reported that some materials identified visually as unoxidized were encountered during the first several years of the operation and were sent to the heap leach pad, with no apparent negative impacts. It is not clear if unoxidized materials at greater depths, or in other areas of the deposit, would respond to leaching in a similar manner.

The inherent heterogeneity that characterizes the project gold and silver mineralization presents challenges to grade-control for the mining operation, specifically with respect to the determination of ore *versus* waste at grades close to the cutoff. Grade-control protocols should address the representativity of the grade-control samples (how well does the blast-hole sample represent it's associated mining-unit volume) and the variability/precision of the grade-control assays at and near the ore cutoff grade (i.e., the confidence that a blast-hole assay value at or near the cutoff grade is accurate).

Due to safety concerns, the GQMC operation exercises care when mining near historical workings, especially historical stopes. GQMC reports that the RESPEC resource models have been useful in predicting the location of historical workings and stopes. There have been occasional instances when a blast-hole rig has drilled into a void that was not expected, but these were small openings that were likely undocumented access or exploratory tunnels.

The Sheeted Vein zone mineralization occurs as series of quartz veins that are typically 1 to 6 inches in width. While these vein sets predominantly dip steeply to the northeast, veins that strike orthogonal to the northwest trend are not uncommon. Veins of such limited widths are unlikely to have significant continuity along strike or dip, but all holes drilled into the mineralized areas intersect multiple, closely spaced, gold- and silver-bearing veins. The wallrocks that host the veins are typically low grade to barren. The limited extents of the mineralized veins pose a challenge with respect to resource modeling, as the accurate modeling of any individual vein is difficult without a drilling at the scale of blast-hole spacing. The resource-modeling approach consisted of modeling each intersected vein by extending its strike and dip lengths as if each vein intercept did in fact have continuity from mineralized hole-to-mineralized hole. Because such continuity almost certainly doesn't exist in all or perhaps in most cases, this method assumes that similar veins of limited extents would be intersected by holes drilled between the existing holes, i.e., the vein density indicated by adjacent holes represents the vein density of the rock between the holes. While Mr. Gustin believes this modeling approach is well founded, the Sheeted Vein zone resources have enhanced risk relative to other areas of Soledad Mountain mineralization.

The routine pattern of vertical grade-control blast holes in areas of relatively thin, steeply dipping mineralized structures may not be adequate for grade control. The Sheeted Vein zone could be particularly problematic in this respect. Angled RC holes drilled perpendicular to the dominant orientation of the quartz vein sets should be considered to compliment the blast holes for grade control purposes when mining the Sheeted Vein zone.

A number of holes intersected mineralized alluvium downslope and to the east and north of the Queen Esther–Independence vein system. This material was modeled and estimated independently of the bedrock-hosted mineralization, but it is not included in the project resources.

15.0 MINERAL RESERVE ESTIMATES

The mineral reserve was developed from the block model and is the total of all proven and probable category ore that is planned for processing. The mine plan that is presented in Section 16.0 details the development of that mine plan. The mineral reserve was established by tabulating the contained tonnage of measured and indicated material (proven and probable) within the designed final pit at the planned cutoff grade (COG). The final pit design and the internal phase (pushback) designs were guided by the results of the Lerchs-Grossmann (LG) algorithm.

15.1 Reserve Estimation

15.1.1 Pit Optimizations

The Lerchs-Grossman (LG) algorithm is tool for guidance to mine design that targets an economical pit shell. The algorithm applies approximate costs and recoveries along with approximate pit slope angles to establish theoretical economic breakeven pit wall locations. All of the LG's and mine plan discussions in this section and the subsequent sections address measured and indicated (proven and probable) ore only. Inferred is treated as waste from this point forward in the project evaluation. The Project was built in English (U.S.) units and all metal grades are in troy ounces per short ton (oz/t).

The pit optimizations are based on the block model that was developed by Michael Gustin with RESPEC and is discussed in Section 14.0. As stated in Section 14.0, the block model is based on 20ft by 20ft wide blocks with a 20 ft bench height. The planned equipment at Golden Queen will be a good match for the 20ft bench height. Block model grades were utilized to develop the mine plan and contain sufficient mining dilution for the existing fleet.

Economic input applied to the LG algorithm is necessarily preliminary as it is one of the first steps in the development of the mine plan. However, the LG geometries should be considered as approximate as they do not assure access, working room or address geotechnical constraints. The important result of the LG's is the relative changes in geometry between LG's of increasing metal prices. Lower metal prices result in smaller pits which provide guidance to the design of the initial pushbacks. The change in pit geometry as metal prices are increased indicates the best directions for the succeeding phase expansions to the ultimate pit.

Table 15-2 summarizes the input data to the LG's. The process recoveries, estimated process costs, estimated mine operating costs and geotechnical slope guidance were provided to IMC by the GQMC project team. The process recoveries were derived from current recoveries reported from site operations. The process and mine operating costs were derived from current costs reported from site operations. The slope parameters are not based on revised or updated geotechnical guidance. The slope angles used in the LG algorithm are consistent with pre-existing pit walls that were visually observed during an IMC site visit and confirmed by current operators at site.

Table 15-1 Source of Input Parameters

Project Input Parameters	Source of Data
Process Recoveries	GQMC Project Team
Process Operating Costs	GQMC Project Team
Mine Operating Costs	GQMC Project Team
Geotechnical Slope Guidance	GQMC Project Team

Table 15-2, Table 15-3 and Table 15-4 summarizes the input data to the LG's. Multiple LG's were completed at a range of multiple gold and silver prices. The LG's were used to evaluate the pit designs and sequencing of phases.

Table 15-2 Mine Cost Input Parameters for Pit Optimization and Mine Plan

Golden Queen Mining Company - Soledad Mountain Project				
Dated: September 30th, 2023				
Mining Cost:				
		In-Situ	**Fill**	
	Direct Cost	$2.08	$1.70	($/ton total material)
	Rehandle	$0.01	$0.01	($/ton total material)
	Total $/ton	**$2.09**	**$1.71**	($/ton total material)
Haulage Incremental Cost:				
	Per bench @ 3660 down:		**$0.01**	($/ton total material)
Slope Inputs:				
		In-Situ	**Fill**	
	Overall Slope Angle	**47**	**37**	(degrees)

Table 15-3 Process Input Parameters for Pit Optimization

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Processing Costs			
Consumables			
	Processing	$6.77	($/ton ore)
	Offsite Services	$0.66	($/ton ore)
	Site Services	$1.00	($/ton ore)
	Sub-Total Consumables	***$8.44***	($/ton ore)
Fixed Overheads			
	G&A	$1.06	($/ton ore)
	Sub-Total Fixed Overheads	***$1.06***	($/ton ore)
Total Processing Costs		**$9.50**	**($/ton ore)**

Process Recovery

	Gold	**Silver**
Sheeted Veins	**74%**	**37%**
Silver Queen	**49%**	**37%**
Other[1]	**Variable[2]**	**37%**

Notes

[1] "Other" includes the Main Pit, Soledad, Golden Queen, Stockpiles and all other zones
[2] "Variable" recovery based on formula: -0.0435 x Bench Elevation + 219.44; capped at 85%.

Table 15-4 Economic Input Parameters for Pit Optimization

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Metal Prices		**Gold**	**Silver**	
	Metal Price	**$1,850**	**$23**	($/troy oz)
Value NSR[3]		**Gold**	**Silver**	
	Sheeted Veins	$1,369.00	$8.51	($/troy oz)
	Silver Queen	$906.50	$8.51	($/troy oz)
	Other[1]	$1,402.30	$8.51	($/troy oz)
Reserve COG[2]		**Gold**	**Silver**	
	Sheeted Veins	0.0062	0.9912	(opt)
	Silver Queen	0.0093	0.9912	(opt)
	Other[1]	0.0060	0.9912	(opt)

Notes

[1] "Other" includes the Main Pit, Soledad, Golden Queen, Stockpiles and all other zones.
[2] Internal Cutoff Grade (COG) does NOT include fixed overhead costs; therefore, the Offsite Services and G&A are not included in the COG.
[3] NSR = Net Smelter Return ($/troy ounce) is applied to the grade to calculate the value per ton within a block.

The engineered pit design is guided by the 2022 LG optimized pits that targeted a $1,600/oz gold price and a $23/oz silver price. The metal reported within the engineered pit design was tabulated using a $1,850/oz gold price and $23/oz silver price.

The pit phase designs were developed and provided by the onsite GQMC Project Team. The pit phase designs provided by GQMC were verified and reviewed by IMC. The phase designs used to establish the reserves are based on commonly established and accepted guidelines for open pit designs and meets the requirements to be classified as a Reserve.

The engineered ultimate pit design contains approximately 8% less ore and 42% more waste than the updated $1,850/oz gold price optimized LG pit. The engineered pit design does result in higher mining costs than the optimized pit; however, the engineered pit design can be economically mined and therefore may be classified as a Reserve.

The differences between the optimized pits and engineered designs are largely driven by the following factors:

1 **Changes with the model interpretation** – The current production phases have previously established pit walls that initially constrain the mine plan within the previously planned pit designs. In some instances, the optimized pit and subsequent sequencing may no longer be consistent with the revised resource model.

2 **Limitations of pit optimization algorithms (LG)** – In general, optimized LG pit algorithms do not initially incorporate practical mining constraints; therefore, difference between the optimized and engineered designs are expected. The ore within sheeted veins zone is not as continuous as other mineralized zones. The smaller (relative to other zones) pockets of mineralization within sheeted vein zone generate multiple small optimized pits. The smaller optimized pits have been merged within the engineered design to incorporate access and geotechnical considerations.

   a. **Access Considerations** – The access is tightly constrained throughout the mine life to specific connection points that are not easily reconfigured. The two access constraints not captured in the LG are:

      i. Connecting future access into previously established assess points

      ii. Maintaining access within the sheeted vein zone.

   b. **Geotechnical Considerations** – The intersections between the optimized pits and the existing topography creates contact zones that are likely to be geotechnically unstable. The engineered pit designs remove material from the contact zones that is most likely to be geotechnically problematic. The optimized pits within sheeted veins result in numerous (relative to other zones) geotechnical features that are removed within the engineering designs.

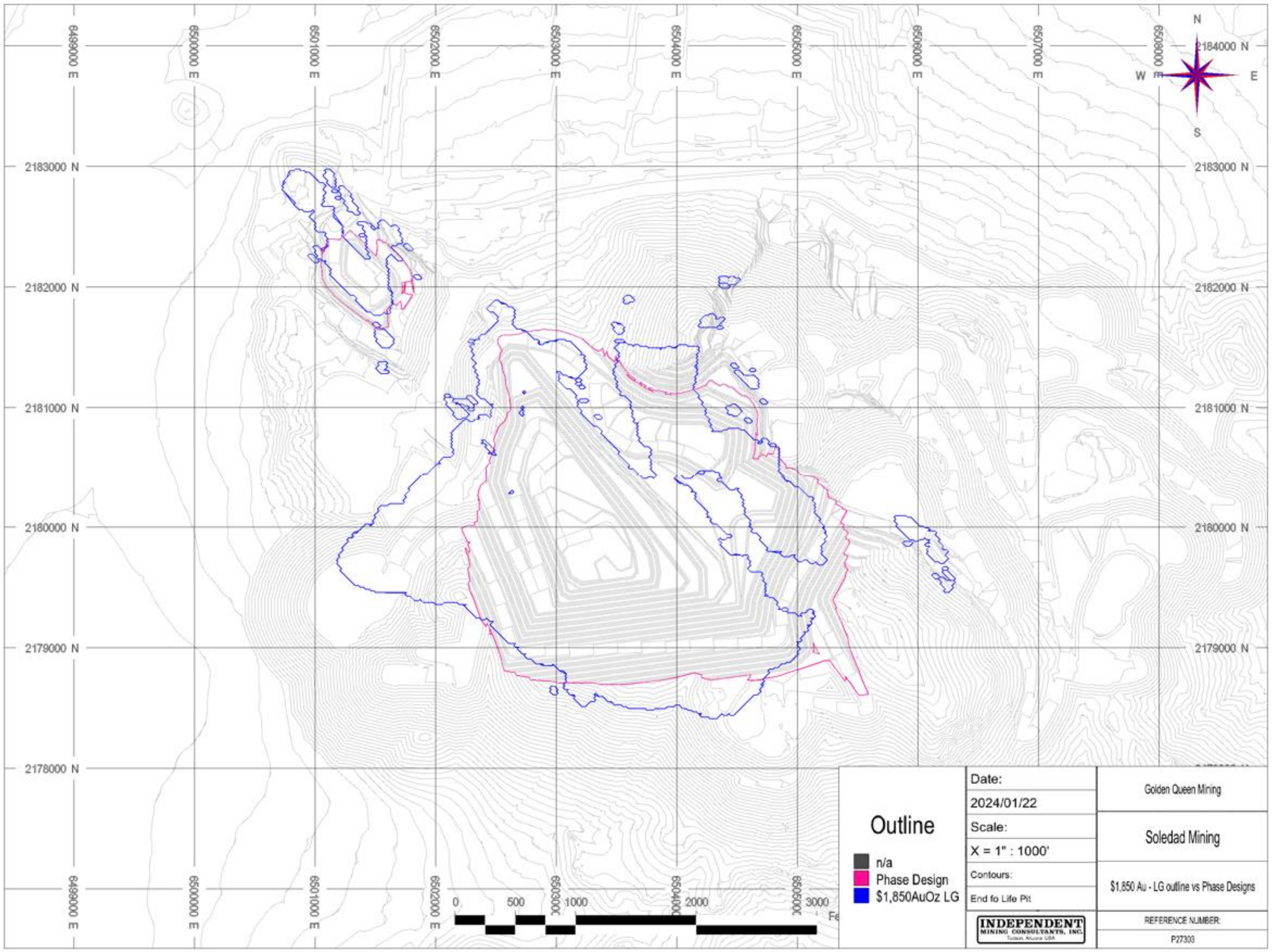
3 **Changes in recoveries (LG)** – There have been significant changes in the recoveries used to define the pit optimization since 2022.

The optimized pits do not capture the additional mining cost associated with maintaining access. The additional mining costs attributed to maintaining access is expected. When there is a change in the interpretation of the model (as was the case in this study) it is not always advised to incorporate all of the practical mining constraints to the optimization routine. The previously understood constraints may or may not continue to be valid within the revised model; therefore, incorporating the constraints may bias the results.

It is recommended that the practical mining constraints be incorporated into future pit optimization routines where and when it is possible. Incorporating the mining constraints into a pit optimization analysis will help validate the current designs and/or potentially identify areas of opportunity within the current pit designs.

Figure 15-1 illustrates the engineered ultimate pit design with the optimized LG pit outline overlayed.

Figure 15-1 Engineered Pit Design (Red Outline) with Overlaid with the of Optimized LG Output (Blue Outline)



15.1.2 Final Pit Design

The final pit designs are based on the breakeven economic LG pits from 2022 that correlates with a $1,600/oz gold price and $23/oz silver price. Updated pit optimizations were generated at current project economics and recoveries as a confirmatory check on the existing phase designs used to define the Reserves.

The LG algorithm targets several ore pods creating multiple unique pit bottoms. The resulting LG pits contain several noses, peaks and saddles, which create geotechnical and access issues. The engineered pit design has merged the access within the optimized pits and has removed geotechnical features that are potentially problematic.

Access roads and working room for the equipment have been planned into the phase designs. The inter-ramp slope angles that were recommended provided by GQMC. The engineered phase designs used for the Reserves were completed by mining engineers at GQMC and have been verified by IMC.

The final engineered pit design has been split into three phases/pushback and one stockpile and is explained in detail in Section 16.0. The final pit design inclusive of haul roads is illustrated on Figure 15-1. Additional mine plan drawings will be provided in Section 16.0 with the discussion of the mine plan and operation.

15.2 Reserve Estimate

The Golden Queen mine open pit Mineral Reserve Statement is presented in Table 15-5.

Table 15-5 Mineral Reserve Statement

Golden Queen Mining Company - Soledad Mountain Deposit
Mineral Reserve Statement (Imperial Units); September 30, 2023

Classification	NSR COG ($/ton)	Mineralized Tons (ktons)	NSR Grade ($/ton)	Contained Grade Gold (opt)	Contained Grade Silver (opt)	Recovered Grade Gold (opt)	Recovered Grade Silver (opt)	Contained Metal Gold (k-oz)	Contained Metal Silver (k-oz)	Recovered Metal Gold (k-oz)	Recovered Metal Silver (k-oz)
Proven	8.44	1,842	42.6	0.032	0.417	0.021	0.154	60	768	39	284
Probable	8.44	21,316	29.3	0.020	0.285	0.015	0.106	425	6,085	309	2,252
Total Prov + Prob		23,158	30.3	0.021	0.296	0.015	0.109	485	6,853	348	2,536

Notes:
- Mineral reserves were tabulated based on a $1,850/oz gold price and $23/oz silver price within a pit designed based on a $1,600/oz gold price @ 2022 economics.
- The mineral reserves Cutoff Grade (COG) is based on a Net Smelter Return (NSR) of $8.44/ore ton
- Mineral reserves are based on the economic input parameters provided in Tables 15.1-2, 15.1-3 & 15.1-4
- ktons means 1000 short tons; Short tons = 2000 lbs.
- The columns may not sum exactly due to rounding
- Gold and Silver are reported in Troy Ounces Per Short Ton; where 1 k-ounce = 1,000 ounces
- Based on end of September 2023 topography
- Includes 389 ktons from Low Grade Stockpile @ 0.0139 opt Contained Gold Grade, 0.010 opt Recovered Gold Grade,0.234 opt Contained Grade,0.234 opt Contained Silver Grade, 0.086 opt Recovered Silver Grade, applied to Probable
- The tons placed in Low Grade Stockpile throughout the mine life were verified by IMC; however the tons removed could not be verified. A could not be verified. A portion of the stockpiles were observed at the time of IMC's site visit, but the quantity was not identified. The low not identified. The low grade stockpile is not material to the Reserves and represents around 1% of the remaining recoverable ounces. recoverable ounces.

15.3 Classification of Reserves

In accordance with the CIM classification system only Measured and Indicated resource categories can be converted to reserves (through inclusion within the open-pit mining limits). In all Mineral Reserve statements, Inferred Mineral Resources are reported as waste. The Mineral Reserve is further limited by material that can be mined economically, which is identified by the cut-off grades (COG's) associated with mineral extraction.

COG is a function of technical and economical parameters and defines the economic portion of the reserve at the time of determination. The COG's for the reserve estimate were tabulated based on the Net Smelter Return (NSR).

The NSR is calculated as follows:

$$\underline{\boldsymbol{NSR\ Calculation}}$$
$$= \boldsymbol{Gold\ Grade * Gold\ Price * Gold\ Recovery}$$
$$+ \boldsymbol{Silver\ Grade * Silver\ Price * Silver\ Recovery}$$

$$Note\text{: } Calif.production\ taxes, smelter\ cost, freight\ cost, payables, \&\ royalties\ included\ as\ fixed\ unit\ processing\ cost.$$

The COG may be modified to other values during the mining operations in order to optimize business profits. These operational COG grades may accomplish different specific purposes

15.3.1 Breakeven Cutoff Grade

The breakeven NSR COG is $9.50 per ton of ore. Breakeven COG considers the total unit operating costs, including mining, processing, process recovery, metal prices, additional costs for site services, offsite services, general and administrative, California production taxes, royalties, freight, smelting costs and/or refining payable terms.

The expression for a break-even (BE) NSR COG is (allowing for appropriate use of units):

$$\boldsymbol{Breakeven\ NSR\ COG}$$
$$= \frac{Mining\ Costs + Processing\ Costs + Site\ Services\ Costs + Offsite\ Services\ Costs + G\&A\ Costs}{(Gold\ NSR + Silver\ NSR)}$$

$$where; "Offsite\ Services"\ includes\ Calif.production\ taxes, smelter\ cost, freight\ cost, payables, \&\ royalties.$$

The operating costs associated with Mining and General & Administration ARE included in the Breakeven NSR COG calculation. The pit optimization was based on the Breakeven Cutoff Grade, but the Reserves were tabulated on the Internal Cutoff Grade.

15.3.2 Internal Cutoff Grade

The Reserve Estimate is based on an internal COG of $8.44 per ton of ore. The internal COG considers the total unit operating costs, including processing, process recovery, metal prices and additional costs for site services, California production taxes, royalties, freight, smelting costs and/or refining payable terms.

The California production taxes, royalties, freight, smelting costs and/or refining payable terms were applied as a fixed unit processing cost based on recently reported costs over the past few operating quarters.

A review of the cash flow model does result in a higher internal cutoff grade (Processing, Site and Offsite Services) than the unit operating costs applied to the COG for the mine production schedule and Reserve Statement. The increased costs would have a negative impact and reduce the planned ore feed by approximately 8% or roughly 2.3% of the gold ounces. The negative impact from the increased costs is not considered to be material to the project.

The spatial distribution of future mining activities will differ from referenced period used to establish the unit "Offsite Services Costs". It is recommended that future operational optimization efforts take into account the spatial distribution of these factors.

The internal COG only considers any additional cost to mine ore beyond waste. The material between the breakeven and internal COG's is material that is uneconomic, but has a lower final cost to the project if processed rather than wasted. This material is considered marginal and once it has been mined (for example to access ore with grades above the BE COG) the mining cost is considered to be a sunk cost. If the material can pay for the downstream processing costs, and other ore related costs then it qualifies as ore.

The internal COG is defined as all the material with a gold grade above this value should be considered as ore, i.e., economically mineable. Ore feed to the plant will have an average grade higher than the COG value, and this difference provides the profit (return on capital) for the business.

The expression for an internal (Int.) gold COG is (allowing for appropriate use of units):

$$\textbf{Internal NSR COG} = \frac{Process\ Costs + Site\ Services\ Costs + Offsite\ Servics\ Costs}{(Gold\ NSR + Silver\ NSR)}$$

$$where; "Offsite\ Services"\ includes\ Calif.\ production\ taxes, smelter\ cost, freight\ cost, payables, \&\ royalties.$$

The operating costs associated with Mining and General & Administration ARE NOT included in the Internal NSR COG calculation.

The COG used by IMC to determine whether a block was ore or waste was the internal cutoff reported as ounces per ton during the pit optimization process. A COG was established for each mining area and planned type of processing to define ore and waste in the production schedule.

The internal COG's applied to each mining area and processing type are reported in **Error! Reference source not found.**.

15.4 Relevant Factors

IMC is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other issues that could materially affect the mineral reserves stated here.

16.0 MINING METHODS

The Soledad Mountain project is currently in production utilizing conventional hard rock open pit mining methods. Ore production to the crusher is planned at a maximum capacity of 12,500 tpd (4,500 ktons/yr). The mine production schedule was developed with the goal of filling the crusher at the required ore rate and maximizing the project return on investment. The total material rate is tied to equipment productivity and fluctuates by period. The maximum total production will reach a rate of 92,000 tons/day (32,600 ktons/yr). The mine is operating 7 days/wk with two, 12-hour shifts/day.

The Soledad Mountain Project is currently being mined by an owner operated fleet and this is planned to continue. The schedule and production requirements were based 20 ft high benches, 5 down the hole hammer drills, two 21 CuYd hydraulic shovels, one 15-17 CuYd front end loader, and twelve 100-ton class haul trucks. The auxiliary mine support fleet consists of three waters trucks, five tracked dozers, a rubber tire dozer, two graders, two excavators and an auxiliary drill.

The mine plan was developed with a phase approach. The phase designs, mine schedule, and mine equipment requirements are summarized in this section.

Soledad Mountain is a low-grade, disseminated gold deposit with mineralization close to the surface at an average remaining gold head grade of 0.021 oz/t and silver head grade of 0.296 oz/t.

The phases were tabulated from the block model and those tabulations were used as input to the development of the mine production schedule.

Waste rock will be stored in several waste rock facilities designed in close proximity to each pit to reduce haulage costs. Whenever possible, pit backfilling will be utilized if doing so proves to be economic during operations. Some waste mined late in the mine life will be placed in a designated storage facility to meet closure requirements.

16.1 Pre-Production and Mine Development

Soledad Mountain has been in operation for over seven years and is currently producing metal at site. Future mine development and access construction will be performed using the existing mining. Access to many areas of the mine have already been established from previous mining activity. Minimal future mine development is expected.

16.2 Phase Design

The Lerchs-Grossmann algorithm was used as a guide to the design of the phases. The engineered designed pits targeted the $1,600/oz gold price pit optimization (LG) and 2022 economics. The LG algorithm targets several ore pods creating multiple unique pit bottoms. The resulting LG pits contain several noses, peaks and saddles, which create geotechnical and access issues. Multiple economic pits were developed using the costs, slope angles and recoveries outlined in Section 15.0.

16.2.1 Design Parameters

The overall slope parameters are based on the geotechnical guidance observed at site and reported by the GQMC technical staff at site. No geotechnical report has been referenced.

