This document amends Tables 1.6 and 21.4 of the TECHNICAL REPORT FOR THE ROCHESTER MINE LOVELOCK, NEVADA, U.S.A., with an effective date of December 31, 2016 and a report date of February 8, 2017 filed on SEDAR on February 8, 2017 (the “Report”), to correct typographical errors in the amount of Operating Cash Flow (the “Amendments”). Other than the Amendments, there are no additional changes to the Report.

COEUR MINING®

TECHNICAL REPORT FOR THE ROCHESTER MINE
LOVELOCK, NEVADA, U.S.A.

NI 43-101 TECHNICAL REPORT

Effective Date: December 31, 2016
Report Date: February 8, 2017

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CAUTIONARY STATEMENT ON FORWARD-LOOKING INFORMATION

This technical report (Report) contains forward-looking statements within the meaning of United States (U.S.) and Canadian securities laws. Such forward-looking statements include, without limitation, statements regarding Coeur Mining, Inc.'s (Coeur) expectations for the Rochester Mine, including estimated capital requirements, expected production, economic analyses, cash costs and rates of return; Mineral Reserve and Resource estimates; estimates of silver and gold grades; and other statements that are not historical facts. These statements may be identified by words such as "may," "might", "will," "expect," "anticipate," "believe," "could," "intend," "plan," "estimate" and similar expressions. Forward-looking statements address activities, events or developments that Coeur expects or anticipates will or may occur in the future, and are based on currently available information.

Although management believes that its expectations are based on reasonable assumptions, it can give no assurance that these expectations will prove correct. Important factors that could cause actual results to differ materially from those in the forward-looking statements include, among others: reclamation activities; changes in Project parameters as mine and process plans continue to be refined; variations in ore reserves, grade, or recovery rates; geotechncial considerations; failure of plant, equipment or processes to operate as anticipated; shipping delays and regulations; risks that Coeur's exploration and property advancement efforts will not be successful; risks related to fluctuations in the price of silver and gold; the inherently hazardous nature of mining-related activities; uncertainties with reserve and resource estimates; uncertainties related to obtaining approvals and permits from governmental regulatory authorities; and, availability and timing of capital for financing exploration and development activities, including uncertainty of being able to raise capital on favorable terms, or at all; as well as those factors discussed in Coeur's filings with the U.S. Securities and Exchange Commission (the "SEC"), including Coeur's latest Annual Report on Form 10-K and its other SEC filings (and filed in Canada on SEDAR at www.sedar.com). Coeur does not intend to publicly update any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required under applicable securities laws.

CAUTIONARY NOTE TO U.S. READERS CONCERNING ESTIMATES OF MEASURED, INDICATED, AND INFERRED MINERAL RESOURCES

Information concerning the properties and operations of Coeur has been prepared in accordance with Canadian standards under applicable Canadian securities laws, and may not be comparable to similar information for U.S. companies. The terms "Mineral Resource", "Measured Mineral Resource", "Indicated Mineral Resource" and "Inferred Mineral Resource" used in this Report are Canadian mining terms as defined in accordance with National Instrument 43-101 (NI 43-101) under definitions set out in the

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Mineral Reserves adopted by the CIM Council on May 10, 2014. While the terms “Mineral Resource”, “Measured Mineral Resource”, “Indicated Mineral Resource”, and “Inferred Mineral Resource” are recognized and required by Canadian securities regulations, they are not defined terms under standards of the SEC. Under U.S. standards, mineralization may not be classified as a “Reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the Reserve calculation is made. As such, certain information contained in this Report concerning descriptions of mineralization and resources under Canadian standards is not comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements of the SEC. 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. Under Canadian rules, estimates of Inferred Mineral Resources may not form the basis of feasibility or pre-feasibility studies. Readers are cautioned not to assume that all or any part of Measured or Indicated Resources will ever be converted into Mineral Reserves. Readers are also cautioned not to assume that all or any part of an “Inferred Mineral Resource” exists, or is economically or legally mineable. In addition, the definitions of “Proven Mineral Reserves” and “Probable Mineral Reserves” under CIM standards differ in certain respects from the standards of the SEC.