Table 16-1. Phase Design Parameters

Phase Design Criteria	Quantity	Units
Bench Height	20	(ft)
Catch bench Width (approx.)	22	(ft)
Benches between Catch Benches	3	(benches)
Interramp Slope Angle - Insitu	51	(degrees)
Interramp Slope Angle - Fill	37	(degrees)
Face Slope Angle - Insitu	63	(degrees)
Face Slope Angle - Fill	37	(degrees)
Max road grade	10	(%)
Road width	80	(ft)

Three mining areas were designed for the Soledad Mountain project with approximately 200-300 ft of operating width on each bench within a phase. The phases are designed to accommodate two-way haulage for a 100-ton haul fleet.

The design parameters for the phases were similar to those for the final pit as discussed in Section 15.0.

16.2.2 Main Pit

The majority of the remaining ore planned at Golden Queen will be mined from Main Pit. Main Pit accounts for just over 98% of the ore feed at Golden Queen. Main Pit is planned as three phases mined from north to south.

1. Main Pit Phase 1:
   a. Mostly mined out
   b. Contains less than 2% of the remaining planned production
   c. Currently idle; with planned to resume in late 2024

2. Main Pit Phase 2
   a. Currently the largest source of production available
   b. Contains approximately 13% of the remaining planned production
   c. Currently active; currently is the primary source of ore production and is planned to remain in production until mid-2025

3. Main Pit Phase 3
   a. Currently in the process of having the upper waste benches mined. Only a minor amount of ore is currently contributing to the mine production schedule.
   b. Contains approximately 83% of the remaining planned production
   c. Planned future production; planned to be a primary source of ore production starting in the second half of 2024.

The initial stripping for Main Pit Phases 1 & 2 has already been completed. Access to Main Pit 3 is planned to both the east and west/south. The east access connects with East Pit and will be used for access to backfill East Pit. The access in Main Pit Phase 2 will also be used to establish the access for Main Pit Phase 3.

16.2.3 Low Grade Stockpile

A low-grade stockpile has been established on the north side of east pit. Soledad Mountain is an epithermal, faulted and fractured gold and silver deposit with historic underground workings throughout the complex. Variations between the modeled orebody and the operations are to expected. Low grade stockpiles are often recommended to help balance the variable between actual and planned ore delivery.

The tons placed in Low Grade Stockpile throughout the mine life were verified by IMC; however the tons removed could not be verified. A portion of the stockpiles were observed at the time of IMC's site visit in December of 2023, but the quantity could not be identified. The low grade stockpile is not material to the Reserves and represents around 1% of the remaining recoverable ounces.

1. Low Grade Stockpile:
   a. Contains less than 2% of the remaining planned production
   b. The low-grade stockpile is currently planned to start delivering ore during 2024.
   c. The low-grade stockpile has been classified as probable within the Reserves statement.

16.3 Mine Production Schedule

The metal within the final pit designs was tabulated using a $1,850/oz gold price. The planned ore feed to the crusher was tabulated at an internal cutoff grade (COG) of $8.44 per ore ton. The mine plan has a remaining mine life of 5.5 years of operation.

The application of an elevated cutoff grade strategy did not improve the project NPV given the relatively short mine life. All pits are planned to be mined at the internal cutoff grade, which varies by area and processing type. The internal cutoff grades are provided in **Error! Reference source not found.**.

The mine production schedule was developed with the goal of loading the leach pad at the required production rates and maximizing the project return on investment. Total material rates were tied to the size and number of loading units so that the final selected schedule would provide efficient use of the capital equipment employed.

The NSR Cutoff Grade for the mine plan and mineral reserve is:

NSR Cutoff =

$$\textbf{Internal NSR COG} = \frac{Process\ Costs + Offsite\ Services\ Cost + Site\ Services\ Cost}{(Gold\ NSR + Silver\ NSR)}$$

The total proven and probable ore that is planned for processing in Table 16-1 is the mineral reserve as summarized in Section 15.0. Inferred mineralization is treated as waste within the mine plan and mineral reserve statement.

Table 16-2 Annual Production Schedule

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Year	Mineralized Material								Waste	Total
	To Crusher	Net Smelter Return	Contained Grade		Contained Metal		Recovered Metal			
			Gold	Silver	Gold	Silver	Gold	Silver		
	(ktons)	($/ton)	(opt)	(opt)	(k-oz)	(k-oz)	(k-oz)	(k-oz)	(ktons)	(ktons)
2023	1,122	34.7	0.030	0.522	34	586	18	217	6,814	7,936
2024	4,494	30.7	0.023	0.343	102	1,542	67	570	27,388	31,882
2025	4,500	27.0	0.020	0.212	89	953	61	353	26,890	31,390
2026	3,935	25.5	0.018	0.223	72	876	50	324	29,436	33,371
2027	4,500	30.4	0.020	0.268	91	1,208	69	447	28,075	32,575
2028	4,451	36.4	0.021	0.370	95	1,648	80	610	21,251	25,703
2029	155	29.0	0.017	0.267	3	41	2	15	1,129	1,284
Total	**23,158**	**30.3**	**0.021**	**0.296**	**485**	**6,853**	**348**	**2,536**	**140,984**	**164,142**

Table 16-3 Detailed Quarterly Production Schedule

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Period	Mineralized Material								Waste	Total
	To Crusher	Net Smelter Return	Contained Grade		Contained Metal		Recovered Metal			
			Gold	Silver	Gold	Silver	Gold	Silver		
	(ktons)	($/ton)	(opt)	(opt)	(k-oz)	(k-oz)	(k-oz)	(k-oz)	(ktons)	(ktons)
Oct-23	373	37.5	0.033	0.567	12	212	7	78	2,303	2,676
Nov-23	375	32.4	0.027	0.512	10	192	6	71	2,213	2,588
Dec-23	374	34.2	0.030	0.487	11	183	6	68	2,298	2,673
Jan-24	372	27.7	0.020	0.484	7	180	5	67	2,294	2,666
Feb-24	375	37.1	0.028	0.605	11	227	6	84	2,124	2,499
Mar-24	375	31.7	0.023	0.474	9	178	6	66	2,305	2,680
Apr-24	372	34.6	0.025	0.519	9	193	6	71	2,206	2,579
May-24	375	27.4	0.020	0.325	7	122	5	45	2,395	2,770
Jun-24	375	29.6	0.022	0.355	8	133	5	49	2,283	2,658
Q3-2024	1,125	33.1	0.025	0.281	28	316	18	117	6,975	8,100
Q4-2024	1,125	27.0	0.020	0.172	22	193	16	71	6,806	7,931
Q1-2025	1,125	27.5	0.020	0.215	23	242	16	89	6,615	7,740
Q2-2025	1,125	25.7	0.019	0.256	21	288	14	106	6,701	7,826
Q3-2025	1,125	28.6	0.021	0.193	24	218	16	81	6,787	7,912
Q4-2025	1,125	26.3	0.019	0.183	21	206	15	76	6,787	7,912
H1-2026	1,759	25.3	0.018	0.201	31	353	22	131	14,961	16,720
H2-2026	2,176	25.5	0.019	0.240	41	523	28	194	14,475	16,651
YR-2027	4,500	30.4	0.020	0.268	91	1,208	69	447	28,075	32,575
YR-2028	4,451	36.4	0.021	0.370	95	1,648	80	610	21,251	25,703
YR-2029	155	29.0	0.017	0.267	3	41	2	15	1,129	1,284
TOTAL	**23,158**	**30.32**	**0.021**	**0.296**	**485**	**6,853**	**348**	**2,536**	**140,984**	**164,142**

The mine production schedule targets a daily ore feed production rate of 12,500 tons per day (4,500 kt/yr). There are some periods when the mine will not be able to meet the targeted ore feed, which is due to a capped sink rate of 14 benches per year within a single phase. The site operations thinks that it will be able to mine at a faster sink rate, which would be an upside benefit to the project if achieved.

It should be noted that during the compilation of this report there was a significant fire at the primary crusher resulting several weeks of lost production. The production downtime resulting from the fire has not been incorporated in to the mine production schedule at this time. It is expected the impact from the incident will be captured in future reporting once the resulting impact(s) are fully understood.

16.4 Waste Rock Storage Design

Waste storage facilities are planned at each of the remaining mining areas of the Soledad Mountain pit. The Main Pit waste will expand from the waste dumps and after having completed EP1 and EP2 mining areas they will be filled with waste material from the remaining mining areas.

The waste facilities are designed in stages from the top to bottom. The initial portion of the waste facility is placed at an angle of repose (1.3 to 1). Concentric platforms (rings) will be filled in at the angle of repose. Once each waste platform is completed, then the lift above it can be recontoured to a reclamation angle (2.5 to 1) as the facility is constructed down the valley.

The current waste storage designs do not include an allowance for material swell. It has been determined by GQMC that the removal of aggregate material from the overburden storage and observed compaction will offset the need for the inclusion of the swell factor into the design capacity. IMC has not evaluated the accuracy of the assumption to remove the swell factor from the overburden storage capacities.

There is no provision for re-contouring of the waste dumps within the mine operating costs. Mine reclamation costs are not included within the mining costs because they were address separately by Golden Queen. The non-mineralized blasted rock will be backfilled into and exterior pit storage facilities to reduce haulage costs, and waste storage facilities were designed as close to each pit access point as possible. Whenever practical, waste rock was designed to backfill mined out areas in former pits. The amount of pit backfill is subject to change depending on economic and operational requirements.

16.5 Mine Equipment Requirements

The Soledad Mountain Project is currently in operation.

The Soledad Mountain Project is currently being mined by an owner operated fleet and this is planned to continue. The nearly all of the major mining equipment on hand is Komatsu, except for the drill fleet (Atlas Copco, now known as Epiroc). The mining fleet has been sized to operate on 20-foot operating bench heights.

The schedule and production requirements were based on the following fleet assumptions:

Production Mining Equipment

- The drilling fleet currently consists of four production drills that in operation today with a planned maximum drilling fleet of five drills. The current and planned drilling fleet consists of rotary down-the-hole hammer drills, with 45,000 lb pull down capacity, and 6.75 in diameter blast holes.
- The haulage fleet currently consists of twelve trucks 100-ton class haul trucks that are in operation today.
- The loading fleet currently two 21 cu yd hydraulic loading shovels, one 17 cubic yard front-end loader and two 15 cubic yard front-end loaders. The planned maximum loading fleet will remain at its current size.

Auxiliary Mining Equipment

The auxiliary equipment consists of various sized track dozers, a wheel dozer, motor graders, water trucks, and an excavator.

- The dozer fleet consists of three 18 CuYd track dozers, one 24 CuYd track dozer and one Rubber Tire Dozer. The dozer size variations allow for greater flexibility in maintaining the overburden placement and for cleanup within the pit.
- Two motor graders with a 14 ft and a 16 ft wide blades are used to maintain the roads and remove snow.
- One 20,000-gal water truck and two, 8,000-gal articulating water trucks were sized to adequately maintain dust control on the haul roads.
- Two excavators for highwall clean up and road construction/maintenance.

- A Furukawa auxiliary drill for areas with terrain that is not easily accessed by the production drills.

Truck fleet requirements were provided by GQMC and were not verified by IMC. The equipment requirements of the support fleet were not evaluated. Table 16-4 summarizes the major mine equipment units that will be on site throughout the mine life. Table 16-5 summarizes the utilization and availability of the mining equipment.

Table 16-4 Fleet Requirements

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Equipment Type	Current Units	Planned Max Units
Epiroc DM45 DTH Drill (6.75 in bit | 45,000 lb pulldown)	4	5
Komatsu PC3000 Hydraulic Shovel (21 CuYd bucket | 1,260 HP)	2	2
Komatsu WA800 Front End Loader (15 CuYd bucket | 854 HP)	2	2
Komatsu WA900 Front End Loader (17 CuYd bucket | 899 HP)	1	1
Komatsu 785 Haul Truck (100 t)	12	12
Komatsu 275 Track Dozer (18 CuYd blade capacity | 452 HP)	4	3
Komatsu 375 Track Dozer (31 CuYd blade capacity | 636 HP)	1	1
Komatsu Rubber Tired Dozer (191 HP)		1
Komatsu GD655 Motor Grader (14 ft blade | 218 HP)		1
Komatsu 785 Water Truck (20,000 gal tank | 100 t)	1	1
Komatsu HM400 Water Truck (8000 gal tank | 40 t)		2
Furukawa Drill (5 in bit)		1
Komatsu PC800 Excavator (4.1 CuYd bucket)		1
Komatsu PC240 Excavator (1.3 CuYd bucket)		1
Caterpillar D9 Dozer (18 CuYd blade Capacity | 464 HP	1	1
Caterpillar 16M Motor Grader (16 ft in | 312 HP)	1	1

Table 16-5 Utilization and Availability of Mining Equipment

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Equipment Type	Mechanical Availability	Utilization of Availability	Maximum Utilization
Epiroc DM45 DTH Drill (6.75 in bit | 45,000 lb pulldown)	0.80	0.85	0.68
Komatsu PC3000 Hydraulic Shovel (21 CuYd bucket | 1,260 HP)	0.95	0.90	0.86
Komatsu WA800 Front End Loader (15 CuYd bucket | 854 HP)	0.95	0.90	0.86
Komatsu WA900 Front End Loader (17 CuYd bucket | 899 HP)	0.95	0.90	0.86
Komatsu 785 Haul Truck (100 t)	0.85	0.90	0.77

16.6 Manpower Requirements

The mining operations will require crews operating on twelve-hour, rotating shifts seven days per week.

Mining crew manpower summary is shown in Table 16-6 Mining Manpower below.

Table 16-6 Mining Manpower

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Mine operations	Position	Quantity
Overall	Mine manager	1
Mining	Mine Superintendent	1
	Mine Ops General Foreman	1
	Dispatch Supervisor	1
	Dispatchers	4
	Mine Ops Training/Safety	2
	Mine Ops Supervisor	4
	Drill Blast Supervisor	1
	Drill Blast Technician	1
	Equipment Operator (Drilling)	20
	Equipment Operator (Loading)	12
	Equipment Operator (Hauling)	52
	Equipment Operator (Surface Crew)	32
	Total Mine	**131**
Maintenance	Mobile Maintenance Superintendent	1
	Mobile Maintenance Sr. Supervisor	1
	Mobile Maintenance Supervisor	4
	Maintenance Trainer	1
	Mine Maintenance Planner	2
	Mechanic	18
	Mechanic Welder	4
	Tireman	2
	Lube/Fuel	8
	Laborers	2
	Total Maintenance	**43**
Engineering	Engineering Superintendent	1
	Sr Mine Planning Eng	1
	Mine Planning Eng	1
	Ore Control Geologist	1
	Ore Control Supervisor	1
	Grade Control Technician	4
	Surveyor	2
	Total Engineering	**11**
	Grand Total	**186**

Table 16-7 Scheduled Shifts

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Scheduled Mine Days and Shifts Per Year				
Scheduled Mining Periods		Scheduled Shifts		
(Year)	(Period)	Scheduled Days	Shifts/ Day	Scheduled[1] Shifts
2023	- October	31	2	62
2023	- November	30	2	60
2023	- December	31	2	62
2024	- January	31	2	62
2024	- February	29	2	58
2024	- March	31	2	62
2024	- April	30	2	60
2024	- May	31	2	62
2024	- June	30	2	60
2024	- Quarter 3	92	2	184
2024	- Quarter 4	92	2	184
2025	- Quarter 1	90	2	180
2025	- Quarter 2	91	2	182
2025	- Quarter 3	92	2	184
2025	- Quarter 4	92	2	184
2026	- 1st Half	181	2	362
2026	- 2nd Half	184	2	368
2027		365	2	730
2028		365	2	730
2029	- January	31	2	62
Total		1,949		3,898

(1) No lost shifts included for holidays or bad weather days

Table 16-8 Operating Time Per Shift

Golden Queen Mining Company - Soledad Mountain Project
Dated: September 30th, 2023

Summary of Operating Time Per Shift	
Scheduled Time Per Shift (min)	720
Less Scheduled Nonproductive Times	
Travel Time/Shift Change/Blasting (min)	10
Equipment Inspection (min)	10
Lunch/Breaks (min)	30
Fueling, Lube, & Service (min)	10
Net Scheduled Productive Time (Metered Operating Time) (min)	660
Job Efficiency (50 Minutes Productive Time Per Metered Hour)	83.3%
Net Productive Operating Time Per Shift (min)	550

16.7 Period Drawings

The following figures present the annual mine drawings (Figure 16-1 to Figure 16-7).