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1. SUMMARY

Gregory D. Robinson, Professional Engineer (P.E.); Kelly B. Lippoth, Certified Professional Geologist (CPG), American Institute of Professional Geologists (AIPG); Raul Mondragon, Registered Member, Society for Mining, Metallurgy & Exploration (RM SME); and Paul Hohbach, Certified Professional Geologist (CPG), American Institute of Professional Geologists (AIPG), prepared this technical report (Report) for Coeur Mining, Inc. (Coeur) on the Rochester Mine located near Lovelock, Nevada, U.S.A. The Rochester Mine is a silver and gold mine wholly-owned by Coeur subsidiary, Coeur Rochester, Inc. (Coeur Rochester or the Company).

The purpose of this Report is to:

- Update the Mineral Resources and Mineral Reserves for the Rochester Mine (also referred to as Rochester or the Project);
- Update the capital and operating cost estimates for Rochester; and
- Update the financial estimates for Rochester.

The data presented in this Report provides updated scientific and technical information on the ongoing production activities at Rochester in compliance with National Instrument (NI) 43-101 Standards for Disclosure for Mineral Projects and Form NI 43-101F1, and in support of the Annual Report on Form 10-K for the year ended December 31, 2016.

The Mineral Resources and Reserves presented in this Report are effective as of December 31, 2016. The Report effective date is December 31, 2016 and the Report filing date is February 8, 2017.

1.1 Property Description and Location

The Rochester property is located in the Humboldt Range of northwestern Nevada, approximately 13 miles east of Interstate 80 from the Oreana-Rochester exit, and 18 miles northeast of the city of Lovelock in Pershing County, Nevada (Figure 4.1).

Effective December 31, 2016, the Rochester Property Package comprises 16,334 net acres, which encompasses 734 federal unpatented lode claims, appropriating 11,075 net acres of public land; 21 patented lode claims, consisting of 357 acres; and, interests owned in 4,633 gross acres of additional real property and certain rights in and to 269 acres, held either through lease, letter agreement or license; all of which is controlled by Coeur Rochester. A schedule of the Rochester Property Package is provided in Section 29.1. The area described includes the Rochester and Nevada Packard surface mining

operation areas, the ore-processing facility located east of the current Rochester Mine, ancillary facilities, and all dumps and stockpiles.

The Rochester Mine is contained within the Rochester Property Package and includes the following areas, to be discussed in more detail in Section 18:

- The Rochester Mine;
- The North and West stockpiles;
- The South and Charlie stockpiles;
- The Nevada Packard Mine; and
- The Nevada Packard stockpiles.

1.2 History and Exploration

Coeur has owned and operated the Project since 1983. Coeur undertook a large-scale development drilling program and began open pit mining of the current Rochester pit in 1986. The Rochester Mine ran continuously (with supplemental production coming from the Nevada Packard Mine between 2002 and 2007) until 2007, when mining ceased in a planned shutdown after exhausting the then known reserves, coincident with low metal prices at the time. Between 2007 and 2010, the Project was operated in an ore processing by heap leaching mode. In 2010, after extensive engineering studies and a sustained period of increasing silver and gold prices, open pit mining operations resumed, together with increased exploration, at the Project.

Exploration has been conducted by Coeur at Rochester since mine inception more than 25 years ago. Since 2011, exploration has focused in and around the Rochester and Nevada Packard pit areas. Exploration in the Mystic, Nevada Packard, North Rochester-Limerick, East Rochester and Sunflower Ridge areas confirmed mineralization further from the developed pits. In 2013 and 2014, Coeur focused on characterizing stockpiled material inventory.

1.3 Geology

The Rochester and Nevada Packard Mines are located on the southern flank of the Humboldt Range. The Humboldt Range lies within the Basin and Range province where extensional movement has created large listric normal faults bounding generally north-south trending mountain ranges and adjacent down-dropped valleys.