Figure 16-1 Annual Pit Progression – End of Year 2023, Source: IMC, 2024

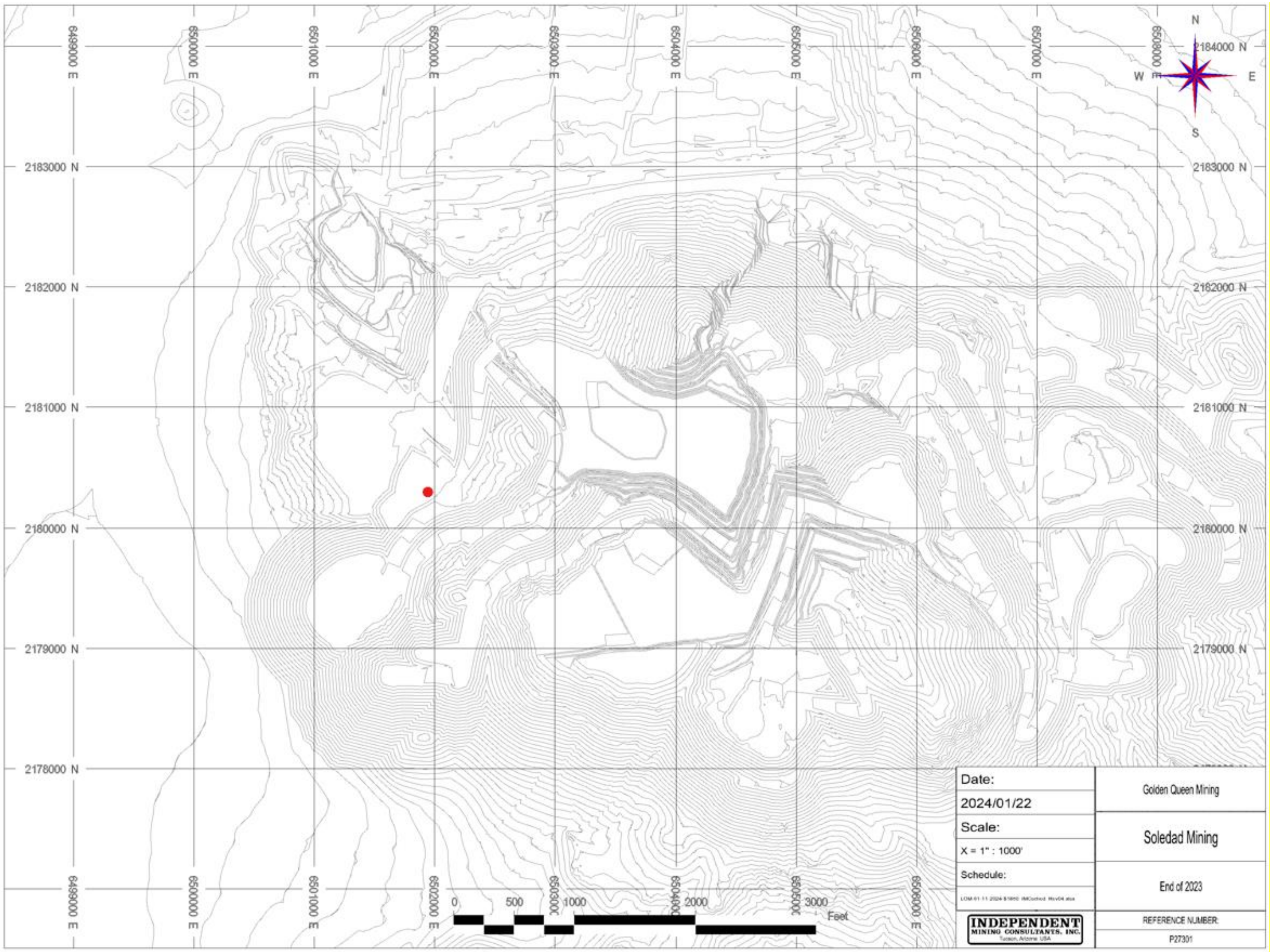


Figure 16-2 Annual Pit Progression – End of Year 2024, Source: IMC, 2024

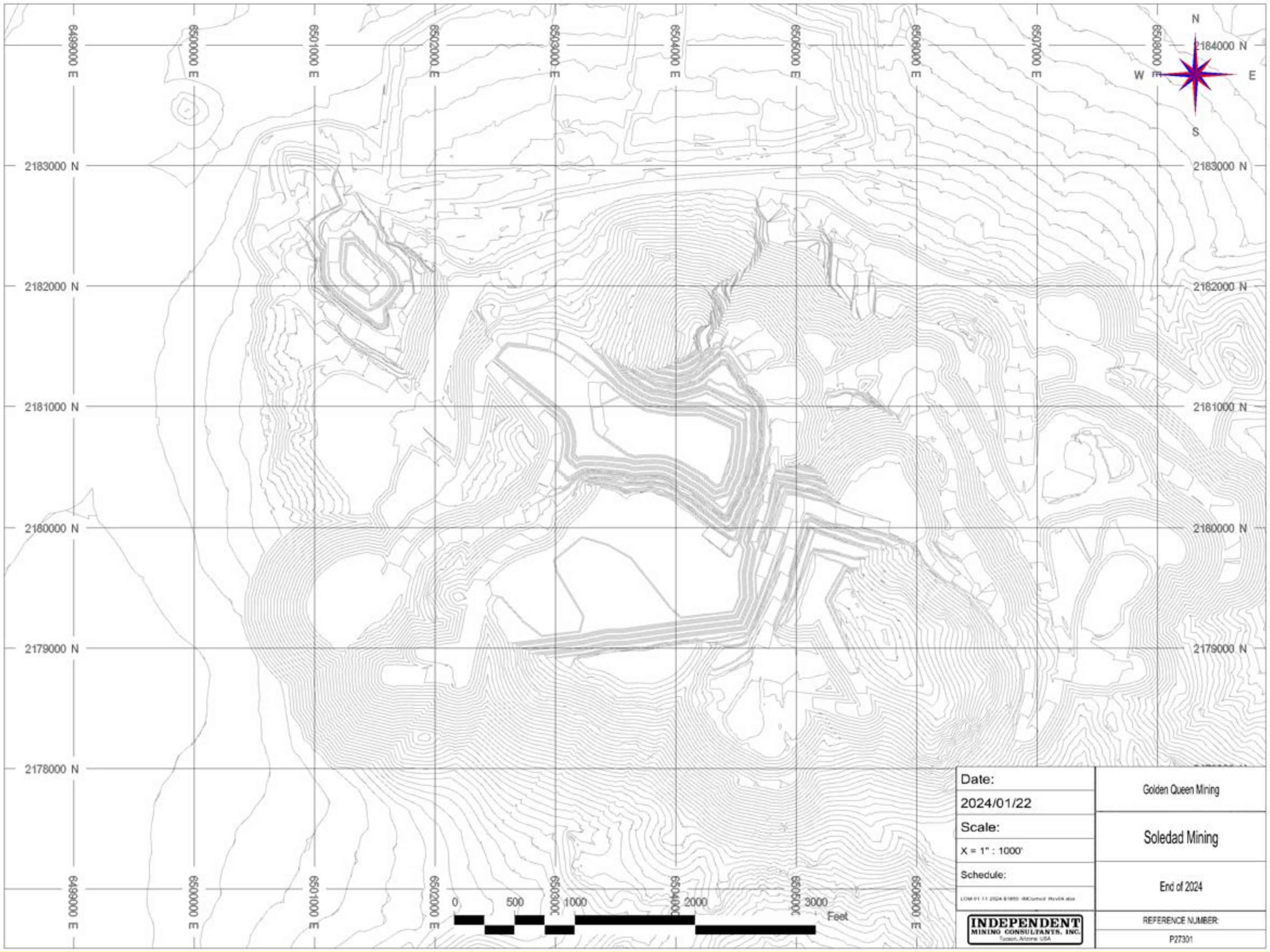


Figure 16-3 Annual Pit Progression – End of Year 2025, Source: IMC, 2024

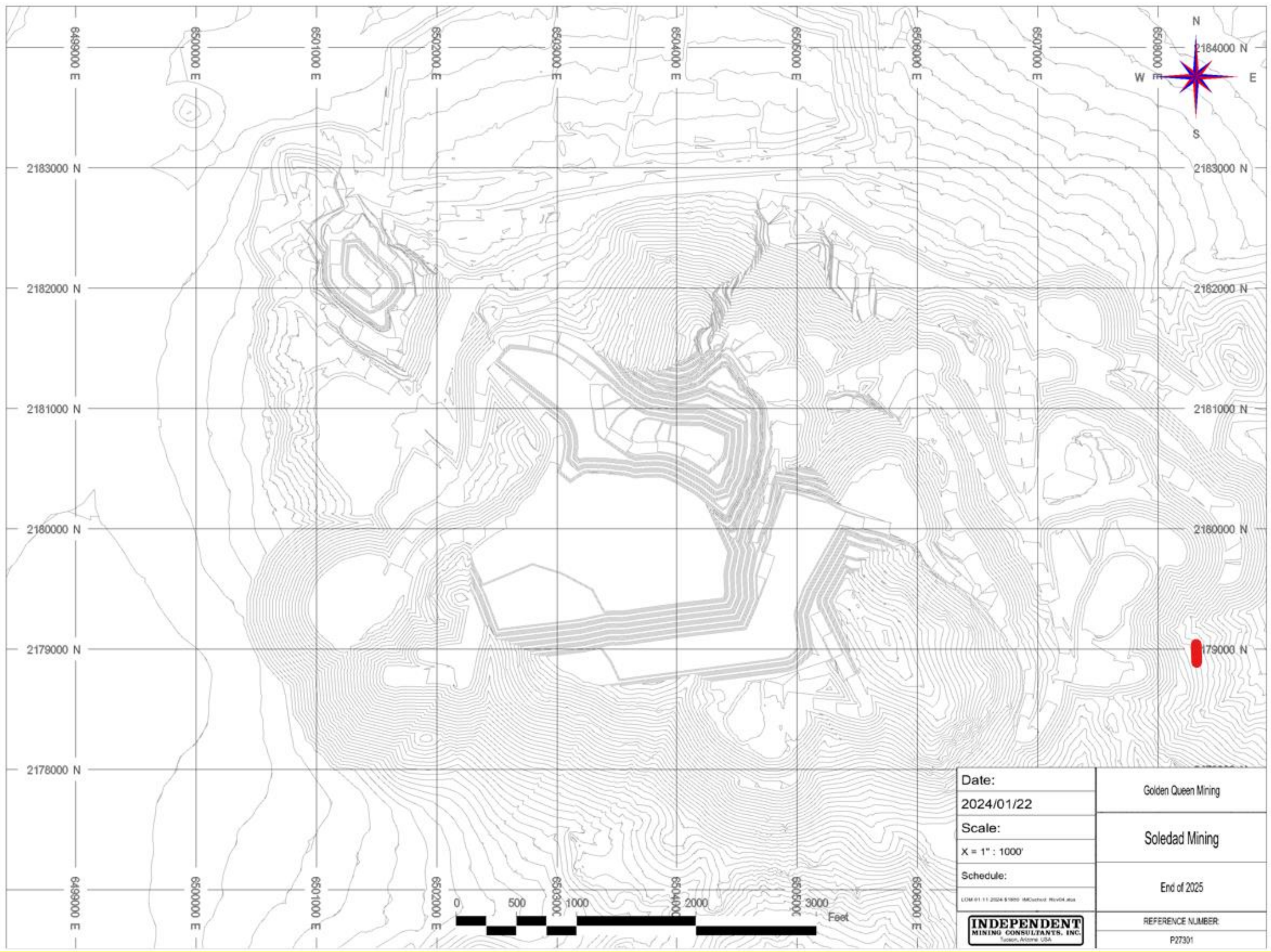


Figure 16-4 Annual Pit Progression – End of Year 2026, Source: IMC, 2024

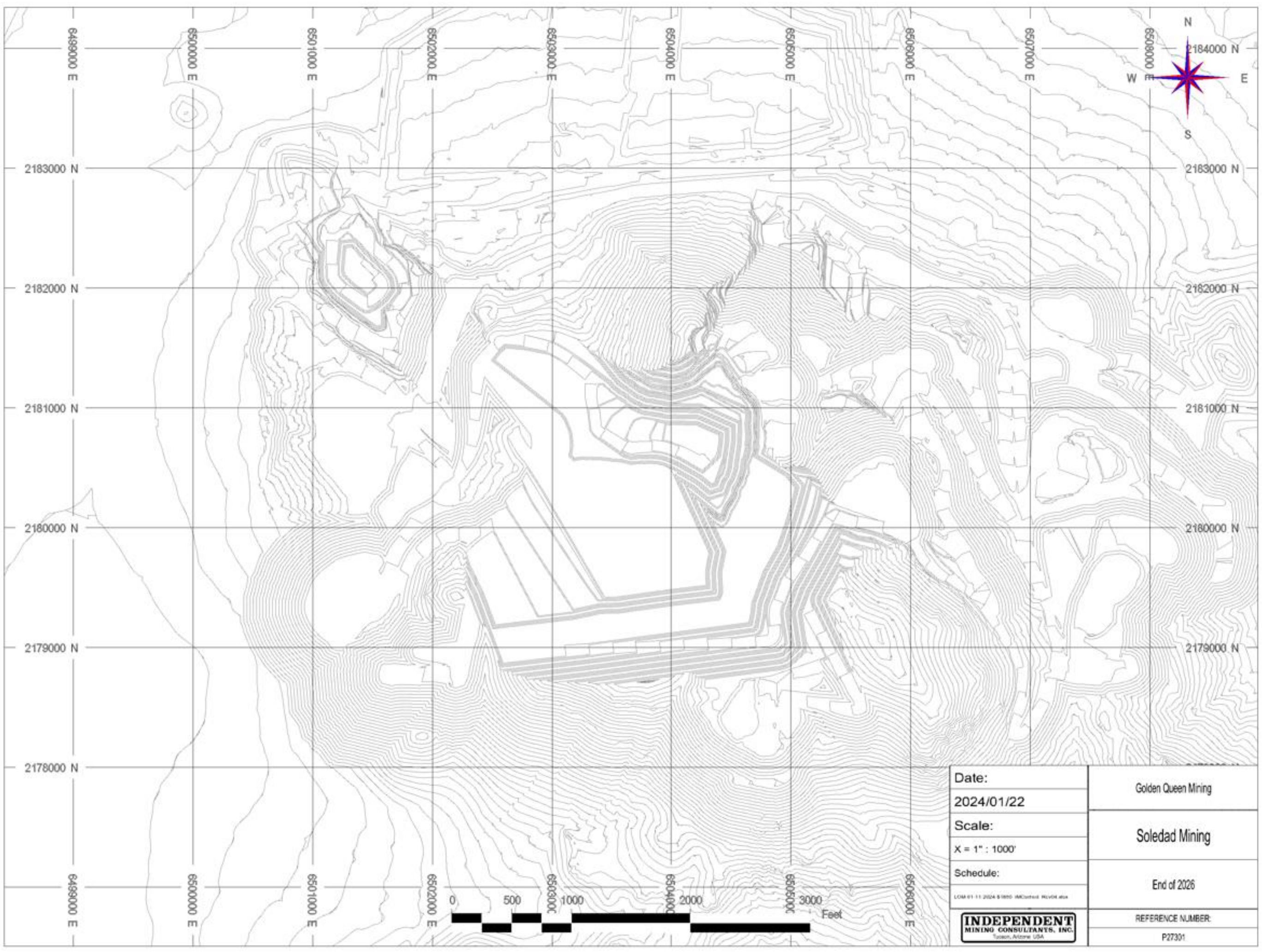


Figure 16-5 Annual Pit Progression – End of Year 2027, Source: IMC, 2024

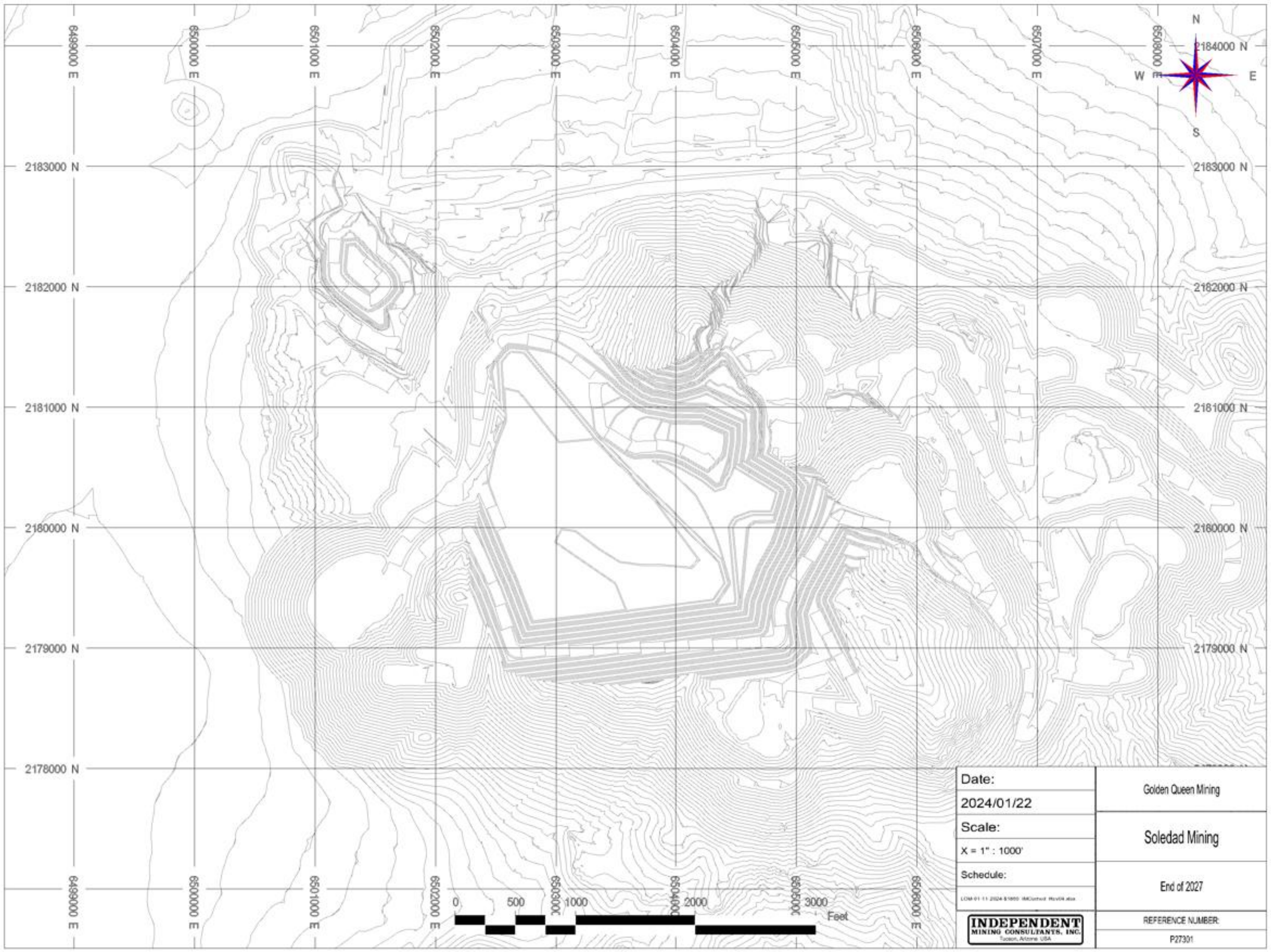


Figure 16-6 Annual Pit Progression – End of Year 2028, Source: IMC, 2024

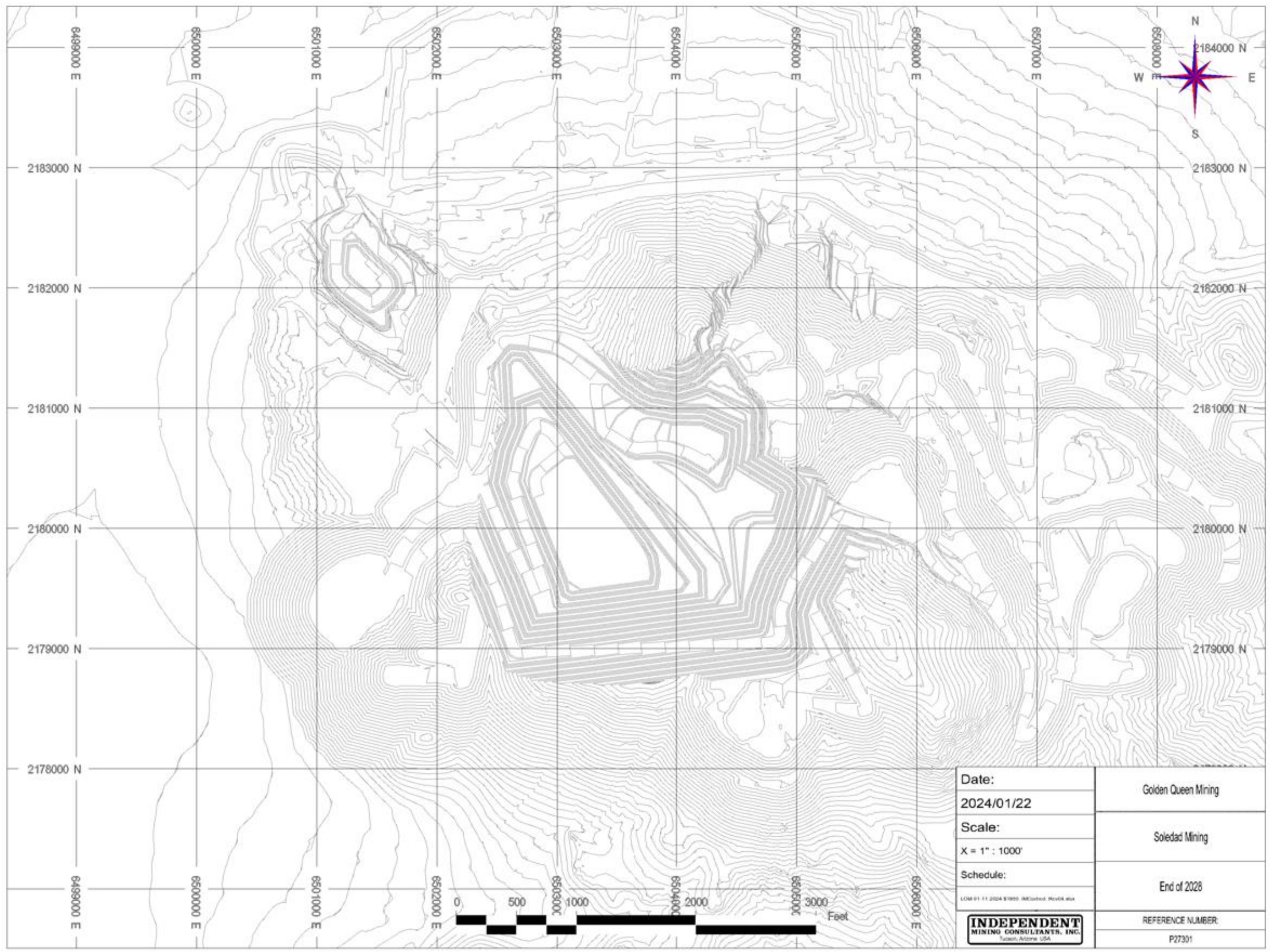
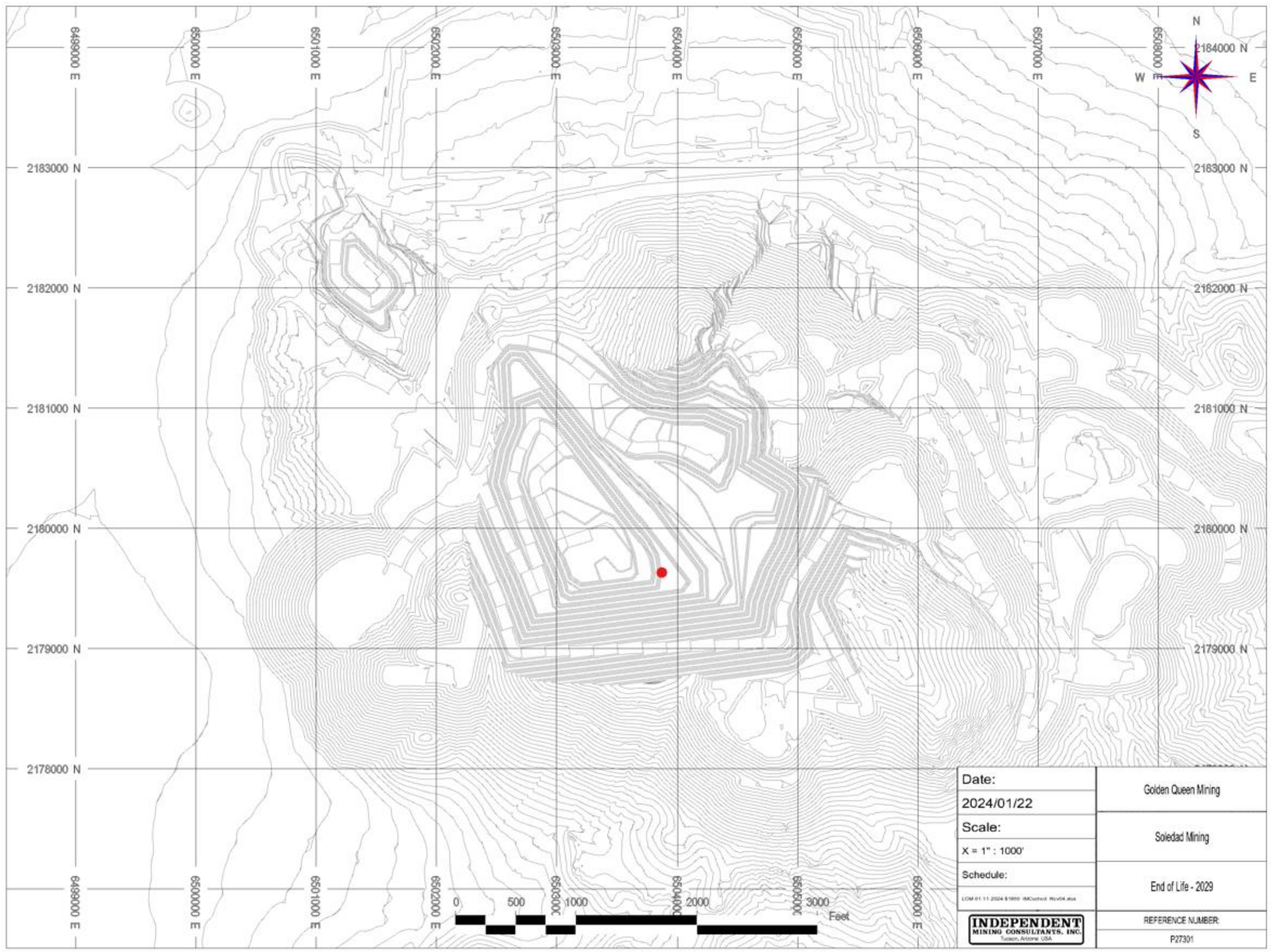


Figure 16-7 Annual Pit Progression – End of Year 2029 (Final Pit), Source: IMC, 2024



Kappes, Cassiday & Associates

17.0 RECOVERY METHODS

17.1 Ore Handling, Crushing and Screening

17.1.1 Ore Handling Overview

The Crushing Plant is three-stage with a primary jaw, a secondary cone crusher operating in closed circuit with a screen and a tertiary HPGR operating in open circuit. The crushing plant has been in operations since late 2015.

Run-of-mine ore is delivered to the Crushing Plant located south of the Phase 1 heap leach pad. Ore is fed directly to the primary crusher when possible; otherwise, the ore is stockpiled adjacent to the primary crusher. When ore is not being mined, a front-end loader reclaims ore from the stockpile and feeds it to the primary crusher.

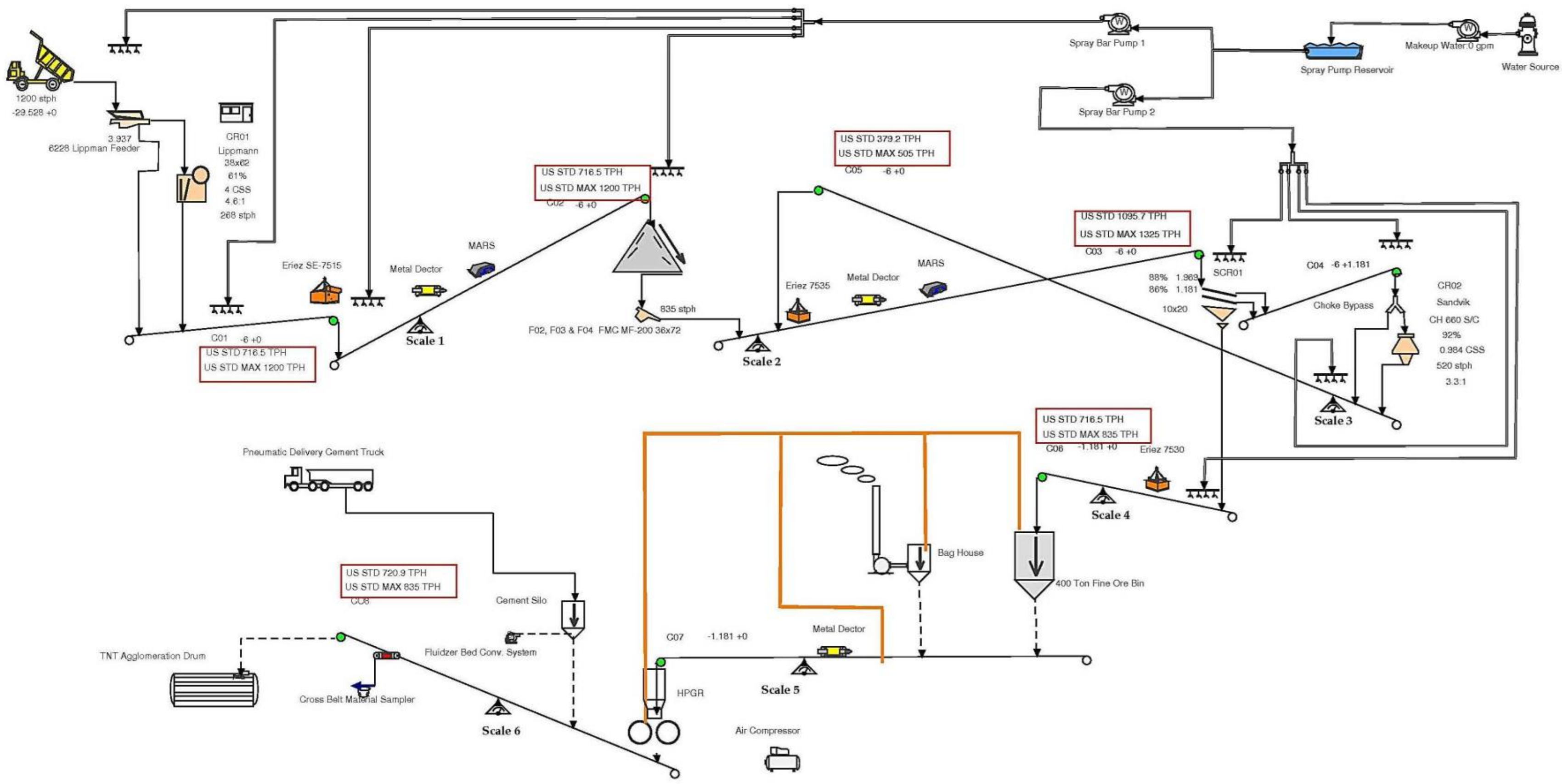
Primary crushed ore is conveyed to a coarse ore stockpile. This allows the primary crusher to operate independently of the rest of the crushing system and also allows a steady feed to the primary screen and secondary crusher. Crushing plant product (HPGR discharge) is dosed with cement and conveyed to an agglomeration drum and then by overland conveyor and a series of grass-hopper conveyors to a stacking system on the heap leach pad.

The Crushing Plant flow sheet is shown in Figure 17-1.

17.1.2 Crushing Plant

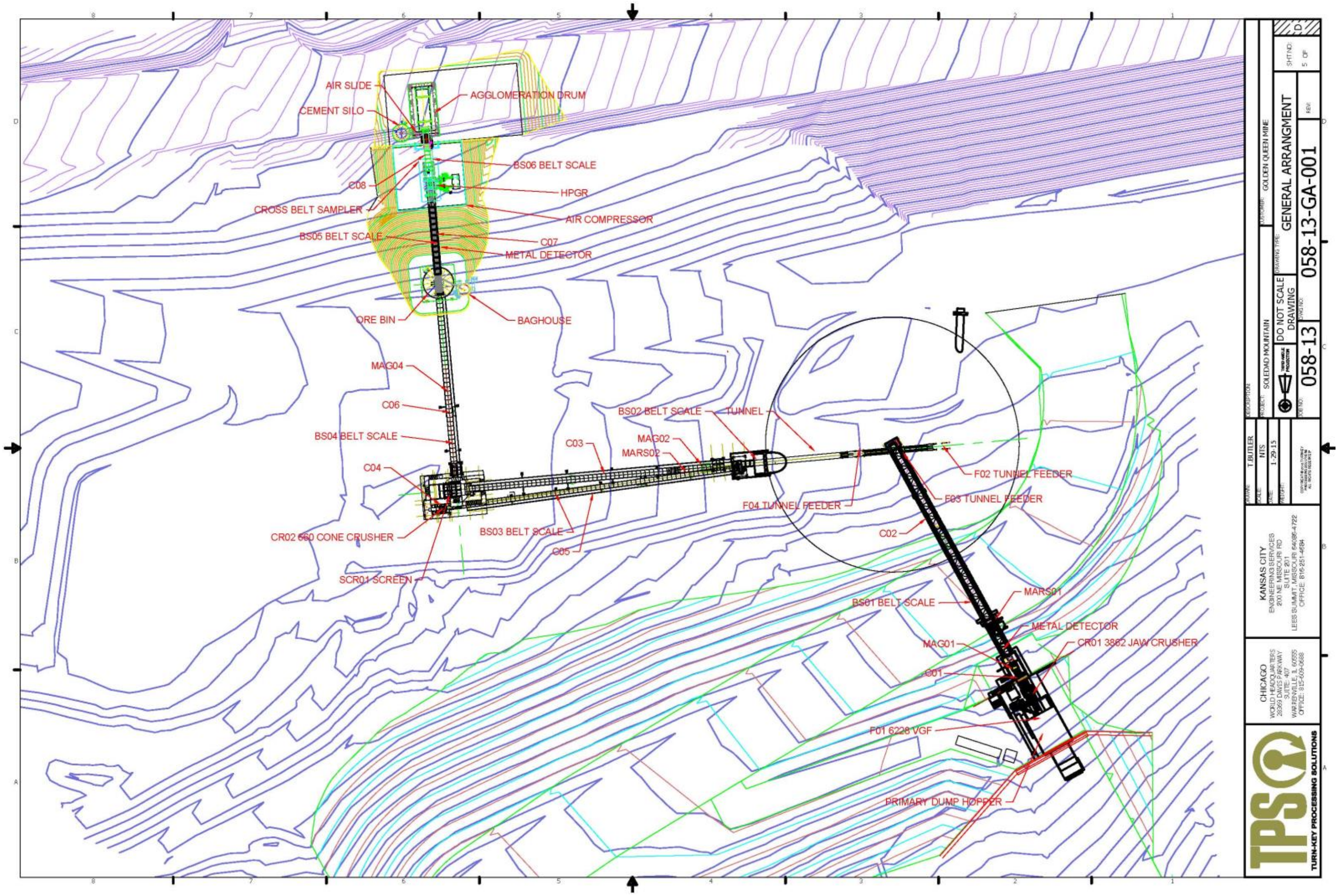
A plan view drawing of the Crushing Plant is shown in Figure 17-2.

Figure 17-1. Crushing Plant Flowsheet



KCA, 2015

Figure 17-2. Crushing Plant Layout



The historical operating data are summarized in Table 17-1:

Table 17-1. Crushing Operating Data

Year	Operating Hours	Total Availability, %	Dry Tons Crushed	Crushing Rate, dry tph
2016	3,790	43%	2,665,676	703
2017	5,477	63%	3,552,893	649
2018	5,271	60%	3,524,297	669
2019	5,337	61%	4,119,262	772
2020	5,018	57%	3,979,769	793
2021	5,488	63%	4,502,778	821
2022	5,245	60%	4,210,279	803
2023	5,344	61%	4,316,482	808

a. Data through 31 December 2023

The target crushing rate is 375,000 tons per month with a nominal crushing rate of 800 tph. This is equivalent to an availability of 64%. Replacing one of the vibrating pan feeders under the primary crushed ore stockpile with a belt feeder has resulted in a potential increase of crusher throughput up to 420,000 tons per month.

The following sub-sections detail the key components of the plant.

17.1.2.1 Primary Crusher Station

Run-of mine (ROM) ore is delivered to a dump hopper with a capacity of 250 tons. Oversize rock at the ROM ore storage pad is sorted by the loader operator and broken with a rock breaker mounted on an excavator. The dump hopper is fitted with fine mist sprays to suppress dust. Any tramp steel or timber is sorted out in the open pits prior to transport to the crusher. Oversize ore in the dump hopper is broken with a permanently mounted hydraulic rock breaker. Ore is withdrawn from the dump hopper by a variable speed, vibrating grizzly feeder. Oversize ore is fed to a jaw crusher. Grizzly undersize and jaw crusher product is conveyed to a coarse ore stockpile.

17.1.2.2 Coarse Ore Stockpile

The coarse ore stockpile has a total capacity of 40,000 tons and a live capacity of 10,000 tons. The live capacity provides feed for 12 ½ hours of crusher operation.

17.1.2.3 Coarse Ore Feeders

Ore is fed to the primary screen by two Syntron-type vibratory feeders and one belt feeder located in the reclaim tunnel. Access to the feeders under the coarse ore stockpile is available from two directions for maintenance and cleanup.

17.1.2.4 Primary Screen

The secondary crushing stage, which includes the primary screen and the cone crusher, feeds the HPGR. A single screen operates in closed circuit with the cone crusher. The screen undersize is minus 1 ¼ inch and is secondary crushing stage product.

17.1.2.5 Secondary Crusher

Primary screen oversize feeds a single Sandvik model CH860i cone crusher. The cone crusher discharge is recycled to the Primary Screen feed.

17.1.2.6 Fine Ore Bin

The screen undersize is conveyed to a fine ore bin with a capacity of 400 tons. Ore will be drawn from the fine ore bin by a belt feeder and metered to the HPGR.

17.1.2.7 HPGR

Fine ore feeds a ThyssenKrupp model Polycom 17/12-5 HPGR with two variable speed, 975 kW drives.

17.1.2.8 Binder Addition

Portland Type 2 cement is added to the crushed ore as a binder ahead of the agglomeration drum.

17.1.2.9 Weightometers

Weightometers are installed throughout the system to provide operating control and to record the total throughput. The weightometer upstream of the agglomeration drum is used for accounting purposes and to control cement addition.

17.1.2.10 Self-cleaning Magnets

Self-cleaning magnets, stationary magnets, metal detectors and metal removal systems are installed to protect the entire system.

17.1.3 Sampler

A cross-belt sampler is installed on the HPGR product conveyor. The HPGR product is sampled to form a shift composite that provides information on ore grade and the performance of the HPGR. These samples are also used to produce monthly composites for onsite column testing. The column test results are used to benchmark actual heap leach performance.

17.1.4 Manpower Required

Process staffing is summarized in the following table:

Table 17-2. Process Staffing

Process Area	Position	Quantity
Overall	Manager Plant Operations Mechanics Electricians	1 8 3
Crusher	Superintendent (Operations, Maintenance and Electrical) General Foreman (Operations) General Foreman (Maintenance) Operations Supervisors (rotate with the crews) Maintenance Supervisors Scheduler/Planner Training Coordinator Process Operator	1 1 1 4 2 2 1 24
Leach	Process Operator	7
Merrill-Crowe	Senior Metallurgist/Technical Services Plant Supervisor Metallurgical Technician Process Operator	1 1 1 12
Refinery	Process Operator	2
Laboratory	Supervisor Lab Technicians	1 14
Total		87

Crusher, Leach, Merrill-Crowe and Laboratory operators and crusher supervisors work rotating 12-hour shifts.

Salaried personnel work four, ten-hour shifts; Monday through Thursday or Tuesday through Friday.

17.2 Merrill-Crowe Circuit

17.2.1 The Merrill-Crowe Process

Gold and silver are recovered by dissolution in a dilute sodium cyanide solution and then by precipitation with zinc. The zinc precipitation process, referred to as the Merrill-Crowe process after its developers, is typically used to recover gold and silver when the silver to gold ratio is greater than 10:1. The Merrill-Crowe process is well established and the process is highly efficient.

In the Merrill-Crowe process, suspended solids and dissolved oxygen must first be removed from the pregnant solution. Clarifying filters are used to remove the suspended solids to less than 1 ppm. A vacuum tower is used to remove dissolved oxygen from the clarified solution to a level of about 0.5 ppm. Zinc dust is metered into the deaerated solution and combines with the gold and silver cyanide complexes in a rapid, cementation-type reaction to precipitate micron-sized particles of metallic gold and silver.

After precipitation, the solution is pumped to recessed plate filter presses where the gold and silver precipitates are removed. These filter presses are located in the refinery and this is where all subsequent processing takes place. As with gold and silver, mercury present in the pregnant solution is also precipitated. The precipitate is removed manually from the filter presses, placed in retort pans are then loaded into mercury retorts. The precipitate is heated to the point where any mercury that is present will be converted to mercury vapor, condensed, collected and stored in steel containers for perpetual off-site storage.

The dried, retorted precipitate is mixed with selected fluxes, typically silica, borax, soda ash and sodium nitrate and melted in an induction furnace. When melted, these fluxes form a slag that contains impurities. The slag is cooled and crushed and occluded particles of gold and silver are recovered for further processing.

The molten mix of gold and silver, i.e. the doré, is poured into a series of cascading molds. Doré is cooled, cleaned and shipped to a commercial refinery where gold and silver bullion are produced for final sale. The doré poured at site averages a silver to gold ratio of about 10:1.

The barren solution is pumped to the barren solution tank and is returned to the heap.

17.2.2 Merrill-Crowe Plant

The Merrill-Crowe plant is located at the north east corner of the heap leach pad adjacent to the Operating and Excess Ponds. The Merrill-Crowe plant has a capacity of approximately 3,000 gpm.

Pregnant solution from the Heap Leach Pad flows to a concrete Pregnant Solution Tank. The Pregnant Solution Tank contains two turbine-type pregnant solution pumps. The pregnant solution pumps feed clarifying filters inside the Merrill-Crowe building which remove suspended solids.

Clarified solution flows, under pressure, to a deaeration tower located outside and directly to the north of the Merrill-Crowe Plant. The deaeration tower removes dissolved oxygen to about 0.5 ppm O_2.

Deaerated pregnant solution flows by gravity into the Merrill-Crowe building where zinc dust is added, via a zinc cone, and feeds one of two submerged Press Feed Pumps. The zinc dust precipitates recovered gold and silver. The pumps are submerged to limit the ingress of atmospheric oxygen.

The Press Feed Pumps feed solution to three Precipitate Filters. The Precipitate Filters remove precipitated gold and silver from solution. The two mercury retorts in the Merrill-Crowe plant remove mercury from the precipitate. The retorted precipitate is melted in an induction furnace to produce doré for shipment to an offsite refiner.

The off-gas streams from the mercury retorts flow to a sulfur-impregnated carbon bed scrubber for final emissions control. The melting furnace off gas stream flows via a collection hood to a wet scrubber and then to a sulfur-impregnated carbon bed scrubber for final emissions control.

Filtrate from the Precipitate Filters flows under pressure to the Barren Tank located outside and directly to the north of the Merrill-Crowe building. Two horizontal, centrifugal barren pumps are fed from the Barren Tank and are used to pump barren solution to sections of the heap leach under primary and secondary leach.

Make-up cyanide and antiscalant are added to the suction of the barren pumps.

Excess pregnant solution from the heap leach pad reports to the Operating Pond. The Operating Pond is used to store intermediate, lower grade solution which is pumped, by the Intermediate Leach System, to irrigate sections of the heap leach pad under primary leach. The Intermediate Leach System is described below.

The entire Merrill-Crowe plant is designed to drain to the Operating Pond in the event of upset conditions.

The plan view of the Merrill-Crowe plant is shown in Figure 17-3.

17.2.3 Intermediate Leach System

The purpose of the Intermediate Leach System is to allow two-stage leaching. Two-stage leaching allows longer effective leach cycles without increasing the capacity of the Merrill-Crowe plant.

Barren solution from the Merrill-Crowe is used preferentially to irrigate previously leached sections of the pad. The pregnant solution produced from these areas is lower grade and less efficiently treated in Merrill-Crowe.

The lower grade pregnant solution can be directed to the Operating Pond where it is stored and pumped, using the Intermediate Leach System, to leach virgin ore. The pregnant solution from virgin ore is higher grade and metal recovery will be more efficient.

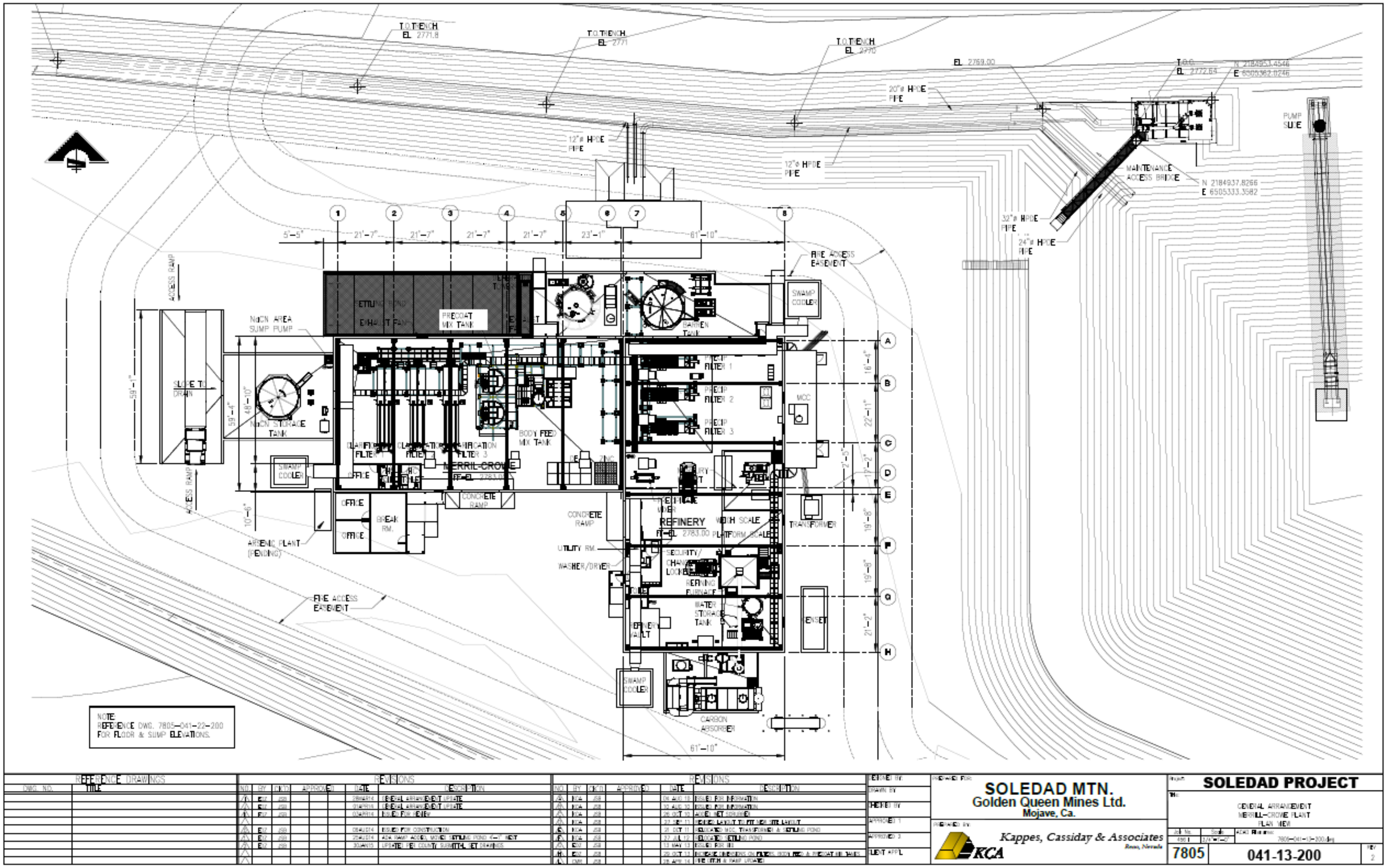
Solution from different sections of the heap can be directed to either the Pregnant Solution Tank or the Operating Pond based on grade. The solution flow needs to be controlled by the operators so consistent feed is available to the Merrill-Crowe.

The Intermediate Leach System includes two fixed speed submersible pumps, located in the Operating Pond, in series with two variable speed horizontal, centrifugal pump installed on a concrete slab to the west of the Operating Pond. The pump combinations, submersible and horizontal centrifugal are piped in parallel.

The horizontal centrifugal pumps discharge into a common pipe. The common pipe feeds two, parallel self-cleaning filters. The self-cleaning filters discharge into a common pipe.

Antiscalant is injected into the suction of the horizontal, centrifugal pumps. Cyanide is added as a liquid to the Operating Pond.

Figure 17-3. Merrill-Crowe Plant Layout



Kappes, Cassiday & Associates

17.2.4 Reagent and Power Consumptions

The following is a list of the consumable items with indicated rates of use.

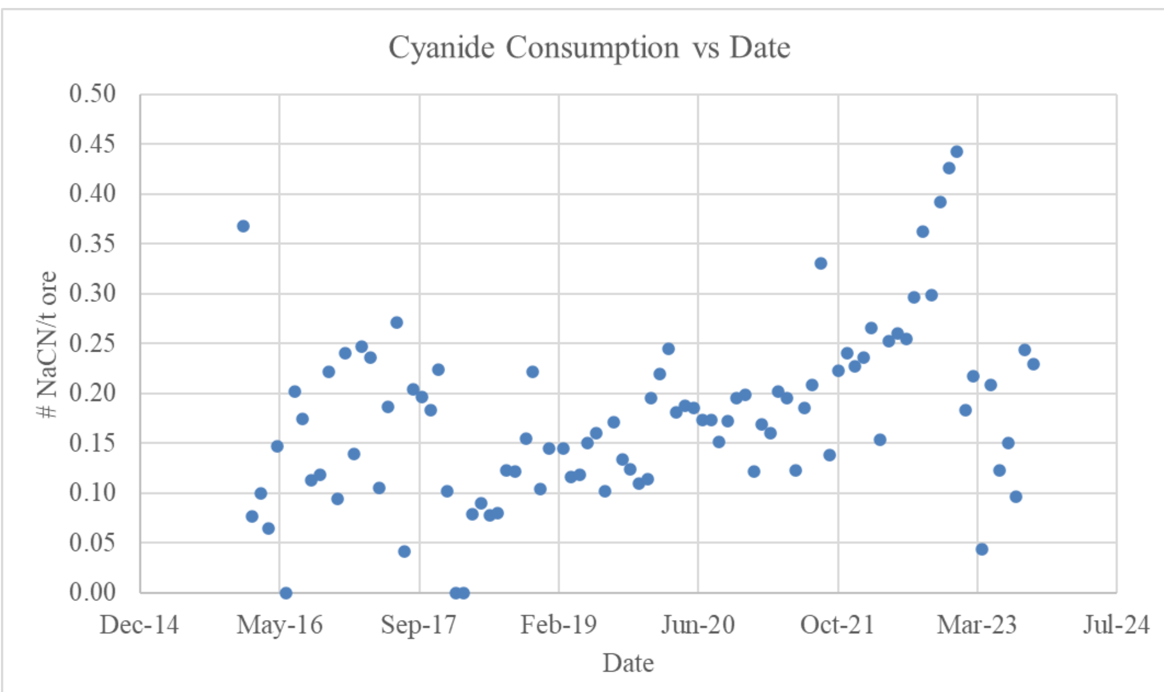
Cyanide

The cyanide is delivered as a 30% aqueous solution with a pH of 12.5 in a tanker truck directly from the producer's plant in Nevada. The contained weight of sodium-cyanide (NaCN) in solution is approximately 15,000 lb per load. The cyanide solution is transferred to a 45,000 gal storage tank on site.

The bulk of the cyanide is added to the barren solution to adjust the cyanide concentration. Smaller quantities of cyanide can be added to the clarified pregnant solution to aid in zinc cementation as well as to the recycled intermediate solution on the heap.

Cyanide consumption varies with time.

Figure 17-4. Cyanide Consumption



The consumption has averaged 0.18 lb/ton of ore stacked on the heap for the period 2016 through November 2023.

GQMC's facility complies with the International Cyanide Code as discussed in Section 17.2.6 below.

Zinc Dust

Zinc dust in the form of Merrillite or equivalent is added as a dry powder to the zinc cone just downstream of the deaeration tower.

Lead Nitrate

Lead nitrate is added to the deaerated pregnant solution only if required to control the filtered solution tails grade. If required, solid lead nitrate is blended into the zinc dust and fed into the zinc cone.

Antiscalant

Carbonates and some sulfates will precipitate in pipes and pumps. Antiscalant prevents or minimizes the formation of such scale. The supplier of antiscalants typically provides metering systems for adding the liquid antiscalant at a typical rate of approximately 2 or 3 ppm to the various solution streams.

Diatomaceous Earth

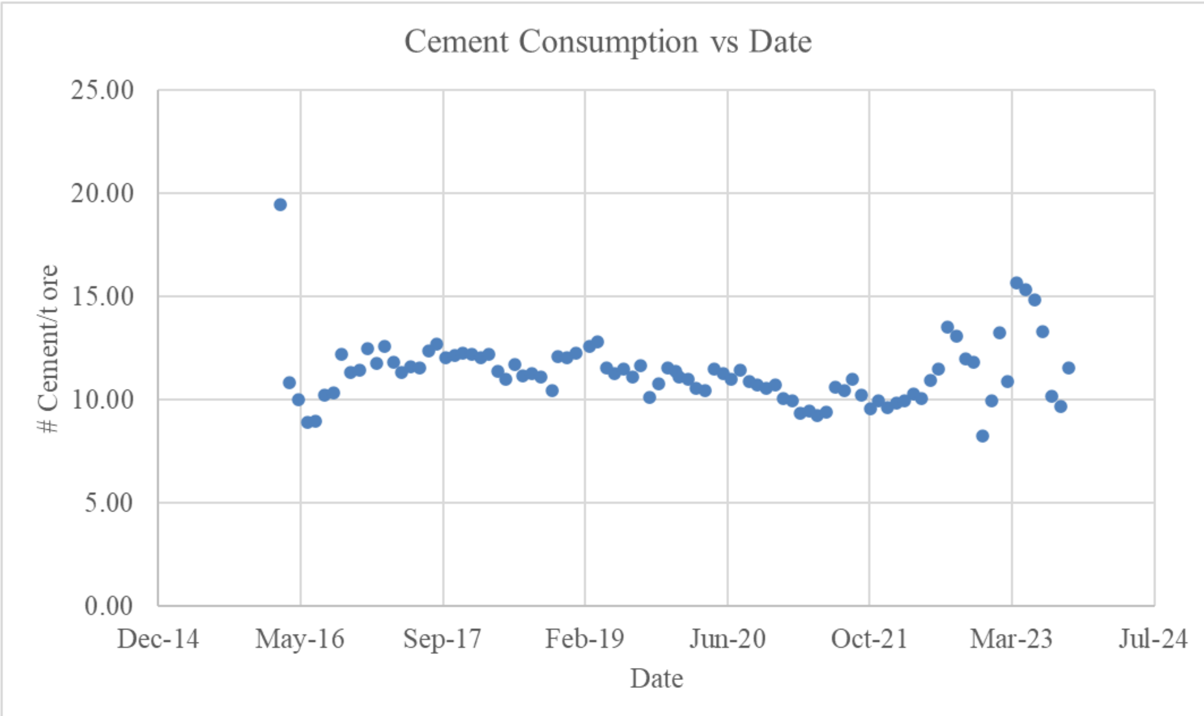
Diatomaceous earth (DE) is used as a precoat on filters and as body feed. DE is delivered in 50 lb bags on pallets. DE is slurried and pumped to clarifiers, the precipitation presses or the zinc cone as required.

Cement

Portland Type II cement is used as a binder that agglomerates fines to ensure heap permeability and to provide protective alkalinity in the heaped ore. Local suppliers exist and the cement is delivered and stored on site.

Cement consumption varies with time. Historical consumption is presented in the following plot:

Figure 17-5. Cement Consumption



The consumption has averaged 11.2 lb/ton of ore project-to-date and 12.4 lb/ton of ore for January through October 2023.

17.2.5 Carbon Columns for Closure

The Merrill-Crowe process requires a cyanide concentration of approximately 150 ppm for efficient precipitation of gold and silver and this is well above the environmental rinse limits. A set of carbon columns will therefore be required once the neutralization process starts to recover residual gold and silver, as carbon is not affected by low cyanide concentrations. Experience shows that gold will be leached until cyanide concentrations drop to approximately 1 ppm. The rate at which silver will be leached slows at cyanide concentrations of 50 ppm and stops at approximately 10 ppm. The Merrill-Crowe circuit will need to be shut down once cyanide concentration drops below 150 ppm and electrowinning cells will be brought in to recover gold and silver.

Allowance has been made for a carbon plant in the Sustaining Capital during closure.

17.2.6 The International Cyanide Management Code

GQMC complies with the International Cyanide Management Code (the "Code"). The Code was developed under the auspices of the United Nations Environment Program and the International Council on Metals and the Environment. The International Cyanide Management Institute, a non-profit organization, administers the Code.

17.3 Life Of Mine Production Summary

The annual ore production and the production of gold and silver are summarized in Table 22-1.

A delay in the actual production of gold and silver is discussed in Section 22.2.3. The leach curves are shown in Figure 22-1.

17.4 Smelter Terms

The doré produced at Soledad is shipped to the Asahi Refining USA in Salt Lake City, Utah. GQMC has paid refining fees averaging $11.40 per gold ounce poured and $1.07 per gold and silver ounce poured during the period January 2022 and September 2023.

17.5 Heap Leach Operation

17.5.1 Design of the Facilities

Golder designed the heap leach pad. The site layout is shown in Figure 4-2. A layout showing the details of the ultimate heap is provided in Figure 17-6.