The Rochester and Nevada Packard deposits occur in predominately rhyolitic flows and tuffs of the Permian-Triassic Koipato Group which is subdivided into the Limerick, Rochester, and Weaver Formations. Both the Rochester and Weaver Formations are

altered extensively to an assemblage of quartz-sericite-pyrite. Distinct zones of seriticization are found throughout the deposit including some breccia matrices although zones of brecciation are more commonly healed by silica. Silicification is very common throughout the property, particularly near the Rochester-Weaver contact. Hydrothermal clay alteration other than sericite also exists and includes clay minerals such as kaolinite and halloysite.

Dominant mineralized trends at the Rochester and Nevada Packard open pits are northeast and north-south. Structural intersections with favorable host lithology form the largest zones of mineralization, with triple point intersections (i.e., intersecting veins in conjunction with the Weaver-Rochester contact) forming the greatest volumes of mineralization. Quartz veins and veinlets typically exhibit parallel and cross-cutting features, indicating multiple mineralizing events.

The main ore body rests primarily in the oxide zone where the Rochester-Weaver contact is the primary host for gold-silver mineralization, followed and influenced by mineralized fault zones with disseminations away from the faults. The contact is extensively brecciated post conglomerate lithification and healed by silica. Low-grade mineralization is controlled by both hypogene processes and supergene enrichment. These low grade systems vary in width (both along strike and down dip) from tens to hundreds of feet (ft). Below the oxidation zone grade typically drops off but elevated gold-silver grades can be found in narrow quartz veins.

1.4 Sample Collection

Numerous reverse circulation (RC) and diamond core drilling programs have been performed at the Rochester and Nevada Packard areas since 1985 (Table 1.1).

Table 1.1. Drilling Conducted since 1985 (Coeur, 2016)

Drill Area	Total Drill Holes	Drill Footage (ft)
Rochester	2,475	1,263,430
Nevada Packard	719	230,585
Nevada Packard Stockpile	45	4,010
Rochester Stockpile	1,132	218,646

Sampling has been conducted primarily on 10-ft. intervals for historical and recent drilling campaigns. Diamond core holes are sampled on geologic intervals up to a maximum of 10 ft. Samples collected since 2008 have been drilled wet and utilize a mechanical splitter to obtain a percentage of the overall sample volume produced from RC drilling.

Sample analysis prior to 2010 was completed at either an outside certified laboratory or by the Rochester laboratory, which is not certified. After 2010, all assays were analyzed by outside certified laboratories.

Samples collected since 2008 undergo Quality Assurance and Quality Control (QA/QC) review. QA/QC includes a series of blank and standard materials inserted into the sample population, duplicate sample splits collected at the drill rig, along with splits created during sample preparation and secondary laboratory check analysis on both course reject and prepared pulps.

1.5 Data Verification

Data verification and QA/QC review is conducted on historical and recent drilling. Verification includes a review of collar coordinates and down hole surveys in plan view and section view, along with assay review against original laboratory certificates or original hardcopy records, where available. Update of historic assay data is ongoing as discrepancies are found. During the verification process in 2014, discrepancies were encountered with drill hole data collected by ASARCO prior to 1982. Due to lack of correlation between the database and available assay certificates, 384 ASARCO drill holes have been excluded from the resource model dataset since 2014. All other data reviewed was found to be of sufficient quality to support Mineral Resource estimation.

1.6 Mineral Resource Estimates

A new Mineral Resource model for the Rochester pit was completed for this Mineral Resource estimate using historical data (excluding ASARCO drill results) and drilling completed between 2011 and November 1, 2016 near the Rochester pit area. The geologic model was updated based on drilling and inpit mapping. A separate resource model for the Limerick area in the northwest corner of the Rochester pit was created in 2013 and then merged with the final November 1, 2016 Rochester Mineral Resource model.