The heap leach pad has been constructed in stages from the east to the west. The heap leach slopes and drains from the south to the north. The sizes of the heap leach stages are approximately:

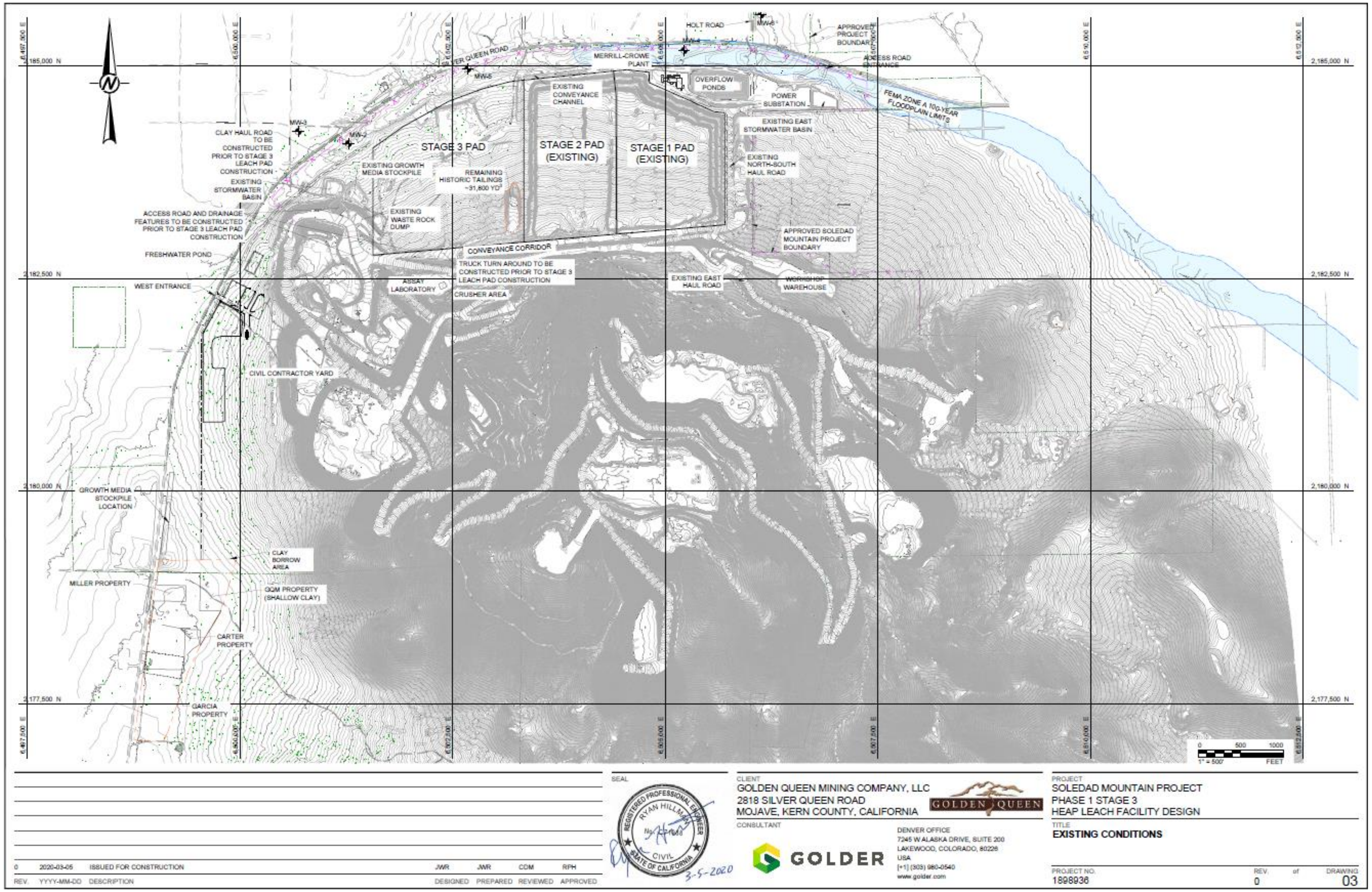
- Stage 1, one cell, 2,090,00 ft^2;
- Stage 2, four cells, 2,070,000 ft^2; and
- Stage 3, six cells, 2,970,000 ft^2.

Stages 1 through 3 have been constructed. Stage 3 was completed in July 2021.

The liner system for the heap leach pad includes a composite liner system with a lower compacted soil liner and overlying 80-mil (2.0mm) linear low density polyethylene ("LLDPE") geomembrane with a textured liner and 2% grades within the toe region for enhanced stability.

The heap has a total capacity of approximately 47.9 million tons at a permitted lift height of 200 ft and an ore density of 100 lb/ft^3 (Phase 1 Heap Leach Facility – Capacity Update, February 13, 2015).

Figure 17-6. Ultimate Heap



17.5.2 Backup Systems

The Merrill-Crowe plant has a 1,250-kW diesel backup generator that allows the plant to operate when there is a power outage.

17.6 Conveying and Stacking

Ore is stacked in 30 ft lifts and a width of approximately 300 ft in a retreat manner (uphill from north to south).

17.6.1 Conveying and Stacking System

Cement is added to the feed to the agglomeration drum. Water is used to wet the ore and the addition rate is controlled with a valve and linked to a weightometer. The target moisture content for the wetted ore to be stacked on the heap is approximately 10%.

The HPGR discharge is fed to the agglomeration drum. The agglomeration drum discharge is fed to the overland conveyor. Ore on the overland conveyor discharges to a series of portable ramp conveyors via a tripper. The overland conveyor is approximately 2,400 ft long and runs along the overland conveyor corridor. The ore is then be conveyed to the top of the leach pad where a tripper feeds the ore to a series of grasshoppers which feed a the horizontal feed conveyor system, and ultimately the radial stacker. Barren solution containing low levels of sodium cyanide is added to a grasshopper conveyor on the leach pad.

The radial stacker can be operated either manually or automatically.

17.6.2 Support Equipment

A Komatsu D65 dozer is used to:

- Rip the pad surface prior to stacking;
- Even out irregularities in the stacked ore;
- String drip tube on the pad surface.

A Komatsu WA500 front end loader is used to move portable conveyors on the leach pad.

17.7 Solution Management

17.7.1 Distribution of Solutions to the Heap

Barren solution from the Merrill Crowe and an Intermediate Pumping System can be used for both primary and secondary leaching. Barren solution, which is the lowest grade, should be used preferentially for the secondary leach cycle of previously leached ore. Lower grade solution, from secondary leach cycles, is best used for the primary leach of virgin ore.

Solution application rate is 0.005 gal/min/ft^2 to the top of the pad, the sides of the pad are leached at an application rate of 0.0025 gal/min/ft^2. Historical data shows the pregnant solution flow rate of 2,965 gal/min and barren solution flow rate of 2,960 gal/min (average daily flow rates, 2023 Merrill Crowe data).

The primary leach area will be approximately 614,000 ft^2, ore is kept under leach for approximately 75 days.

Time for solution "breakthrough" depends upon the number of lifts as follows:

- First Lift: five to seven days
- Second Lift: 15 days
- Additional Lifts: Add 15 days for each additional lift

The pregnant solution is collected in a network of perforated pipes and is directed to pipes in the lined solution conveyance channel. The solutions then flow to either the Pregnant Solution Tank for treatment in the Merrill-Crowe plant or to the Operating Pond for recycle to the leach pad.

Frequent sampling of the various solution streams will be required to ensure that barren solution and the recycle solution are applied to the heap most effectively. Operating experience will ultimately be required to develop an effective solution management system.

17.7.2 Solution Application Practice

The distribution system for leach solution is composed of 8-inch HDPE headers branching off to 2-inch Aquamine sub-headers. The 2-inch Aquamine pipe is drilled and tapped to accommodate threaded compression fittings that connect to drip tube.

The drip line is strung out using a dozer. The drip line lays in the windrow created by the dozer's ripping tines.

A modification unique to GQMC is the use of a custom transition from 8-inch HDPE to 2-inch Aquamine. The site uses a welded steel fittings with a valved, 2-inch tee and grooved 8-inch ends. The tee is threaded and accepts Aquamine stubs that are threaded on one end and grooved on the other.

The welded steel fittings allow the transition from HDPE to Aquamine without the use of proprietary fittings.

GQMC's standard leach panel size is 120 ft long by 280 ft wide.

The leach pad crew will pipe and string drip tube 20 ft sections of freshly stacked and ripped ore. A 20 ft section of ore can be plumbed for leaching in about two hours.

17.7.3 Moisture Content and Specific Weight

The moisture of the stacked agglomerated, ore is controlled by the operators to a content of approximately 10%.

GQMC believes the ore specific weight is 85 lb/ft3 when it is stacked and 100 lb/ft^3 after leaching.

17.7.4 Water Required

The average water consumed for the site is 47 gallons water per ton stacked. This includes the water consumed in both the process and the mine.

17.7.5 Neutralization of the Heap

Cyanide concentrations in the leach solutions must be reduced to the weak acid dissociable (WAD) standard of 0.2 ppm and a pH ranging from 6.0 to 8.5 for closure. Cyanide concentrations in the leached residue must be reduced to the WAD standard of 0.5 ppm for closure. Also, contaminants in any effluent from the leached residue will not be permitted to degrade surface run-off or groundwater. The basic approach to reducing the cyanide concentrations is to allow natural processes to occur and to carry out a staged rinse with fresh water. A 90-day rinse cycle has been used successfully at other heap leach operations in the California desert environment. Hydrogen peroxide or an equivalent oxidizing agent can be used to speed up the neutralization process as required. The hydrogen peroxide can be injected into any of the solution distribution lines with a chemical feed pump. The rinse water will be applied to the heaps using drip emitters.

Solutions from each cell of the heap and from the lysimeters and leak detection monitoring points will be sampled regularly and taken to the assay laboratory on site for analysis. The samples will be analyzed for gold, silver, pH and free cyanide and the analyses will be used to control and direct the rinse solution to various parts of the heaps. Analyses may occasionally be required for other metals such as copper, selenium and chromium.

Adding fresh water to rinse the heap must be balanced by losses due to evaporation. Estimated total (mean) annual evaporation is 79.8 inches versus a mean annual rainfall of approximately 6 inches in the greater Mojave area. Snow making equipment (sprayer systems) has been successfully used at other heap leach operations to speed evaporation.

Experience at other heap leach operations in the California deserts shows that standards set by the California State Water Resources Control Board can be met successfully.

17.8 Gravel Production

A three stage, portable crushing plant is operated to produce gravel (aggregate) for construction and landscaping purposes. The plant is currently located to the southwest of the Stage 3 Heap Leach Pad but can be moved if necessary.

A loader reclaims waste from the base of the dump. The waste is selected based on the product desired.

17.9 Comments on Section 17

KCA has relied upon the detailed heap leach designs prepared by Golder for the completion of corresponding sub-sections of Section 17.0 of the report. Golder is a qualified consulting engineering firm with extensive experience in the design of leach pad facilities and KCA accepts the Golder designs and recommendations that have been provided by GQMC. KCA has reviewed the provided information and with KCA's experience, finds it to be reasonable.

18.0 PROJECT INFRASTRUCTURE

18.1 Site Access

Site access exists from the east via Silver Queen Road and from the south via Mojave Tropico Road. Both roads are paved and are maintained in good condition. Silver Queen Road intersects State Route 14 approximately one mile east of the main entrance to the mine site. State Route 14 is the major highway, which connects Mojave, Rosamond, Lancaster and Palmdale to the greater Los Angeles area.

There are two entrances to the mine site; the main entrance is approximately 1.3 miles west of intersection of State Route 14 and Silver Queen Rd, the second entrance is approximately 2.9 west of intersection of State Route 14 and Silver Queen Rd.

A mild climate and paved roads allow year-round site access.

18.2 Communication

Onsite communications include wired phone service, cellular phone service and fiber optic internet.

The site uses radios for communication between employees.

18.3 Buildings

The buildings are plumbed with potable water and have septic service.

18.4 Waste Disposal

A contractor provides non-hazardous waste disposal service to the mine site. The non-hazardous waste is disposed of in a county landfill.

18.5 Water Required and Water Supply

18.5.1 Water Consumed by GQMC

Water is used for dust control during mining, dust control and make-up water to process, for construction and general site purposes. Water is produced from wells PW-1 and PW-4 and stored at tanks located at the southeast corner of the Stage 1 leach pad and a 1-million-gallon pond located to the southwest of the Stage 3 leach pad.

Well water can be directed to the pond without being pumped to the tanks.

The historic average onsite water consumption is approximately 47 gallons per ton of ore stacked. Water consumption varies seasonally and is summarized in the table below.

Table 18-1. Average Water Consumption, gallons per min[1]

Month	Water Consumed, gpm
January	257
February	358
March	334
April	403
May	446
June	447
July	479
August	396
September	426
October	459
November	475
December	373

1. 01 January 2020 through December2023

18.5.2 Production Wells

Two production wells provide raw water for site uses; PW-1 and PW-4.

Production well PW-1 is located adjacent to Holt St. approximately 2,000 ft north of the intersection of Holt St. and Silver Queen Rd. The well was drilled in September 1996 and was tested to yield 250 gal/min. The median water production of PW-1 is 215,000 gallons per day.

Production well PW-4 is located 2 miles due west of PW-1 along Miller Ave.

18.5.3 Water System

The water system includes two production wells.

Water is pumped from the production wells to the main water storage tank and two fire water tanks. The main water storage tank has a capacity of 30,000 gal, the firewater tanks have a capacity of 60,000 gal each for a total capacity of 120,000 gal. A pump station located beside the main water storage tank supplies the Crushing Plant, the Workshop-Warehouse, the Merrill-Crowe plant and dust control water storage tanks.

The tanks and pumping system are located adjacent to the southeastern corner of the Stage 1 Leach pad at an elevation of approximately 2,925 ft ASL.

18.5.4 Monitoring Programs Required by the Conditional Use Permits

It is a condition set in the Conditional Use Permits issued by Kern County for the Project {(20) 1997 FEIR/EIS MM #17 of the Conditions of Approval} that GQMC monitor groundwater levels in the production wells on a monthly basis and compare water levels to those predicted by a groundwater drawdown model. If the actual drawdown exceeds the predicted levels for six consecutive months, GQMC must supplement the water drawn from the production wells with up to 300 gal/min of water purchased from Antelope Valley-East Kern Water Agency (AVEK).

18.5.5 Domestic Water Supply

The California Department of Public Health requires that a public water system be maintained on site.

GQMC has a drinking water permit, they use a contractor with a Water Treatment Plant Operator's license to ensure compliance.

GQMC also provides bottled drinking water for employees.

18.6 Power Required and Power Supply

Southern California Edison (SCE) supplies power to the site through two metered services; the Discovery Circuit and the Carbon Circuit.

A diesel-powered generator (1,250 kW) provides emergency standby power to the Merrill-Crowe plant.

18.7 Workshop-Warehouse, Offices and Wash Bay

The location of the Workshop-Warehouse is located on a platform southeast of the Stage 1 Leach Pad at an elevation of approximately 2,980 ft ASL. The location is shown in Figure 4-2.

The Workshop-Warehouse serves the Mine as a maintenance facility. The workshop includes three service bays for mobile equipment; a gantry crane exists for lifting large loads.

A light vehicle service bay shares the third bay. A vehicle hoist has been provided so that light vehicles can be serviced effectively.

The building has all necessary equipment to perform mine maintenance.

The building has two floors. The upper floor provides office space for the mine and mine maintenance.

The equipment Wash Bay has an area of approximately 2,000 ft^2. The Wash Bay includes primary and secondary settling basins, a hot water high pressure washer and an oil-water separator. Sediments are removed as required and disposed of in an approved location.

18.8 Fuel Consumption, Supply and Storage

18.8.1 Fuel Cost

The estimated annual cost of diesel fuel and gasoline is approximately $12.56 million[2] per year and $454,000[2] per year respectively.

2. *January through December 2022*

18.8.2 Fuel Delivery

GQMC receives truckloads of fuel from a local vendor.

18.8.3 Fuel Storage on Site

A 20,000-gallon diesel fuel tank and 1,000-gallon gasoline storage tank supply fuel to mobile equipment and light vehicles.

The fuel tanks are located west of the main entrance.

The fuel storage facility is constructed to meet all California codes.

18.9 Security

A contractor provides security for the main gate to the mine gate, west gate and the refinery.

The security contractor also patrols the perimeter of the property.

Maxa, an explosives contractor, prepared a note on security requirements in California and provided a model Security Plan that can serve as a basis for a site-specific security plan.

18.10 Assay Laboratory

The laboratory is located on a platform to the west of the secondary crushing tower at an elevation of approximately 2,990 ft ASL. The laboratory includes facilities for sample preparation, fire assay, wet and metallurgical testing. Fire assay has a capacity 600 fire assays per day. The site can do fire assay with either gravimetric or AA finish. The laboratory can also do bullion assays onsite

The wet assay section can perform AA analysis of solutions for metals and cyanide titrations. Wet assay section has a capacity of 600 solutions per day.

Month column leach tests and bottle rolls are performed in the laboratory.

Environmental samples are sent off site to a contract laboratory.

The laboratory has been constructed to meet all state and federal codes.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Aggregate Sales

GQMC is permitted to ship 500,000 t of aggregate per year until 2061.

GQMC works with MRC Rock & Sand, to produce aggregate from waste using a portable crushing plant located to the west of the existing leach pad. Waste is reclaimed selectively from the dumps using a front-end loader.

MRC produces a wide-range of products at Soledad Mountain such as fine base, coarse base, coarse aggregate, rip-rap, and boulders for use in both construction and landscaping applications for public works, commercial, industrial, and residential development customers.

Major consumers of aggregates are alternative energy (wind & solar), the defense industry, public works, and residential development.

Aggregate sales are projected to be 240,000 t in 2024 and 160,000 t in 2025 through 2030.

19.2 Gold and Silver Sales

The Project produces a doré in the refinery on site. The doré is shipped to the Asahi refinery located in Salt Lake City, Utah. Asahi refines the doré to produce saleable gold and silver.

The refined gold and silver is sold by site personnel to Asahi based on an agreed price at the time of sale.

GQMC has paid refining fees averaging $10.61 per gold ounce poured during the period January through September 2023.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND COMMUNITY IMPACT

20.1 Approvals and Permits

The Project is subject to federal, state and county acts and regulations governing precious metal cyanide heap leach operations.

20.1.1 Land Use - Conditional Use Permits

The environmental setting of the Project was documented in a number of baseline studies completed from 1990 onwards and in the final Environmental Impact Report (the EIR) and Environmental Impact Statement (the "EIS") completed in 1997. The Kern County Board of Supervisors unanimously approved two Conditional Use Permits ("CUP") for the Project in September 1997 (i.e. CUP Case No. 41, Map No. 213 and CUP Case No. 22, Map No. 214). The Bureau of Land Management subsequently issued its Record of Decision approving the Plan of Operations under NEPA in November 1997. GQMC, LLC completed a number of studies and did significant work on site in 2005 and 2006 to document that the environmental setting for the Project has not changed since 1997.

During the Mine Expansion there was an Addendum to the Supplemental Environmental Impact Report for the Soledad Mountain Project (Modification of Conditional Use Permit No. 27, Map 196; Modification of Conditional Use Permit No. 31, Map 213; Modification of Conditional Use Permit No. 22, Map 213) California Mine ID #91-015-0098). On 13 August 2020, was approved by a vote of five to zero in favor, by the Kern County Planning Commission. Approval specifically consisted of: (a) adoption of Section 15091 Findings of Fact and Section 15093 Statement of Overriding Considerations, (b) adoption of Mitigation Measure Monitoring Program, (c) approval of Modification of Conditional Use Permits subject to recommended revised conditions, and (d) adoption of the suggested findings as set forth in the revised Draft Resolutions.

During the Mine expansion Kern County officials made the decision to overturn State Mining and Geology Board (the "Board"), and Golden Queen no longer must follow the backfill requirements. Kern County ruled that these regulations did not apply to the Project under the grandfathering provision included in the regulation.

The Kern County Planning Department completed its review of the Application as set out in a letter dated 24 July 2007. The Planning Department noted that changes proposed for the Project constituted new information that required evaluation of potential impacts and mitigation in a SEIR.

The draft SEIR was completed and distributed in January 2010. The Kern County Planning Commission formally considered the Project at its regularly scheduled meeting in Bakersfield on April 8, 2010. At the meeting, the Planning Commission, consisting of a panel of three commissioners, unanimously approved the Project. All appeals that were subsequently filed against the Planning Commission's decision have been withdrawn and the decision made by the Planning Commission is now final. The Planning Commission certified the SEIR, adopted a Mitigation Measures Monitoring Program and Conditions of Approval for the Project which define conditions and performance standards which the mining operation must meet. The Mitigation Measures Monitoring Program and Conditions of Approval for the Project were amended by Planning Commission Resolution No. 171-10 adopted on 28 October 2010 and are now final. Record of the certification is available in the office in Vancouver and at the offices of the Kern County Planning Department in Bakersfield.

The Bureau of Land Management confirmed that its Record of Decision approving the Plan of Operations under NEPA in November 1997 remains valid.

The following is specific information on the CUPs:

Conditional Use Permit Case No. 27, Map No. 196; Conditional Use Permit Case No. 41, Map No. 213; Conditional Use Permit Case No. 22, Map No. 214 (Resolution Numbers 51-10, 52-10 and 53-10 respectively; Approved April 8, 2010.

There are 114 conditions of approval and mitigation measures in the CUPs and this includes a requirement to reclaim historical disturbances on the Property. Site inspections are conducted annually to verify that the GQMC, LLC is in compliance with the conditions of approval.

The non-summary vacation of New Eagle Road was approved by the Kern County Board of Supervisors at a general public meeting held in Bakersfield on 20 March 2012. This in effect means that the last public access to the property was removed.

Under Condition 107 of the Conditional Use Permits, the Company was required to submit, prior to the commencement of mining, additional information relating to closure and closing reclamation. The Company submitted the required information to Kern County on 28 November 2011 and 8 June 2012. In accordance with the Surface Mining and Reclamation Act of 1975, Kern County consulted the State Department of Conservation/Office of Mine Reclamation. The Office of Mine Reclamation confirmed in a letter to Kern County dated 29 June 2012 that the additional information provided by GQMC, LLC adequately demonstrated compliance with Condition 107 and this was confirmed by Kern County in a letter dated 10 July 2012.

Kern County also reviewed Resolutions 169-10, 170-10 AND 171-10, (i.e. the Conditional Use Permits which were approved by the Kern County Planning Commission in April 2010), to determine if any conditions remained outstanding that would preclude GQMC from initiating mining activities under the approved surface mining and reclamation plan. County staff determined that the remaining conditions related to construction of an access to site and building permits. GQMC addressed these conditions as it proceeded with construction planning and implementation.

20.1.2 Water Quality – Report of Waste Discharge and Waste Discharge Requirements

The Lahontan Regional Water Quality Control Board (the "Regional Board") is responsible for ensuring compliance with the federal Clean Water Act and California's Porter-Cologne Water Quality Act.

GQMC submitted a Report of Waste Discharge ("ROWD"), prepared by WZI Inc., Bakersfield, to the Regional Board in June 1997. The Regional Board adopted Board Order No. 6-98-9 on 5 March 1998 at a meeting held in Lancaster and this set the Waste Discharge Requirements ("WDR") for the Project.

GQMC and its consulting engineers prepared and submitted a revised ROWD to the Regional Board on 8 March 2007. The revised ROWD was prepared at the request of the Regional Board to document changes in the layout and design of the heap leach facility plus other changes proposed for the Project.

The Regional Board unanimously approved WDRs and a Monitoring and Reporting Program for the Project at a public hearing held in South Lake Tahoe on 14 July 2010 (reference Board Order No. R6V-2010-0031). The Board Order was subsequently signed by the Executive Officer of the Board and is now in effect.

The order approving the WDRs is a critical authorization for the construction and operation of, and establishes the discharge and monitoring standards for, the heap leach pads, rock stockpiles and other activities that have the potential to affect surface and ground waters.

A Stage I, Surface Water, Sediment and Erosion Control Plan was prepared for the construction and early mining phases of the Project. This design applied to both the Approved Plan and the "What If Scenario". Storm Water discharges will be regulated by the Water Board under the State's NPDES General Construction Storm Water Permit during the initial construction phase of the Project and under the NPDES General Industrial Storm Water Permit during mine operations.

ARCADIS U.S., Inc., a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer in California, therefore prepared the designs and GQMC, LLC filed Permit Registration Documents electronically through the Storm Water Multiple Application and Report Tracking System (SMARTS). The Documents included a Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), Risk Assessment, a Site Map and a signed certification statement by the Legally Responsible Person. GQMC, LLC also paid the first annual fee. Note that the SWPPP alone is a 200-page document. Note further that the Documents filed through SMARTS meet applicable NPDES Storm Water Program requirements of the Kern County Engineering, Surveying & Permit Services Department. The Notice of Intent is now active.

GQMC and its consulting engineers prepared and submitted a second, revised ROWD to the Regional Board on 16 April 2012. The revised ROWD was prepared at the request of the Regional Board bring current all of the information that had been developed for the Project since 2007. The revised ROWD also includes an updated Closure Plan.

The Company has submitted quarterly and annual reports in compliance with the WDRs.

Groundwater monitoring consists of sampling groundwater in four wells once per quarter. The historical sampling method for these wells involved conventional large-volume purging with high-capacity pumps. An alternative sampling methods comparison was conducted on one well in 2011 and 2012. Based upon this evaluation, ARCADIS U.S., Inc. recommended installing dedicated low-flow bladder pumps in four wells and this was approved by the Water Board in May 2012. The low-flow bladder pumps and associated tubing were installed during the week of 13 August 2012. The *Water Quality Monitoring and Data Management Procedures Manual* was updated to reflect the changes.

Rinsing and neutralization of the leached residues on the heap are described in Section 17.7.5 of the Technical Report.

20.1.3 Air Quality – Authority to Construct and Permit to Operate

GQMC had obtained seven Authority to Construct ("ATC") permits dated 16 March 2002. These permits expired on 16 March 2004 and were not renewed due to changes anticipated in the Project.

A revised and updated Air Quality and Health Risk Assessment for the Project was completed and submitted to the Planning Department and the Eastern Kern Air Pollution Control District ("EKAPCD") on 21 July 2009. All concerns about possible emissions were fully addressed in the SEIR. Feasible mitigation measures to reduce potential impacts from the Project to levels that are less than significant were recommended in the SEIR and included in the Mitigation Measures Monitoring Program or Conditions of Approval.

Ten applications for ATC permits were submitted to the EKAPCD in February 2011. The EKAPCD confirmed that the information required to support the applications was complete. The draft ATC permits were received in September 2011. The Company's consulting engineers and legal counsel completed their review of the draft ATC permits in January 2012. The ATC permits were issued by EKAPCD on 8 February 2012.

The ATC permits will be converted to a Permit to Operate after construction has been completed and subject to inspection by EKAPCD.

EKAPCD transferred an Emission Reduction Credit Certificate from Cactus Gold Mines Company to the Project in February 1999 and this remains valid.

20.1.4 Meteorological Monitoring Station

GQMC was required to install both upwind and downwind meteorological monitoring stations before the start of production and decided to proceed with the upwind monitoring station in May 2006 to add to the background database. The station was designed by Air Sciences Inc., Golden, Colorado and commissioned in September 2006. EKAPCD approved the design of the station in October 2006. Data are being recorded on a continuous basis and quarterly reports are being issued to EKAPCD.

The information generated by the station since 2006 provided the background information for the Air Quality and Health Risk Assessment that was completed in July 2009.

The downwind meteorological monitoring station was constructed in 2014 and is now in operation.

20.1.5 Closure, Reclamation and Reclamation Financial Assurance

GQMC will prepare an updated closure and closing reclamation plan based on the new mine plan and sequence of mining the various open pit phases.

Cost estimates for site reclamation are described in Section 22.3.4. GQMC has been providing reclamation financial assurance as required by the regulatory authorities.

20.1.6 Environmental Management System

GQMC is implementing an Environmental Management System ("EMS") for its Project to manage the compliance obligations of its approvals and permits and applicable regulations. Basic elements of the system include:

- Define and review legal requirements;
- Develop a set of objectives and set targets to ensure compliance;
- Establish programs to meet these objectives and targets;
- Monitor and measure progress in achieving the objectives;
- Track regulatory citations and permit terms and stipulations;
- Schedule compliance obligations tasks with email reminders;
- Document incident details as required by federal, state and local agencies;
- Schedule and record employees' environmental training;
- Generate the information necessary for agency-required reports; and
- Periodically review the effectiveness of the EMS and make improvements.

The EMS will assist the Company in addressing its regulatory requirements in a systematic and cost-effective manner. This proactive approach reflects the Company's commitment to reduce the risk of non-compliance. The EMS will also help manage non-regulated opportunities, such as energy conservation, and can promote stronger operational control and employee stewardship.

20.2 Environmental Issues

Environmental issues were fully addressed in the SEIR, which is described in Section 20.1.1. The Kern County Planning Commission certified the SEIR, adopted a Mitigation Measures Monitoring

Program and Conditions of Approval for the Project which define conditions and performance standards which the mining operation must meet. The Mitigation Measures Monitoring Program and Conditions of Approval for the Project were amended by Planning Commission Resolution No. 171-10 adopted on 28 October 2010 and are now final.

20.3 Considerations of Social and Community Impacts

Mojave and the surrounding areas are areas of relatively high unemployment and employment has not recovered since the start of the financial downturn in 2008. The Project has therefore had a positive response from the local communities.

The Project employs between 200 and 250 employees for the gold and silver heap leach operation and a further 15 employees for aggregate produced from the site.

Jobs in the mining industry tend to be high-paying jobs when compared to the service industry. GQMC hires personnel mainly from the local area and offers training of personnel for the operation on an ongoing basis.

GQMC is active in the local community, with membership in the Mojave Chamber of Commerce (and a seat on the Board of Directors), various donations locally, presentations to local clubs and schools, and tours of the site for various organizations.

21.0 CAPITAL AND OPERATING COSTS

21.1 Background

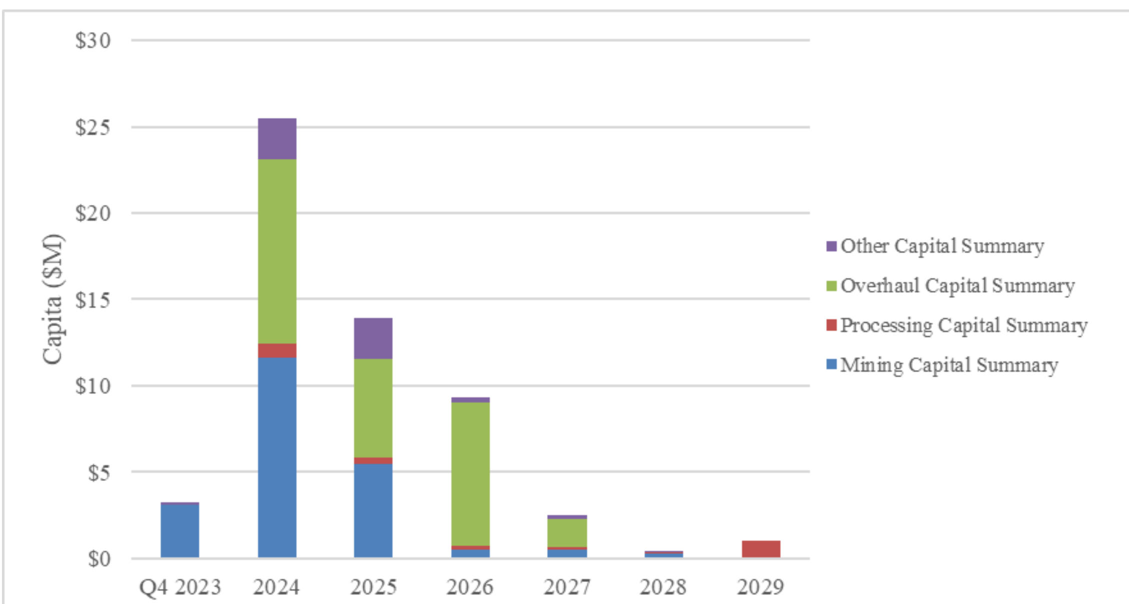
The Soledad Mountain Project has been in operation since early 2016 providing almost eight years of historical operating data for the site. Future mining and processing at the site will change little from the past eight years. The historical data and experience of the site personnel will provide the best estimate of future costs.

21.2 Capital Costs

All major capital for the mine and processing has been spent. The heap leach has been expanded to its final size, all heavy equipment has been purchased, major infrastructure including the crushing plant and refinery has occurred. Future capital costs are mainly sustaining capital type expenditure like heavy equipment replacement, light duty equipment and equipment overhaul costs.

Figure 21-1 below shows the past three years historic, actual capital and the planned future capital.

Figure 21-1 Future Capital



Capital costs are summarized in Table 21-1, Table 21-2, Table 21-3 and Table 21-4 below.

Table 21-1 Sustaining Mining Capital

Mining Capital ($000)	2023	2024	2025	2026	2027	2028	2029
Drill			$1,800				
785-8 4x HAUL TRUCKS	$3,026	$9,447	$3,149				
Loader		$1,700					
High Torque, Hydraulic Fastener, …	$53	$500	$500	$500	$500	$250	
Total Mining Capex	$3,079	$11,647	$5,449	$500	$500	$250	

Table 21-2 Sustaining Process Capital

Processing Capital ($000)	2023	2024	2025	2026	2027	2028	2029
Carbon Process							$1,000
Pickup Truck (Crusher Service Trucks)		$70	$120	$120	$120		
Skid Steer		$50		$50		$50	
Kubota		$40	$40	$40	$40	$40	
Microbalance		$60					
Refinery Ventilation Improvement	$8						
AA Machine	$17						
Misc - Dust Control (2023)		$600	$250				
Total Processing Capex	$25	$820	$410	$210	$160	$90	$1,000

Table 21-3 Sustaining Overhaul Capital

Overhaul Capital ($000)	2023	2024	2025	2026	2027	2028	2029
Drilling		$1,059	$514	$433	$300		
Loading		$5,202	$2,580	$2,560	$350		
Hauling		$1,477		$3,405	$300		
Surface Crew		$2,210	$1,955	$1,350			
Processing		$674	$675	$590	$675		
Total Overhaul		$10,622	$5,724	$8,338	$1,625		

Table 21-4 Other Sustaining Capital

Other Capital ($000)	2023	2024	2025	2026	2027	2028	2029
Exploration Program (2022)		$2,000					
PW6			$2,054				
Perm Power & Fiber for West Gate Facilities	$41						
ScaleComputing Server/Node		$200					
Lysimeter Replacement VM=-4		$60					
Monitor Wells	$7	$126					
Time and Attendance System	$83	$15					
Miscellaneous			$250	$250	$250	$125	
Total Other	$131	$2,401	$2,304	$250	$250	$125	

Table 21-5 Total Sustaining Capital

Total Capital ($000)	2023	2024	2025	2026	2027	2028	2029
Mining Capital Summary	$3,079	$11,647	$5,449	$500	$500	$250	
Processing Capital Summary	$25	$820	$410	$210	$160	$90	$1,000
Overhaul Capital Summary		$10,622	$5,724	$8,338	$1,625		
Other Capital Summary	$131	$2,401	$2,304	$250	$250	$125	
Total Capital	$3,235	$25,490	$13,887	$9,298	$2,535	$465	$1,000

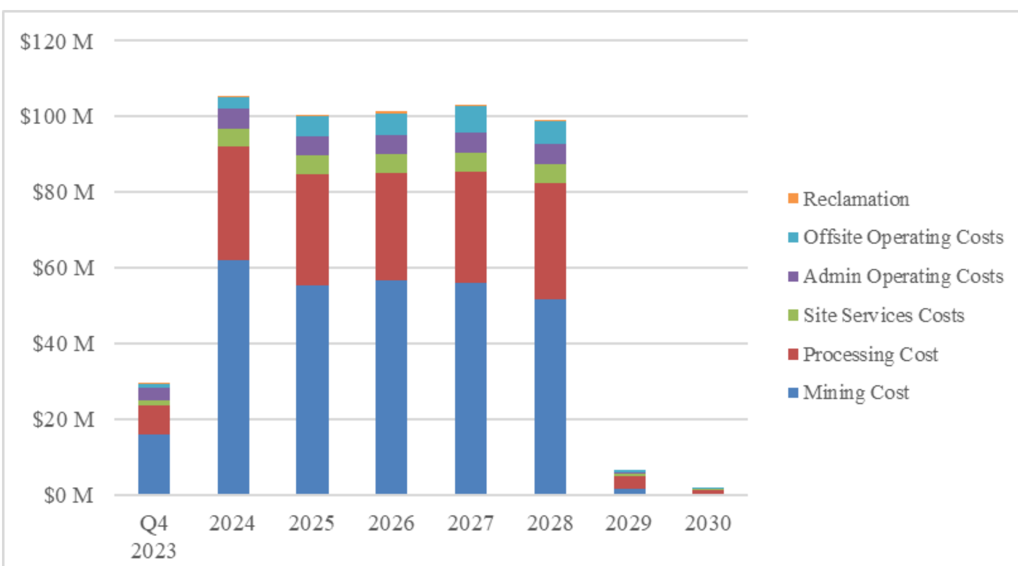
21.3 Operating Costs

21.3.1 Background

Costs areas at the Soledad Mountain project are separated in Mining, Processing, Site Services, Admin & Purchasing, and Off-site costs. Since Golden Queen has been in operation since 2016, there are over seven years' worth of historic costs for each area supporting future life of mine costs.

Figure 21-2 below show both historic and life of mine projected costs. Future annual operating costs are forecast to be roughly constant over the next few years but decreasing as mining tons decrease.

Figure 21-2 Life of Mine Projected Costs



The categories above are further divided into common sub categories such as labor (salaries, wages, benefits), fuel, power, maintenance, etc.

21.3.2 Mining Operating Costs

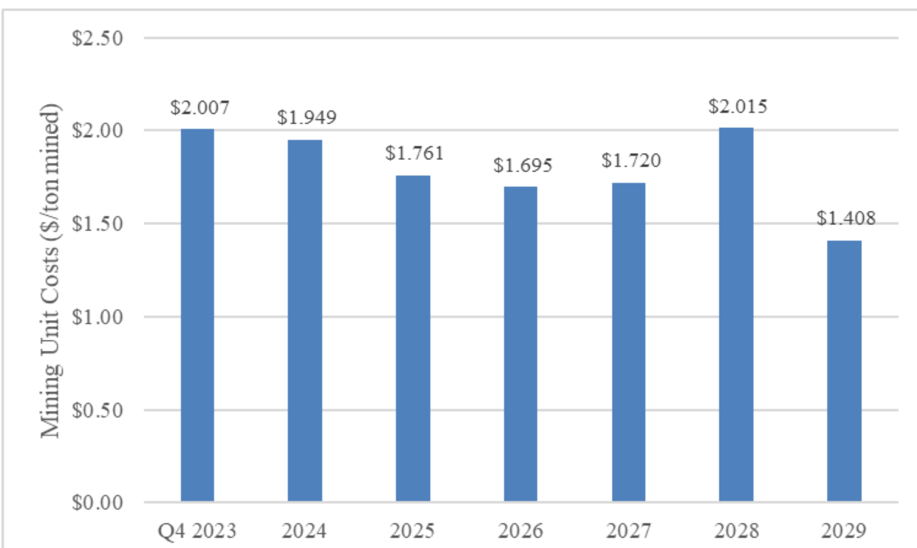
Mining operating costs are forecast to be relatively constant then decrease towards the end of the mine life. On a unit cost basis, costs are projected to be between $1.62 and $2.01 per ton through the life of mine, with unit costs decreasing over time. The decreasing unit costs is largely due to projected lower fuel cost and increased mining rates.

IMC has reviewed the mine operating costs reported by GQMC and observed that the mine operating costs are consistent with similar sized projects.

The unit consumables rate is a fixed factor applied to all future periods that are based on the observed unit consumption rates recorded during past production. The mining unit consumables are not estimated from scheduled material movement. The actual unit consumption rates may be higher or lower, depending on the scheduled equipment requirements within each period.

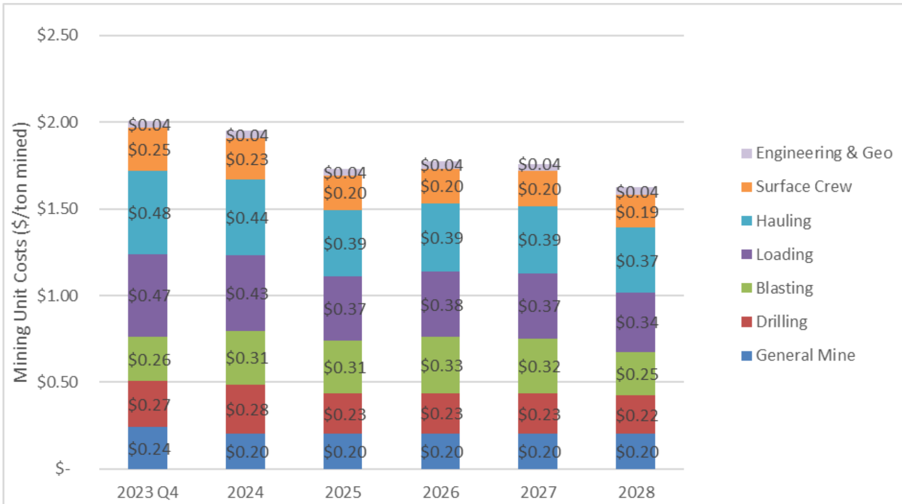
The most significant consumable of the mining cost is the fuel price. The reported Project costs are based on a diesel price of $3.90/gallon that is applied in 2023, then drops to $3.25/gallon in 2024. The price remains $3.25/gallon 2024 through the Life-of-Mine.

Figure 21-3 Life of Mine Unit Mining Costs



Mining costs are divided into areas including general mine, drilling, blasting, loading, hauling, surface crew and engineering. The chart below shows the projections for the different areas of the mine on a unit cost basis. Total unit costs dip as the mine is forecasting a full maintenance crew by 2024, eliminating the reliance on higher cost external maintenance support.

Figure 21-4 Mine Unit Mining Costs per Area[1]



1. *Q4 2023 through 2028, 2029 excluded because they were not estimated from first principals*

21.3.2.1 Summary

The mining costs per ton ore are:

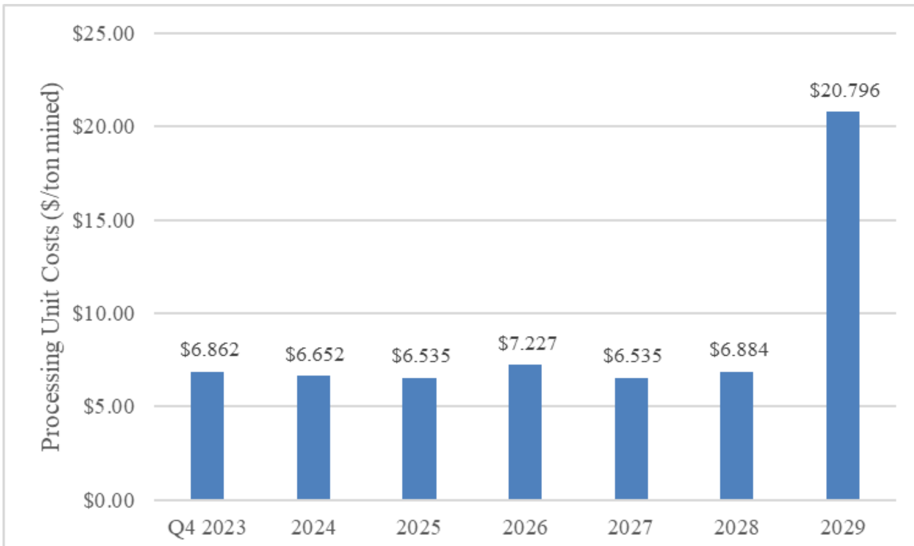
Table 21-6 Life of Mining Costs Summary

Category	2023 Q4	2024	2025	2026	2027	2028	2029
General Mine	$0.240	$0.204	$0.204	$0.204	$0.204	$0.204	
Drilling	$0.266	$0.282	$0.231	$0.235	$0.233	$0.219	
Blasting	$0.259	$0.312	$0.307	$0.325	$0.318	$0.254	
Loading	$0.474	$0.434	$0.368	$0.375	$0.372	$0.342	
Hauling	$0.478	$0.440	$0.385	$0.394	$0.391	$0.372	
Surface Crew	$0.253	$0.233	$0.198	$0.200	$0.200	$0.192	
Engineering & Geo	$0.037	$0.044	$0.041	$0.041	$0.041	$0.041	
Total	**$2.007**	**$1.949**	**$1.733**	**$1.774**	**$1.758**	**$1.624**	**$1.408**

21.3.3 Process Operating Costs

Process operating costs are forecast to drop to a minimum during the last full year of mine life. On a unit cost basis, costs are projected to vary between about $6.54 to $7.23 per ton ore placed through the life of mine. The unit costs for 2029 are high due to low tons placed. Processing costs including rinsing continues after mining has ended. The total costs are shown in Figure 21-2 above.

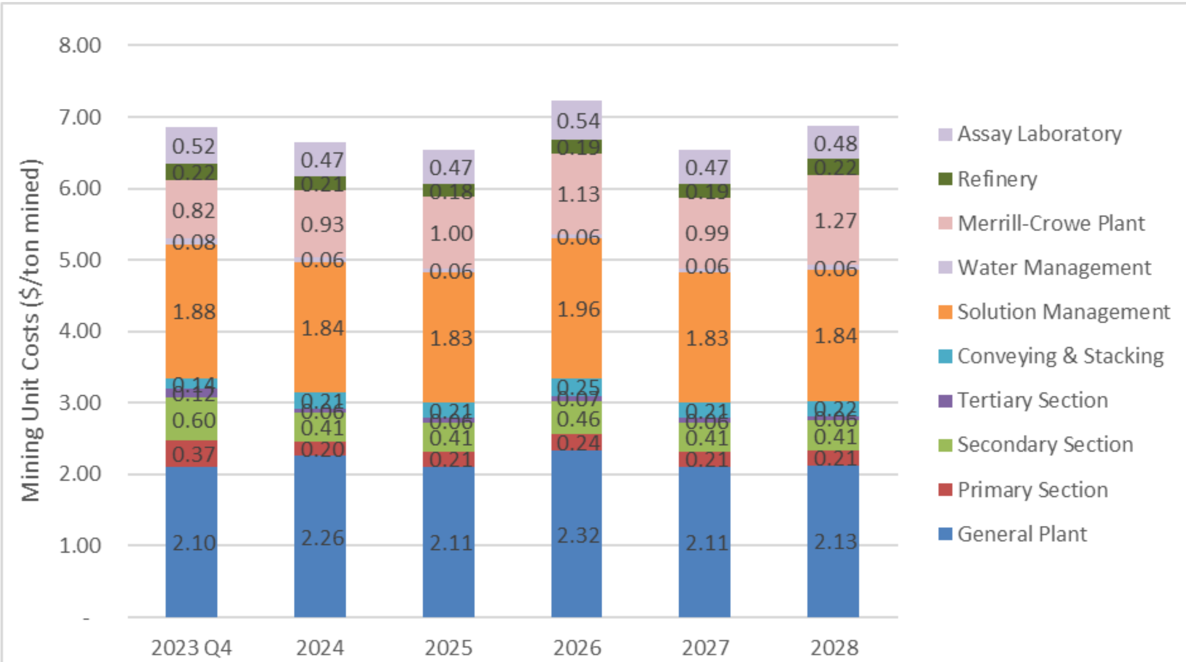
Figure 21-5 Unit Processing Costs[1]



1. *2029 has elevated operating costs due to leaching without mining, no tons mined in 2030*

Processing costs are divided into areas including general plant, primary, secondary, tertiary, solution management, Merrill-Crowe plant, assay laboratory, etc. Figure 21-6 below shows the projections for the different areas of processing on a unit cost basis.

Figure 21-6 Unit Processing Costs per Area[1]



1. *Q4 2023 through 2028, 2029 and 2030 excluded due to low or no tonnage*

For this report, historic operating costs were modified slightly to account for cyanide, zinc and power consumption which are variable based on the following:

- cyanide varies by ore type
- cyanide and antiscalant increases with the use of secondary leach
- zinc varies by total ounces precious metals recovered
- power will change based ILS system use

21.3.3.1 Summary

The average Process costs are summarized as follows:

Table 21-7 Process Costs Summary[1]

	Costs per Ton						
Category	2023 Q4	2024	2025	2026	2027	2028	2029
General Plant	2.104	2.256	2.107	2.325	2.107	2.127	
Primary Section	0.367	0.201	0.211	0.237	0.211	0.213	
Secondary Section	0.601	0.406	0.406	0.463	0.406	0.410	
Tertiary Section	0.121	0.061	0.063	0.071	0.063	0.064	
Conveying & Stacking	0.145	0.215	0.214	0.245	0.214	0.217	
Solution Management	1.884	1.837	1.825	1.956	1.826	1.836	
Water Management	0.077	0.064	0.059	0.064	0.059	0.060	
Merrill-Crowe Plant	0.825	0.929	0.996	1.134	0.990	1.266	
Refinery	0.215	0.209	0.182	0.194	0.188	0.216	
Assay Laboratory	0.524	0.475	0.470	0.538	0.470	0.476	
Opex, Process	6.862	6.652	6.535	7.227	6.535	6.884	20.796

1. *2029 has elevated operating costs due to leaching without mining, $1.35M in costs are added to 2030 but no tons are mined*

General Plant and Solution Management are the largest categories. General Plant includes crusher power, the largest consumer of process power onsite. Solution Management includes cement and cyanide, the two largest process reagent costs.

21.4 General and Administrative (G&A) Costs

21.4.1 Background

General and Administrative costs include the costs for administration, purchasing and costs related to gold sales. Site Services include general mine site support and the costs of operating and maintaining light vehicles.

General and administrative (G&A) expenses represent the necessary costs to maintain a company's daily operations and administer its business, but these costs are not directly attributable to the production of goods and services. Typical items listed as general and administrative expenses include:

- Rent
- Utilities
- Insurance

- Executive wages and benefits
- Legal counsel and accounting staff salaries

General and administrative expenses typically refer to expenses that are still incurred by a company, regardless of whether the company produces anything.

The G&A costs for the Soledad Mountain Project include site services, administration, purchasing, offsite refining, ore and property taxes.

These costs are summarized in Table 21-8 below.