Mineral Resource models for stockpiles near the Rochester pit were completed in 2013 and then depleted for 2014, 2015 and 2016. Stockpiles were modeled using inverse distance weighting to a power of two (ID2). The final stockpile model was compared against models created using inverse distance weighted to the power of three (ID3) and Ordinary Kriging (OK). Minimal ore control data is available for the stockpile areas.

The Nevada Packard Mineral Resource model was updated May 12, 2016 using OK methodology. The Mineral Resource estimate presented in this report utilizes this May 2016 resource model with updated costs and metal prices applied.

Mineral Resource models for stockpiles adjacent to the Nevada Packard pit were completed in 2015 from data collected in 2013. Stockpiles were modeled using ID2 and compared against mean grade and nearest neighbor models, along with deep rotary drill holes completed as infill and not included in the final resource estimate. The resulting Mineral Resources are shown in Table 1.2 and Table 1.3.

Table 1.2. Mineral Resources, Exclusive of Mineral Reserves, and Amenable to Open Pit Mining and Stockpile Material – Rochester Mine, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	18,375,000	0.004	0.60	75,000	11,004,000
Indicated	15,300,000	0.005	0.58	71,000	8,805,000
Total M&I	**33,675,000**	**0.004**	**0.59**	**147,000**	**19,809,000**
Inferred	53,190,000	0.003	0.57	154,000	30,562,000

Notes:

1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves, and there is no certainty that the Inferred Mineral Resources will be realized.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The silver equivalent (AgEq) cut-off equals 0.45 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.36/ton, crushing and process costs of $3.23/ton, and G&A costs of $0.55/ton.
4. Stockpiles included in the estimate are the North, West, South, and Charlie stockpiles.
5. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The Qualified Person (QP) for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate has an effective date of December 31, 2016.

Table 1.3. Mineral Resources Amenable to Open Pit Mining and Stockpile Material – Nevada Packard, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	21,357,000	0.003	0.57	56,000	12,277,000
Indicated	14,429,000	0.002	0.47	35,000	6,847,000
Total M&I	**35,786,000**	**0.003**	**0.53**	**91,000**	**19,124,000**
Inferred	14,589,000	0.002	0.34	24,000	4,992,000

Notes:

1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves, and there is no certainty that the Inferred Mineral Resources will be realized.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The silver equivalent (AgEq) cut-off equals 0.40 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.41/ton, crushing and process costs of $2.65/ton, and G&A costs of $0.53/ton.
4. Stockpiles included in the estimate are located in the Nevada Packard pit area.
5. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The QP for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate has an effective date of December 31, 2016.

1.7 Mineral Reserve Estimates

The Mineral Reserve estimates are based on the Measured and Indicated Mineral Resources estimated for the Rochester Mine and the stockpiles. No Mineral Reserves have been estimated for Nevada Packard.

Mineral Reserve estimates are derived with Geovia® GEMS software using a detailed open pit design, 2016 year-end topography and a year-end 2016 updated block model. The grades from the block model are restricted by a calculated cut-off grade for a silver equivalent grade (AgEq) of 0.49 opt AgEq.

Mining rates are primarily driven by crusher capabilities that are based on their physical configuration and environmental permit limits.

An average slope angle of 52.4° was selected for use in the optimized Whittle™ open pits; however, the detailed designs use slope angles appropriate to the geotechnical domains identified in the pits. Mining phases within stockpile material are designed with a slope angle of 37.0°.

A 3% dilution factor was used in the optimization runs on which the detailed pit design and mine plan is based. Due to the disseminated nature of the deposit, the margins

around the orebody are mineralized waste, reducing the impacts of dilution during mining. In situ moisture content runs 3-5% and fill material averages 5%. Reserve tonnages are reported as dry bank tons.

Metal price guidance for Mineral Reserve estimates was $1,250 per gold ounce and $17.50 per silver ounce.

Mineral Reserve estimates are provided in Table 1.4.