Table 21-8. G&A Costs[1]

Site Services	Cost per ton Ore	Cost, fraction
Site Services Costs	$1.173	30.8%
Administration Costs	$1.283	33.7%
Offsite Operating Costs	$1.253	32.9%
Reclamation	$0.102	2.7%
Total	$3.811	100.0%

1. *Costs include 2029 (1 month of mining) and 2030 (no mining)*

Royalties are a separate line item in the cash flow. The costs are variable based on the source of ores processed.

21.5 Summary

The operating costs are summarized as:

Table 21-9 Summarized Operating Costs[1]

Category	Cost per ton Ore	Cost Fraction
Mining Cost	$12.934	54.7%
Processing Cost	$6.912	29.2%
Site Services Costs	$1.173	5.0%
Admin Operating Costs	$1.283	5.4%
Offsite Operating Costs	$1.253	5.3%
Reclamation	$0.102	0.4%
Total	$23.657	100.0%

1. *Costs include 2029 (1 month of mining) and 2030 (no mining)*

22.0 ECONOMIC ANALYSIS

22.1 Methodology

Tables referred to in Section 22.0 have been taken directly from the Project cash flow model.

The cash flow model uses data from the site's financial model and calculates the net present value using a discounted cash flow approach.

Project cash flows used are from 1 October 2023 through to the end of 2030. Stacking ore stops in 2029. Work will continue at site for 40 years or so due to the aggregate business.

The pre-tax cash flow analyses are presented in Section 22.5.

22.2 Financial Model Parameters

22.2.1 Basic Parameters

The base case cash flow analysis is done on a constant United States dollar, after-tax, stand-alone Project basis.

Soledad Mountain is an operating mine and the only capital costs are sustaining. No debt or lease payments are considered. Refer to Section 21.2 for detailed breakdown of the capital costs.

Operating costs are described in Section 21.3. The operating costs come directly from GQMC's financial model.

The financial calculations are performed on a quarterly basis.

22.2.2 Gold and Silver Prices

Gold and silver prices used to model the base case cash flows are $1,850/oz and $24/oz respectively. Prices are fixed for the life of the mine.

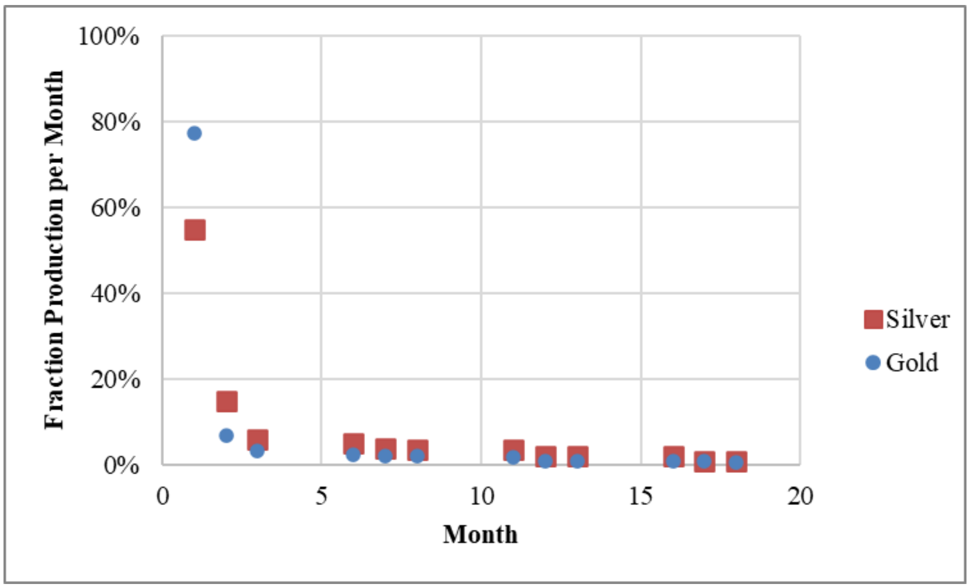
22.2.3 Gold and Silver Production

Gold and silver production from material stacked from 1 October 2023 and on are based on recoveries discussed in Section 13.0.

Actual monthly production of ounces is taken from a model used by GQMC. The model delays production one month, divided into 12 intervals distributed over 18 months including three, equally spaced, two-month rest periods.

The leach cycle is shown in Figure 21-1 below:

Figure 22-1 Distribution of Recoverable Ounces



The delayed production built into the model leads to an assumed "in-process" inventory. This inventory is estimated at 10,541 oz gold and 159,153 oz silver based on the GQMC gold recovery model.

The assumed silver production is reasonable if leaching continues long enough. Silver recovery is discussed further in Section 13.0 above.

The production also includes gold and silver ounces (15,000 oz gold, 30,000 oz silver) that are believed to be recoverable but were not actually recovered due to poor operating practices. These are labeled "Low Gold (Silver), correction".

There is a risk that the some or all of estimated gold production of 15,000 oz will not be produced; this is discussed in Section 24.1.5.

The estimated silver production is reasonable based on the reasoning above.

22.3 Financial Model

22.3.1 Net Smelter Returns

The Project will produce a doré in the refinery on site. It is expected that the doré will continue to be shipped to a refinery located in the United States. The smelting and refining charges are included in the Offiste Operating Costs item in the cash flow table.

22.3.2 Sales Taxes

No sales tax has been added. The costs used as the basis are the actual operating costs and tax is assumed to be included.

22.3.3 Property Taxes

Property taxes are included in the Offsite Operating Costs item in the cash flow table.

22.3.4 Reclamation and Closure Costs

Reclamation and closure costs are included in the Reclamation item in the cash flow table. The Company does not have to complete reclamation until aggregates operations cease.

Part of the closure plan with the state includes:

- Use revenue from the salvage of the mining and process equipment at closure for reclamation
- Feed the aggregate plant with materials that will result in reclaiming the heap and dumps, the aggregate plant will operate for 40 or 50 years after closure.

22.3.5 Royalties and State Fees

Royalties are included in the Offsite Operating Costs item in the cash flow table. State and county fees are included in the Admin Operating Costs item in the cash flow table.

22.3.6 Federal and State Taxes

Federal and state income taxes at rates of 21% and 8.84% were used in the cash flow.

22.4 Capital Cost Estimates

The capital cost estimates are sustaining costs only and are detailed in Section 21.0.

22.5 Cash Flow Analysis

22.5.1 After-tax Cash Flow Analysis

The base case cash flow analysis is done on a constant United States dollar, after-tax, stand-alone Project basis.

The Project has pre-tax and after-tax net present values of $116 million and $102 million, respectively, at a discount rate of 5.0%. The undiscounted, cumulative net cash flows for pre-tax and after-tax are approximately $145 million and $129 million, respectively. By comparison, at an 8.0% discount rate, the pre-tax and after-tax NPVs are $102 million and $89 million, respectively.

The indicated contribution of gold, silver and aggregate to gross revenues is approximately 91.2%, 8.6% and 0.2% respectively. The operating equivalent gold cash cost per ounce is $1,340/oz. The total cash costs per equivalent ounce including sustaining capital is $1,477/oz. Gold and silver prices used to model the cash flows were $1,850 and $24, respectively.

The Project generates positive cash flow in each year of production except 2026.

Table 22-1 Cash Flow Table

Item	UNITS	TOTAL	Year -1	2023	2024	2025	2026	2027	2028	2029	2030
Total Mined											
Leachable kt		23,158		1,122	4,494	4,500	3,935	4,500	4,451	155	
Au, o/t		0.020		0.030	0.023	0.020	0.018	0.020	0.021	0.017	
Ag, o/t		0.284		0.522	0.343	0.212	0.223	0.268	0.370	0.267	
Waste Mined, kt		140,984		6,814	27,388	26,890	29,436	28,075	21,251	1,129	
Total mined		164,142		7,936	31,882	31,390	33,371	32,575	25,703	1,284	
Strip Ratio (W:O)		6.09		7.07	7.09	6.98	8.48	7.24	5.77	8.26	
Ore Processed											
Golden Queen, Starlight and Soledad											
ktons ore		18,148		478	3,081	3,601	2,996	3,401	4,435	155	
gold grade ore		0.021		0.041	0.024	0.021	0.018	0.021	0.021	0.017	
silver grade ore		0.307		0.415	0.373	0.224	0.234	0.304	0.371	0.267	
gold contained oz		383,231		8,565	73,234	76,564	54,888	72,557	94,774	2,649	
silver ontained oz		5,572,475		198,361	1,148,207	805,964	699,857	1,032,584	1,646,061	41,441	
Recovery Au		75.9%		71.0%	69.7%	69%	74%	80%	84%	85%	
Recovery Ag		37.0%		37.0%	37.0%	37%	37%	37%	37%	37%	
waste ktons		101,556		3,813	18,921	18,412	19,959	18,851	20,472	1,129	
Silver Queen											
ktons ore		2,307		629	658	95	490	435	0	0	
gold grade ore		0.030		0.062	0.029	0.015	0.027	0.025		0.000	
silver grade ore		0.430		0.616	0.437	0.659	0.303	0.241		0.000	
gold contained oz		69,516		24,910	19,300	1,471	13,130	10,705	0	0	
silver ontained oz		990,806		386,991	287,819	62,738	148,280	104,979	0	0	
Recovery Au		49.0%		49.0%	49.0%	49%	49%	49%		0%	
Recovery Ag		37.0%		37.0%	37.0%	37%	37%	37%		0%	
waste tons		11,597		2,028	3,222	1,648	2,638	2,060	0	0	
Sheeted Vein											
tons ore		2,314		15	402	803	413	665	17	0	
gold grade ore		0.011		0.004	0.011	0.013	0.009	0.011	0.008	0.000	
silver grade ore		0.086		0.044	0.057	0.105	0.047	0.106	0.096	0.000	
gold contained oz		26,515		116	4,456	10,579	3,779	7,454	132	0	
silver ontained oz		199,086		678	23,023	83,987	19,560	70,238	1,601	0	
Recovery Au		73.7%		74.7%	74.0%	74%	73%	73%	76%	0%	
Recovery Ag		37.0%		37.0%	37.0%	37%	37%	37%	37%	0%	
waste tons		27,832		973	5,245	6,830	6,840	7,164	779	0	
Stockpile											
ktons ore		389		0	353	0	36	0	0	0	
gold grade ore		0.014		0.000	0.014		0.014			0.000	
silver grade ore		0.234		0.000	0.234		0.234			0.000	
gold contained oz		5,413		0	4,909	0	505	0	0	0	
silver ontained oz		90,938		0	82,458	0	8,480	0	0	0	
Recovery Au		67.3%		0.0%	67.5%	0%	65%			0%	
Recovery Ag		37.0%		0.0%	37.0%	0%	37%			0%	
waste tons		0		0	0	0	0	0	0	0	

Ore Processed		Total	Year -1	2023	2024	2025	2026	2027	2028	2029	2030
Ore Processed											
Ore Processed to Heap Leach, t		23,158,434		1,122,226	4,494,229	4,499,800	3,935,247	4,499,998	4,451,487	155,447	
Au grade, o/t		0.021		0.030	0.023	0.020	0.018	0.020	0.021	0.017	
Ag grade, o/t		0.296		0.522	0.343	0.212	0.223	0.268	0.370	0.267	
	cont oz Au	484,676		33,592	101,898	88,614	72,302	90,715	94,906	2,649	
	cont oz Ag	6,853,306		586,029	1,541,507	952,689	876,177	1,207,801	1,647,662	41,441	
Waste, t		140,983,912		6,814,249	27,388,171	26,890,199	29,436,246	28,075,116	21,251,187	1,128,744	
Recoverable Gold, oz		347,857		18,375	67,088	61,307	50,155	68,566	80,103	2,263	0
Recoverable Gold, correction		15,000			0	0	0	0	0	10,500	4,500
Ultimate Recoverable Gold, oz		362,857			0	0	0	0	0	0	0
Recoverable Silver, oz		2,535,812		216,839	570,380	352,515	324,198	446,784	609,788	15,308	0
Recoverable Silver, correction		30,000			0	0	0	0	0	18,000	12,000
Ultimate Recoverable Silver, oz		2,565,812			0	0	0	0	0	0	0
Total Gold Produced, oz (model)		358,389		16,202	67,334	62,028	51,536	65,898	77,869	16,588	934
Total Silver Produced, oz (model)		2,694,969		176,924	639,146	387,639	317,590	421,348	564,805	175,621	11,896
Total Gold Produced, oz (model & correction)		373,389		16,202	67,334	62,028	51,536	65,898	77,869	27,088	5,434
Total Silver Produced, oz (model & correction)		2,724,969		176,924	639,146	387,639	317,590	421,348	564,805	193,621	23,896
TOTAL EQUIVALENT Au oz PRODUCED		**408,740**		**18,497**	**75,626**	**67,057**	**55,656**	**71,364**	**85,196**	**29,600**	**5,744**
Gold payable, oz		**373,389**		16,202	67,334	62,028	51,536	65,898	77,869	27,088	5,434
silver payable, oz		**2,724,969**		176,924	639,146	387,639	317,590	421,348	564,805	193,621	23,896
equivalent Au payable oz		**408,740**		18,497	75,626	67,057	55,656	71,364	85,196	29,600	5,744
Gold Revenue		**$ 690,769,308**		29,973,358	124,567,900	114,751,800	95,341,600	121,911,300	144,057,650	50,112,800	10,052,900
Silver revenue		**$ 65,399,256**		4,246,176	15,339,504	9,303,336	7,622,160	10,112,352	13,555,320	4,646,904	573,504
Sales Fee		**$ (8,929,675)**		0	-1,683,350	-1,550,700	-1,288,400	-1,647,450	-1,946,725	-677,200	-135,850
Aggregate Produced, t		**$ 1,252,219**		52,219	240,000	160,000	160,000	160,000	160,000	160,000	160,000
Aggregate Unit Cost, $/t		**$ 1.02**		$ 1.37	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Aggregate Revenue, $		**$ 1,271,397**		71,397	240,000	160,000	160,000	160,000	160,000	160,000	160,000
NET REVENUE		**$748,510,286**		**$34,290,931**	**$138,464,054**	**$122,664,436**	**$101,835,360**	**$130,536,202**	**$155,826,245**	**$54,242,504**	**$10,650,554**

OPERATING COSTS			Total	Year -1	2023	2024	2025	2026	2027	2028	2029	2030
Operating Costs												
Mining Cost	$	12.934	$299,536,186		$15,925,012	$62,154,281	$55,264,090	$56,564,031	$56,041,574	$51,779,061	$1,808,137	$0
Processing Cost	$	6.912	$160,079,397		$7,700,410	$29,896,406	$29,404,384	$28,438,403	$29,408,569	$30,645,480	$3,232,714	$1,353,031
Site Services Costs	$	1.173	$27,162,834		$1,230,183	$4,701,803	$5,115,828	$5,115,828	$5,115,828	$5,117,577	$539,840	$225,947
Admin Operating Costs	$	1.283	$29,707,002		$3,433,864	$5,232,774	$5,094,358	$5,080,008	$5,043,208	$5,064,886	$534,282	$223,620
Offsite Operating Costs	$	1.253	$29,021,532		$1,138,576	$3,226,359	$5,071,713	$5,637,238	$7,022,517	$6,023,745	$635,430	$265,955
Reclamation	$	0.102	$2,355,710		$118,013	$349,485	$472,053	$472,053	$472,053	$472,053	$0	$0
TOTAL OPERATING COSTS	$	23.657	**$547,862,661**	**$0**	**$29,546,060**	**$105,561,107**	**$100,422,426**	**$101,307,561**	**$103,103,749**	**$99,102,802**	**$6,750,404**	**$2,068,552**

OPERATNG CASH FLOW	**$200,647,625**		**$4,744,871**	**$32,902,947**	**$22,242,010**	**$527,799**	**$27,432,453**	**$56,723,443**	**$47,492,100**	**$8,582,002**
CASH FLOW BEFORE CAPITAL	**$200,647,625**		**$4,744,871**	**$32,902,947**	**$22,242,010**	**$527,799**	**$27,432,453**	**$56,723,443**	**$47,492,100**	**$8,582,002**

CAPITAL COSTS	Total	Year -1	2023	2024	2025	2026	2027	2028	2029	2030
Capital Costs										
Mining Capital Summary			**$3,079,170**	**$11,647,323**	**$5,449,108**	**$500,000**	**$500,000**	**$250,000**	**$0**	**$0**
Processing Capital Summary			**$25,128**	**$820,000**	**$410,000**	**$210,000**	**$160,000**	**$90,000**	**$1,000,000**	**$0**
Overhaul Capital Summary			**$0**	**$10,621,879**	**$5,723,970**	**$8,338,287**	**$1,625,000**	**$0**	**$0**	**$0**
Other Capital Summary			**$130,742**	**$2,401,000**	**$2,304,000**	**$250,000**	**$250,000**	**$125,000**	**$0**	**$0**
Subtotal	**$55,910,605**	**$0**	**$3,235,040**	**$25,490,201**	**$13,887,078**	**$9,298,287**	**$2,535,000**	**$465,000**	**$1,000,000**	**$0**
TOTAL CAPITAL	**$55,910,605**	**$0**	**$3,235,040**	**$25,490,201**	**$13,887,078**	**$9,298,287**	**$2,535,000**	**$465,000**	**$1,000,000**	**$0**

PRE-TAX NET CASH FLOW	Total	Year -1	2023	2024	2025	2026	2027	2028	2029	2030
Pre-Tax Net Cash Flow										
NET REVENUE	**$748,510,286**		$34,290,931	$138,464,054	$122,664,436	$101,835,360	$130,536,202	$155,826,245	$54,242,504	$10,650,554
TOTAL OPERATING COSTS	**-$547,862,661**		-$29,546,060	-$105,561,107	-$100,422,426	-$101,307,561	-$103,103,749	-$99,102,802	-$6,750,404	-$2,068,552
TOTAL CAPITAL	**-$55,910,605**		-$3,235,040	-$25,490,201	-$13,887,078	-$9,298,287	-$2,535,000	-$465,000	-$1,000,000	$0
Cumulative	**$144,737,019**	**$0**	**$1,509,831**	**$7,412,746**	**$8,354,932**	**-$8,770,488**	**$24,897,453**	**$56,258,443**	**$46,492,100**	**$8,582,002**

After-TAX NET CASH FLOW		Year -1	2023	2024	2025	2026	2027	2028	2029	2030
After-Tax Net Cash Flow										
Federal Tax	**$11,366,337**		$0	$2,574,059	$202,056	$0	$1,238,983	$6,629,367	$721,872	$0
State Tax	**$4,784,687**		$0	$1,083,556	$85,056	$0	$521,553	$2,790,648	$303,874	$0
Cumulative	**$128,585,996**		**$1,509,831**	**$3,755,131**	**$8,067,821**	**-$8,770,488**	**$23,136,918**	**$46,838,428**	**$45,466,354**	**$8,582,002**

22.5.2 Sensitivity Analysis

The sensitivity of Project cash flows to increases in capital costs (sustaining capital) and site operating costs was evaluated using the base case gold and silver prices. The Project pre-tax and after-tax NPV (5% discount rate) is relatively insensitive to increases in capital costs but are sensitive to operating costs and gold prices.

Table 22-2 Project Pre-Tax NPV with Changes in Capital and Operating Costs (000,000s)

		NPV at Discount Rate		
Variation	Capital Costs	0%	5%	8%
75%	$41.9	$158.7	$128.9	$114.3
90%	$50.3	$150.3	$121.1	$106.7
100%	$55.9	$144.7	$115.8	$101.7
110%	$61.5	$139.1	$110.6	$96.7
125%	$69.9	$130.8	$102.7	$89.1

		NPV at Discount Rate		
Variation	Operating Costs	0%	5%	8%
75%	$410.9	$281.7	$237.1	$214.8
90%	$493.1	$199.5	$164.3	$146.9
100%	$547.9	$144.7	$115.8	$101.7
110%	$602.6	$90.0	$67.3	$56.5
125%	$684.8	$7.8	-$5.4	-$11.4

Table 22-3 Project After-Tax NPV with Changes in Capital and Operating Costs (000,000s)

		NPV at Discount Rate		
Variation	Capital Costs	0%	5%	8%
75%	$1.5	$142.6	$115.3	$102.0
90%	$1.8	$134.2	$107.5	$94.4
100%	$2.0	$128.6	$102.2	$89.4
110%	$2.2	$123.0	$97.0	$84.3
125%	$2.5	$114.6	$89.1	$76.8

		NPV at Discount Rate		
Variation	Operating Costs	0%	5%	8%
75%	$19.6	$265.6	$223.5	$202.5
90%	$23.5	$183.4	$150.8	$134.7
100%	$26.1	$128.6	$102.3	$89.4
110%	$28.7	$73.8	$53.8	$44.2
125%	$32.6	-$8.4	-$19.0	-$23.7

The sensitivity of the Project cash flows to changes in gold prices was further examined. The pre-tax and after-tax NPV for a range of gold price variances from the base case are shown in the tables below.

Table 22-4 Project Pre-Tax NPV with Changing Metal Prices

		NPV at Discount Rate (000,000s)		
Variation	Gold Price	0%	5%	8%
75%	$1,388	-$28.0	-$34.8	-$37.6
90%	$1,665	$75.7	$55.6	$45.9
100%	$1,850	$144.7	$115.8	$101.6
110%	$2,035	$213.8	$176.0	$157.3
125%	$2,313	$317.4	$266.3	$240.8

Table 22-5 Project After-Tax NPV with Changing Metal Prices

		NPV at Discount Rate (000,000s)		
Variation	Gold Price	0%	5%	8%
75%	$1,388	-$44.1	-$48.3	-$49.8
90%	$1,665	$59.5	$42.0	$33.7
100%	$1,850	$128.6	$102.2	$89.4
110%	$2,035	$197.7	$162.4	$145.1
125%	$2,313	$301.3	$252.7	$228.6

Graphs of the pre-tax NPV and after-tax NPV as a function of varying costs and gold prices are presented as follows:

Figure 22-2 Project Pre-Tax NPV Sensitivity

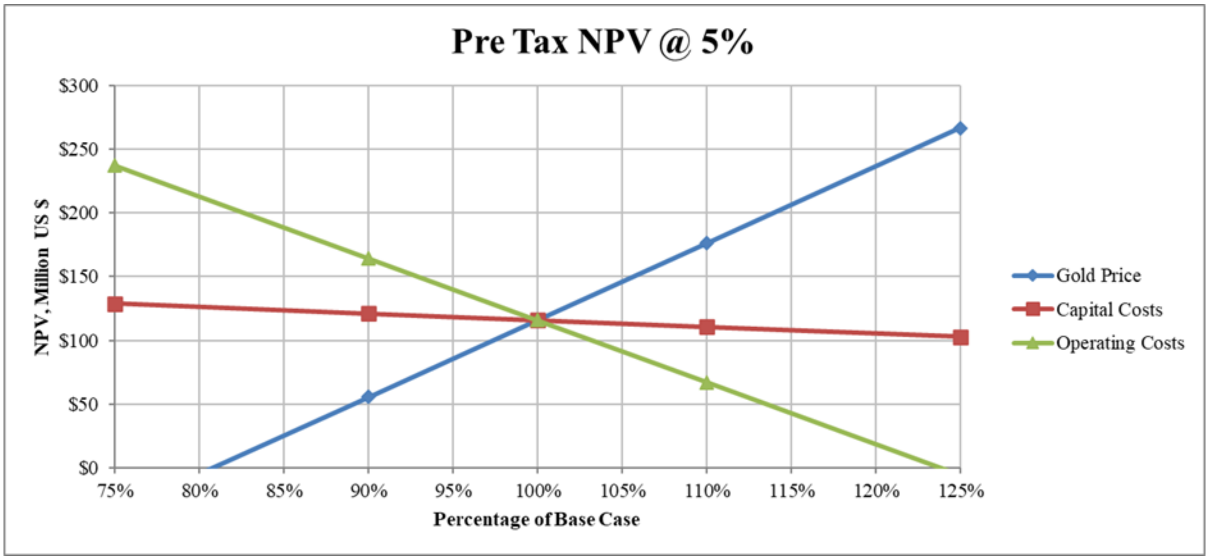
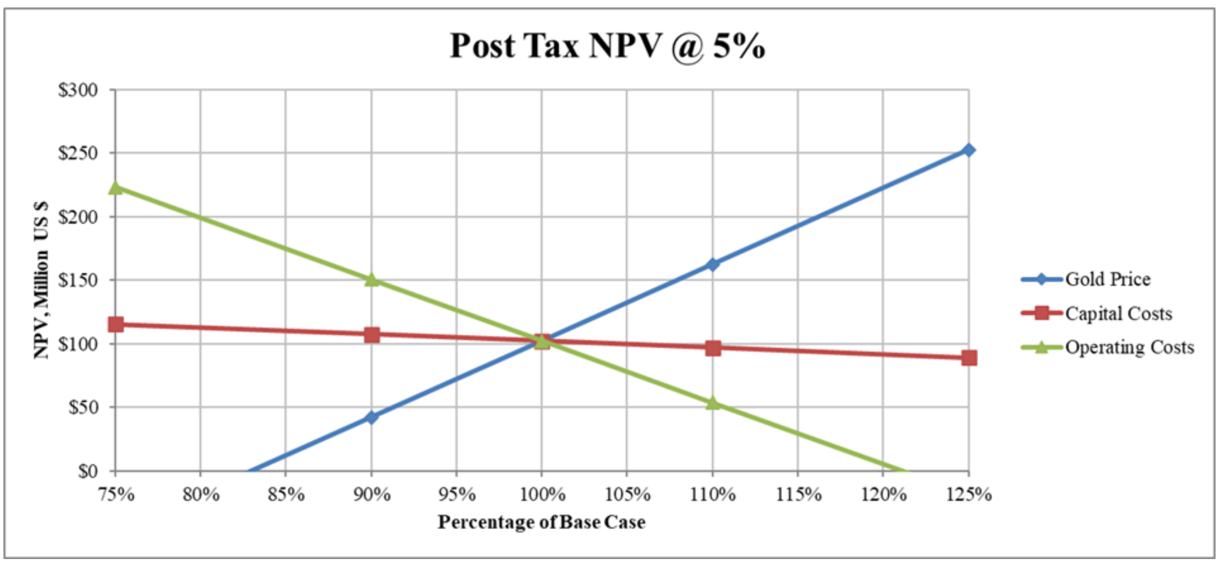


Figure 22-3 Project After-Tax NPV Sensitivity



23.0 ADJACENT PROPERTIES

This section is not relevant to the Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

Mineral resource opportunities and risks are discussed in Section 14.7.

24.1 Risks

24.1.1 Mining Risk

The current external storage does not include swell factor. The current dump volumes and footprints are based on the assumption aggregate rock has been removed at some point in the future and remaining material has been compacted by normal operations. It has been assumed that the swell factor not required because the material swelled volume will be offset by the removal of the aggregate rock and the mining activity compaction.

The sequencing of current mine plan with the expected depletion of the aggregate rock has not been evaluated. The resulting temporary storage requirements has not examined to assure that sufficient storage capacity is available within the Permitted Project Boundary. The maximum storage has not been evaluated to determine if it consistent with the reclamation plan.

Some portions of the current pit optimization may no longer be economical when factoring in the increased stripping requirements associated with known access constraints.

24.1.2 Processing Risk

24.1.2.1 Cement Usage

The materials in the Silver Queen and Sheeted Vein have not been tested for the cement doses required for adequate compacted permeability. It is equally likely the required cement will be the same, higher or lower than historical values. Cement is a large operating cost driver, there is a chance that it will be higher than the past.

24.1.2.2 Clay

Clay and not blending during extended periods of time have caused impermeable areas on the leach pad. The impermeable areas most likely have caused a reduction in recovery of gold and silver.

Crushing high clay ores, without blending adequate rock, and / or inadequate cement addition will result in future impermeable areas.

24.1.3 Debt and Lease Payments

The cash flow presented in Section 22.5 above does not contain the costs of debt or the purchase price of the operation by Andean.

24.1.4 Legal/Permitting Risk

In the mine plan as currently configured, the southern portion of the East Pit access haul road extends across the Approved Project Boundary and onto Section 8, which is BLM land. The Company however has control of the land with a series of unpatented lode mining claims. If access is not secured, reconfiguration of the haul road could marginally increase haul cycle times.

24.1.5 Inventoried Gold Ounces

The inventoried gold ounces in process include:

- 15,000 oz that are thought by GQMC to have been partially leached due poor leaching and blending
- 10,541 oz that are in the process of leaching as predicted by GQMCs process model (in process pad inventory)

The 15,000 oz estimate for unleached ounces may be overstated. GQMC may fail to recover these ounces due to insufficient effort.

The 10,541 oz estimate for inventoried ounces may not be recovered. GQMC may fail to recover these ounces due to operational problems.

As indicated in Opportunities, GQMC believes that there are additional ounces in inventory that can be eventually recovered.

24.2 Opportunities

24.2.1 Processing Opportunity

The silver recovery value chosen for this study is 37%. Silver extraction seems to increase with time. It is possible that, with time, silver recoveries higher than 40% will be achieved.

The HPGR was originally sized to allow edge recycle. This would make the crusher product finer in size but would require adjustable gates on the HPGR under size and additional conveyors. If column tests show an increased gold recovery at the finer product size the system could easily be modified.

24.2.2 Aggregate Production

GQMC works with MRC Rock & Sand, to produce aggregate from waste using a portable crushing plant located to the west of the existing leach pad. Waste is reclaimed selectively from the dumps using a front-end loader.

The aggregate business could expand in the future with the use of rail.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 RESPEC Interpretations and Conclusions

Mr. Gustin reviewed the Project drill-hole and channel-sample data, constructed a resource database, compiled and analyzed available QA/QC data, reviewed reports that describe the geology, exploration, development, and mining history of Soledad Mountain, and visited the Project site numerous times. Following detailed verification and removal of data of insufficient quality, Mr. Gustin believes the Project data are of sufficient quality to support the estimation and classification of the current resources. Mr. Gustin is unaware of any significant risks or uncertainties that could reasonably be expected to affect the reliability of the current mineral resources other than those discussed herein.

A review of available QA/QC data leads to two observations: (1) the variability in duplicate analyses at grades in the range of the resource cutoff grade is high, but not unexpectedly so; and (2) check assay data from multiple third-party labs indicate the resource database gold values for the holes represented by the check assays may be low and the silver values may be high for subsets of holes drilled by GQMC in 1988, 1996, and 1997. While the variability of the gold and silver analyses demonstrated by the QA/QC data should not materially impact the resources, there could be implications with respect to the categorization of ore vs. waste in mining operations.

25.2 Metallurgical Test Work

KCA recommends using the following field leach parameters for future ore mined:

Table 25-1 Expected Recoveries and Reagent Consumptions

Ore Type	Gold Recovery, %	Silver Recovery, %	NaCN Cons., lb/st	Cement Cons., lb/st
Golden Queen, Starlight, and Soledad	y = (-0.0435x+219.44)/100 y </= 85 y = Au Recovery, % x = Bench Elevation, ft	37%	0.16	11
Silver Queen	49%	37%	0.37	11
Sheeted Vein	74%	37%	0.23	11

These recommendations are based on the test work and plant data discussed in Chapter 13.

25.3 Mineral Resource Estimates

The Project mineral resources (Table 25-2) are based on modeling of over 20 gold- and silver-bearing structures and their related subordinate splits and subparallel zones. These mineralized structures occur over a total strike-length of 7,000 ft and a width of 4,500 ft. The mineral resources were estimated in accordance with Canadian National Instrument 43-101 guidelines.

The Mineral Resource Estimates are summarized below:

Table 25-2. Soledad Mountain Project Gold and Silver Resources

			In-Situ Grade				Contained Metal	
			Gold		Silver		Gold	Silver
Classification	Tonnes	Tons	g/t	oz/ton	g/t	oz/ton	oz	oz
Measured	2,667,000	2,940,000	0.99	0.029	12.93	0.377	86,000	1,108,000
Indicated	39,147,000	43,152,000	0.58	0.017	8.06	0.235	736,000	10,133,000
Measured & Indicated	**41,814,000**	**46,092,000**	**0.62**	**0.018**	**8.37**	**0.244**	**822,000**	**11,241,000**
Inferred	3,625,000	3,996,000	0.45	0.013	6.27	0.183	53,000	732,000

1. Mineral resources are inclusive of mineral reserves.
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability.
3. Mineral resources are reported by applying cutoffs of 0.008 oz AuEq/ton (0.274 g/t) at the Silver Queen zone and 0.005 oz AuEq/ton (0.171 g/t) at all other areas to all model blocks lying within optimized resource pits, in consideration of potential open-pit mining and heap-leach processing.
4. Gold equivalent grades were calculated as follows: oz AuEq/ton = oz Au/ton + (oz Ag/ton / AuEq Factor). The AuEq Factor is derived from metal prices ($2,000/oz Au and $23/oz Ag) and recoveries of 55% for Au and 40% for Ag for model blocks lying within the Silver Queen zone (AuEq Factor = 120), and 85% for Au and 40% for Ag in all other areas (AuEq Factor = 185).
5. The effective date of the mineral resources is September 30, 2023.
6. Tonnage and grade estimations are presented in both U.S. and metric units. Grades are reported in troy ounces per short ton (U.S.) and in grams per metric tonne (metric).
7. Rounding may result in apparent discrepancies between tons, grade, and contained metal content.

There is good potential to define additional resources, particularly at the Alphason zone and the southwest projection of the Silver Queen vein system. The mineralized extents of many of the other vein systems that comprise the Soledad Mountain Project also remain to be defined.

25.4 Mineral Reserve Estimates

The Project is amenable to conventional open pit mining methods and has been in operation in 2016. The mine plan has been scheduled based on the mine equipment fleet already on hand and the existing processing facilities currently in operation. The mine plan will deliver 4.5M tons per year to the crusher and move 32.6M total tons at maximum production.

The Mineral Reserve is further limited by material that can be mined economically, which is identified by the cut-off grades (COG's) associated with mineral extraction. COG is a function of technical and economical parameters and defines the economic portion of the reserve at the time of determination. The COG's for the reserve estimate were tabulated based on the Net Smelter Return (NSR).

The QP for the Mineral Reserve Estimates is Joseph McNaughton, Senior Mining Engineer, P.Eng. and an employee of IMC. Mineral Reserve Estimates are reported in Table 25-2 have an effective date of 30 September 2023. The estimate was prepared in compliance with the disclosure and reporting requirements set forth in the National Instrument 43-101. In accordance with the CIM classification system only Measured and Indicated resource categories were converted to reserves (through inclusion within the open-pit mining limits), Inferred Mineral Resources are reported as waste.

The Mineral Reserve Estimates are summarized in the follow two tables, imperial and metric units.

Table 25-3. Mineral Reserves

Golden Queen Mining Company - Soledad Mountain Deposit
Mineral Reserve Statement (Imperial Units); September 30, 2023

Classific	NSR COG ($/ton)	Mineralized Tons (ktons)	NSR Grade ($/ton)	Contained Grade Gold (opt)	Contained Grade Silver (opt)	Recovered Grade Gold (opt)	Recovered Grade Silver (opt)	Contained Metal Gold (k-oz)	Contained Metal Silver (k-oz)	Recovered Metal Gold (k-oz)	Recovered Metal Silver (k-oz)
Proven	8.44	1,842	42.6	0.032	0.417	0.021	0.154	60	768	39	284
Probable	8.44	21,316	29.3	0.020	0.285	0.015	0.106	425	6,085	309	2,252
Total Prov + Prob		23,158	30.3	0.021	0.296	0.015	0.109	485	6,853	348	2,536

Notes:

- Mineral reserves were tabulated based on a $1,850/oz gold price and $23/oz silver price within a pit designed based on a $1,600/oz gold price @ 2022 economics.

- The mineral reserves Cutoff Grade (COG) is based on a Net Smelter Return (NSR) of $8.44/ore ton

- Mineral reserves are based on the economic input parameters provided in Tables 15.1-2, 15.1-3 & 15.1-4

- ktons means 1000 short tons; Short tons = 2000 lbs.

- The columns may not sum exactly due to rounding

- Gold and Silver are reported in Troy Ounces Per Short Ton; where 1 k-ounce = 1,000 ounces

- Based on end of September 2023 topography

- Includes 389 ktons from Low Grade Stockpile @ 0.0139 opt Contained Gold Grade, 0.010 opt Recovered Gold Grade,0.234 opt Contained Silver Grade, Grade,0.234 opt Contained Silver Grade, 0.086 opt Recovered Silver Grade, applied to Probable

- The tons placed in Low Grade Stockpile throughout the mine life were verified by IMC; however the tons removed could not be verified. A portion of the could not be verified. A portion of the stockpiles were observed at the time of IMC's site visit, but the quantity was not identified. The low grade not identified. The low grade stockpile is not material to the Reserves and represents around 1% of the remaining recoverable ounces. recoverable ounces.

Table 25-4 Mineral Reserves (metric)

Golden Queen Mining Company - Soledad Mountain Deposit
Mineral Reserve Statement (Metric Units); September 30, 2023

Classification	NSR COG ($/tonne)	Mineralized Tons (ktonnes)	NSR Grade ($/tonne)	Contained Grade Gold (gpt)	Contained Grade Silver (gpt)	Recovered Grade Gold (gpt)	Recovered Grade Silver (gpt)	Contained Metal Gold (k-oz)	Contained Metal Silver (k-oz)	Recovered Metal Gold (k-oz)	Recovered Metal Silver (k-oz)
Proven	9.30	1,671	46.9	1.11	14.29	0.72	5.29	60	768	39	284
Probable	9.30	19,338	32.2	0.68	9.79	0.50	3.62	425	6,085	309	2,252
Total Prov + Prob		21,009	33.4	0.72	10.15	0.52	3.75	485	6,853	348	2,536

Notes:
- Mineral reserves were tabulated based on a $1,850/oz gold price and $23/oz silver price within a pit designed based on a $1,600/oz gold price @ 2022 economics.
- The mineral reserves Cutoff Grade (COG) is based on a Net Smelter Return (NSR) of $9.30/ore tonne
- Mineral reserves are based on the economic input parameters provided in Tables 15.1-2, 15.1-3 & 15.1-4
- ktonnes means 1000 metric tonnes.
- The columns may not sum exactly due to rounding
- Gold and Silver are reported in Troy Ounces Per Short Ton; where 1 k-ounce = 1,000 ounces
- Based on end of September 2023 topography
- Includes 353 ktonnes from Low Grade Stockpile @ 0.48 gpt Contained Gold Grade, 0.34 gpt Recovered Gold Grade,8.02 gpt Contained Silver Grade, 2.95 gpt Recovered Silver Grade, applied to Probable
- The tonnes placed in Low Grade Stockpile throughout the mine life were verified by IMC; however the tonnes removed could not be verified. A could not be verified. A portion of the stockpiles were observed at the time of IMC's site visit, but the quantity was not identified. The low grade not identified. The low grade stockpile is not material to the Reserves and represents around 1% of the remaining recoverable ounces. recoverable ounces.

26.0 RECOMMENDATIONS

26.1 Resources

Infill drilling of the Soledad-Starlight portion of Main Pit Phase 3 is recommended to further refine the definition of the mineralization ahead of mining, which has been the practice at the mine site to date. Further refinement and expansion of the Sheeted Vein zone and southeast extension of the Silver Queen vein system is also recommended. GQMC has also identified a number of exploration targets that are also worthy additional or first-time drill testing; the Alphason mineralized structure is of particular interest.

GQMC has developed a 98,500-ft core and RC infill and exploration drilling program that addresses the drilling summarized above and has compiled estimated costs (Table 26-1). Mr. Gustin believes that this program is warranted, and strongly recommends that the higher-priority targets, at a minimum, are tested in the short term.

Table 26-1. Recommended Drilling Program and Cost Estimate

Target	Description	RC (ft)	Core (ft)	Total (ft)	Estimated Costs
Main Pit Phase 3	High-Priority Infill		16,000	16,000	$ 2,080,000
Silver Queen SE ext.	High-Priority Infill-Expl	8,000	4,000	12,000	920,000
Sheeted Vein Zone	High-Priority Infill-Expl		5,000	5,000	650,000
Alphason	High-Priority Expl	15,000	2,500	17,500	1,075,000
Soledad/Starlight – SE ext.	Continued Exploration	10,000		10,000	500,000
Black Karma	Continued Exploration	6,000	2,000	8,000	560,000
Deep Silver Queen	Continued Exploration	5,000	2,000	7,000	510,000
Deep Soledad/Starlight	Initial Exploration		10,000	10,000	1,300,000
NW Alphason	Initial Exploration	3,000		3,000	150,000
Soledad hanging wall	Initial Exploration	2,000		2,000	100,000
Soledad Far SE	Initial Exploration	2,500		2,500	125,000
Landon Clay	Initial Exploration	3,000		3,000	150,000
West Basin	Initial Exploration		2,500	2,500	325,000
Totals		*54,500*	*44,000*	*98,500*	*$ 8,445,000*

26.2 Mine Development

IMC recommends that external storage capacities be revised incorporate material swell factors into the scheduled placement of external storage. The sequencing of current mine plan with the expected depletion of the aggregate rock should be evaluated to determine if adequate storage is available within the current permit boundary.

IMC recommends that future pit optimization routines incorporate known access constraints. Incorporating known constraints may identify if there is an opportunity to remove higher cost material that may no longer be economical when factoring in the increased stripping requirements.

IMC recommends that the spatial distribution of royalties and scaled costs be incorporated into the COG optimization logic.

IMC recommends that impact of the crusher fire that occurred during the writing of this report be incorporated into the mine production schedule one the extent of the impact is better understood.

IMC recommends that low grade stockpile volumes be updated with flown for future reporting at the time of reporting.

26.3 KCA Recommendations

KCA recommends adding clay content to the mine planning process. This could help forecast when excessive clay will be encountered so blending may occur. KCA believes this will cost less than $25,000.

KCA recommends drilling and column testing “Other” materials to be processed in 2025 through 2028. This will confirm the higher recoveries expected at lower elevations.

KCA recommends comparing the monthly column leach test results against the mining history of the ore types of rhyolite, pyroclastic and quartz. If the data is sufficient, the relationships could give a better estimate of what to expect in future mining.

Bottle roll and column leach tests and compacted permeability tests should be conducted on the future ore to confirm recovery estimates and reagent requirements.

The HPGR was originally sized to allow edge recycle. This would make the crusher product finer in size but would require adjustable gates on the HPGR under size and additional conveyors. Column tests to check for a difference in recovery at the finer product size should be conducted.

If this testwork was conducted at an outside laboratory, the costs would be approximately $250,000 not including drilling.

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The ROWD was prepared by Golden Queen Mining Co., Inc. and a team of consulting engineers.

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28.0 DATE AND SIGNATURE PAGE

This report has the following report dates:

Report Date is:	12 January 2024
Mineral Resource Effective Date is:	30 September 2023
Mineral Reserve Effective Date is:	30 September 2023

The report was prepared as per the following signed Qualified Persons' Certificates.

CERTIFICATE OF QUALIFIED PERSON

`I, George F. Klemmick, C.P.G., do hereby certify that I am currently employed as an independent Consulting Minerals Geologist located at P.O. Box 671329, Chugiak, Alaska, USA 99567-1329, and:

1. I graduated with a Bachelor of Science degree in Geology from the University of Minnesota (Twin Cities) in 1985. I have worked as a geologist in the mining industry for more than 32 years and have extensive experience in precious metals-bearing epithermal deposits, including the exploration, evaluation and development of epithermal deposits in the United States, Mexico, Canada and Italy. I am a Certified Professional Geologist with the American Institute of Professional Geologists (certificate #10937) and a Professional Geologist, State of Alaska (license #583).

2. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I have extensively explored, drilled, evaluated, and developed similar volcanic-hosted epithermal gold-silver deposits in the United States and elsewhere. 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.

4. I was a "Qualified Person" for unpublished Technical Report titled "Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA" (the "Technical Report"), dated June 20, 2022, prepared for Golden Queen Mining Company, LLC.

5. I visited the Soledad Mountain project site most recently from 1 May to 6 May 2023.

6. I am responsible, or have shared responsibility, for Sections 1.8-1.11, 1.25.1, 7, 8, 9, 10, 11.0-11.7, 26.1, 27 and 27 of this report titled, "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*", with an effective date of 12 January 2024 (the "Technical Report").

7. I have worked extensively at the Soledad Mountain project since 2014, in the capacity of consulting geologist, and I am independent of both Golden Queen Mining Company and Andean Precious Metals Corporation as defined in Section 1.5 of NI 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.

8. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, this Technical Report contains all the scientific and technical information that is required to be disclosed to make those parts of this Technical Report for which I am responsible for not misleading.

9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 30th day of January 2024.

"George F. Klemmick"

George F. Klemmick, C.P.G.

CERTIFICATE OF QUALIFIED PERSON

I, Carl Defilippi, RM SME, do hereby certify that I am currently employed as Engineering Manager by Kappes, Cassiday & Associates, 7950 Security Circle, Reno, Nevada 89506, and:

1. This certificate applies to the technical report "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*", dated 12 January 2024 (the "Technical Report").

2. I am a registered member with the Society of Mining, Metallurgy and Exploration (SME) since 2011 and my qualifications include experience applicable to the subject matter of the Technical Report. In particular, I am a graduate of the University of Nevada with a B.S. in Chemical Engineering (1978) and a M.S. in Metallurgical Engineer (1981). I have practiced my profession continuously since 1982. Most of my professional practice has focused on the development of gold-silver leaching projects and I have successfully managed numerous studies at all levels.

3. I am familiar with National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and by reason of education, experience and professional registration I fulfill the requirements of a "qualified person" as defined in NI 43-101.

4. I was a "Qualified Person" for unpublished Technical Report titled "Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA" (the "Technical Report"), dated June 20, 2022, prepared for Golden Queen Mining Company, LLC.

5. I visited the Soledad Mountain property numerous times since 2015, with the latest being on 13 November 2023.

6. I am responsible for Sections 1.0 to 1.7, 1.13, 1.18 to 1.24, 1.25, 1.25.2, 1.26, 2 through 5, 12.9, 13, 17 through 20, 21 (except 21.3.2), 22, 23, 24 (except 24.1.1), 25.2, 26.3, 27 & 28 of the Technical Report.

7. I have been working intermittently as a consultant at the Soledad Mountain project since 2014 and I am independent of the Issuer as described in section 1.5 of NI 43-101.

8. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101.

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

Dated this 30th day of January 2024

"Carl E. Defilippi"

Carl Defilippi, RM SME

CERTIFICATE OF QUALIFIED PERSON

I, Michael M. Gustin, C.P.G., do hereby certify that I am currently employed as Principal Consultant by RESPEC, 210 South Rock Blvd., Reno, Nevada 89502, and:

1. I graduated with a Bachelor of Science degree in Geology from Northeastern University in 1979 and a Doctor of Philosophy degree in Economic Geology from the University of Arizona in 1990. I have worked as a geologist in the mining industry for more than 40 years and have extensive experience in precious-metal epithermal deposits, including the estimation of resources of epithermal deposits in the western U.S. and Mexico. I am a Registered Member of the Society of Mining Engineers (#4037854RM), and a Certified Professional Geologist of the American Institute of Professional Geologists (#CPG-11462).

2. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I have previously explored, drilled, evaluated, and estimated resources of similar volcanic-hosted epithermal gold-silver deposits in the western US and Mexico. 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.

3. I was a "Qualified Person" for unpublished Technical Report titled "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*" (the "Technical Report"), dated June 20, 2022, prepared for Golden Queen Mining Company, LLC.

4. I visited the Soledad Mountain project site most recently on 14 December 2023.

5. I am responsible for Sections 1.8 - 1.12, 1.14, 1.25.1, 6, 7, 8, 9, 10, 11, 12 (except for 12.9), 14, 25.1, 25.3, 26.1, 27 and 28, of this report titled, "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*", with an effective date of 12 January 2024 (the "Technical Report").

6. I have been working intermittently as a consultant at the Soledad Mountain project since 2014, and I am independent of Golden Queen Mining Company as defined in Section 1.5 of NI 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.

7. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, this Technical Report contains all the scientific and technical information that is required to be disclosed to make those parts of this Technical Report for which I am responsible for not misleading.

8. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 30th day of January 2024.

"Michael M. Gustin"

Michael M. Gustin, C.P.G.

CERTIFICATE OF QUALIFIED PERSON

I, Joseph McNaughton, P.E., do hereby certify that:

1. I am a senior mining engineer of:

   Independent Mining Consultants, Inc.

   3560 East Gas Road

   Tucson, AZ 85714

2. I graduated with the following degrees:

   Bachelors of Science, Mining Engineering from the University of Arizona (2012)

   Bachelors of Science, Engineering Management from the University of Arizona (2012)

   Bachelors of Arts, Business Finance from Butler University (2004)

3. I am a registered Professional Engineer in good standing in the State of Arizona in Mining Engineering Registration # 65646

4. I have practiced as a mining engineer continuously since 2011. I have worked as a short and long-range mine planner. I have worked on numerous projects that include mine design, mine planning, resource and reserve estimation, scheduling and cost estimation and evaluation.

5. 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 (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

6. I am responsible for Sections 1.15, 1.16, 1.17, 15, 16, 21.3.2, 24.1.1, 25.4, 26.2, 27 and 28 of the Technical Report titled "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*" (the "Technical Report"), dated 12 January 2024, prepared for Golden Queen Mining Company, LLC.

7. I have visited the project site on 7 December 2023.

8. I had prior involvement with the property that is the subject of the Technical Report. I was the interim mining engineer on site for several months during 2017 while a permanent engineer replacement was hired. As the interim mining engineer, I provided both short- and long-term mining plans. In 2022, I was a "Qualified Person" for unpublished Technical Report titled "*Feasibility Study Update, Technical Report on the Soledad Mountain Heap Leach Project, Kern County, California, USA*" (the "Technical Report"), dated June 20, 2022, prepared for Golden Queen Mining Company, LLC. In 2022, I also served as an expert witness on behalf of Golden Queen Mining Company, LLC.I have provided mine planning and various other engineering support as requested.

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

10. I am not aware of any material fact or material change with respect the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

11. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.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.

12. I have read National Instrument 43-101 and Form F43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

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

Signed and dated this 30th day of January 2024.

"Signed and Stamped"

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Joseph McNaughton, P.E.

Registered Professional Engineer (Mining)

Arizona, USA