Table 1.4. Proven and Probable Mineral Reserves – Rochester Mine Open Pit and Stockpiles, Effective December 31, 2016 (Coeur, 2016)

Reserve	Category	Tons	Average Grade (oz/ton)		Contained Ounces	
			Au	Ag	Au	Ag
Rochester Open Pit	**Proven**	116,397,000	0.004	0.47	439,000	55,132,000
	Probable	95,077,000	0.003	0.43	287,000	40,878,000
Rochester Stockpiles	**Proven**	27,289,000	.002	0.49	64,000	13,237,000
	Probable	6,041,000	0.002	0.46	13,000	2,798,000
Total Mineral Reserves	**Proven**	143,686,000	0.004	0.48	503,000	68,369,000
	Probable	101,118,000	0.003	0.43	300,000	43,676,000
	Total	**244,804,000**	**0.003**	**0.46**	**803,000**	**112,045,000**

Notes:

1. Mineral Reserves are contained within Measured and Indicated pit designs, or in stockpiles, and are supported by a mine plan, featuring variable throughput rates, stockpiling and cut-off optimization. The mine plan designs incorporate variable open pit slope angles that over the pit life average approximately 52.4º; variable metallurgical recoveries depending on material processed, including gold recoveries for crushed and ROM ore of 92% and 70% respectively; silver recoveries for crushed and ROM ore of 61% and 20% respectively; sulfide ore recoveries are 60% for gold and 61% for silver; mining costs of $1.36/ton; crushing and process costs of $3.23/ton; G&A costs of $0.55/ton; and, metal prices of $1,250/oz for gold and $17.50/oz for silver.
2. The AgEq cut-off grade equals 0.49 opt and the gold multiplier equals 109. The gold multiplying factor for silver equivalent is based on: [($Price Au-$Refining Au) / ($Price Ag-$Refining Ag)] x [(%Recovery Au)/(%Recovery Ag)].
3. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade, and contained metal content.
4. The QP for the estimate is Greg Robinson, P.E., a Coeur Rochester employee. The estimate has an effective date of December 31, 2016.

1.8 Mining Methods

Since 1986, mining at Rochester has been by conventional open pit drill and blast within the in situ material only, and truck and loader methods used in both in situ mining and stockpile mining, and is currently at planned capacity. Operations at Rochester consist of mining from in situ and stockpiled open pit sources.

In 2016, Coeur completed a Life of Mine (LOM) planning project for the Rochester resource. Coeur used Geovia® GEMS software to complete several optimization runs and developed several detailed pit phases and mining schedules. An economic

sensitivity analysis was run on the pit designs and mining schedule. Coeur designed five phases and the mining schedule to go with the detailed pit designs. The mine engineers used the pit designs to guide short and long range planning. The LOM pit created by Coeur is used as the ultimate pit for the site.

1.9 Recovery Method

Mined material is either:

- Fed directly into the primary crusher dump pocket;
- Crushed at an in-pit crusher system; or
- Placed directly onto a heap leach pad for run-of-mine (ROM) processing.

The Rochester crushing circuits are comprised of three stages of crushing to produce a nominal 3/8-inch passing product of ore. Crushed material or ROM ore is placed on heap leach pads, and cyanide heap leaching is used to extract silver and gold from mineralized ore. Metal laden pregnant solution is then collected from a drain system and Merrill-Crowe processing is utilized to recover the precious metal doré. Doré is shipped to a refiner.

1.10 Project Infrastructure

The Rochester property is accessed by a three mile long arterial branch of the Unionville-Lovelock County road. This arterial branch leaves the Unionville-Lovelock County Road nine miles from where the county road converges with I-80 at the Oreana-Rochester exit. The Oreana-Rochester exit is 13 miles northeast of Lovelock. Active mining and processing areas are fenced to maintain perimeter safety and security. Gates with locks are used on all tertiary roads that have access on and off the site. The mine is fully supported with electricity, telephone and radio communications. On-site infrastructure includes production water wells, offices, maintenance facilities, warehouse and various ancillary facilities, open pit mining areas, waste dumps, crushing and conveying facilities, four lined heap leach pads and a process facility.

1.11 Marketing

Refined precious metals products are sold by the refineries, which receive Rochester doré on the open market, to a variety of buyers in a number of different industries. All purchases and sales of metal or metal bearing material must be executed by an officer of the Company.

1.12 Environmental, Permitting and Social Considerations

The Rochester Mine has been in operation since 1986 and Coeur Rochester has obtained all necessary environmental permits and licenses from the appropriate state and federal agencies for the open pit mines, heap leach pads and all necessary support facilities. Operational standards and best management practices have been established to maintain compliance with applicable state and federal regulatory standards and permits.

Prior to 2016, the most recent significant heap leach pad expansion (Stage III) was approved by the Bureau of Land Management (BLM) in October 2010, with phased pad construction, which was substantially completed in 2014. Minor amendments (Stage III Buttress) to the current permits were proposed and approved in 2013, which added capacity to the Stage III heap leach pad. Phase I of the buttress was constructed in 2013 and Phase II was constructed in 2015. An approval to increase the height of the Stage III to 400 ft. was obtained from the BLM in 2015, bringing the total pad capacity to 84 million tons.

In June 2013, Coeur Rochester submitted a Plan of Operations Amendment 10 (POA 10) to the BLM and Nevada Division of Environmental Protection (NDEP) for an expansion of the Stage IV heap leach pad, construction of an additional heap leach pad (Stage V), and additional supporting facilities.

BLM issued a Record of Decision (ROD) on June 30, 2016, approving POA 10, which will extend the current mine life from five to seven years. Construction began on POA 10 in 2016, with initial placement of ore on the expanded Stage IV heap leach pad, expected in late 2017.

The existing heap leach pads hold sufficient total capacity for operations to continue through late 2023. There are a number of viable options for adding capacity beyond that and Coeur is in the process of obtaining permits for additional mining, leach pad capacity, and ore processing, which are expected to be received by mid-2021. This expanded capacity is anticipated to further extend Rochester's active mine life, based on existing Mineral Reserves, through 2029.

Coeur Rochester currently enjoys a positive relationship with local communities. A majority of the workforce is local to the area and mining is a historically important activity in rural Nevada. Coeur Rochester continues to support local businesses and expects continued strong community support during permit actions or other activities influenced by public opinion.

1.13 Capital and Operating Cost Estimates

Capital and operating cost estimates are based on execution of the current mine plans outlined in this Report. Capital expenditures for the LOM for Rochester are estimated at $387,000,000 from January 1, 2017 through the end of the mine life. Capital costs are based on planned heap leach expansions and infrastructure improvements through the LOM.

Rochester is an operating mine and actual realized costs form the basis for the unit costs used for yearly and LOM budgeting and Project cost estimates. The operating cost assumptions, metal prices, and process plant recoveries used for estimating reserves at Rochester are summarized in Table 1.5.

Table 1.5. Rochester Operating Cost, Recovery and Cut-off Grade Estimate (Coeur, 2016)

Item	Unit	Value
Mineralized Material Mining	$/ton mined	1.36
Waste Mining	$/ton mined	1.42
Crushing and Processing	$/ton ore	3.23
G&A	$/ton ore	0.55
Cut-off Grade	oz/t AgEq	0.49
Gold Price	$/oz	1,250
Silver Price	$/oz	17.50
Metallurgical Recovery - Gold	%	92.0%
Metallurgical Recovery - Silver	%	61.0%

1.14 Economic Analysis

Rochester Mineral Reserves are believed to be viable based on the economic analysis of the Project LOM tons and grade, and the projected costs and revenues for the Project. Project economic models are estimated to return a pre-tax Net Present Value (NPV) of $223,000,000 at an 8% discount rate, and generate a pre-tax net cash flow (after net proceeds tax of 5%) of $431,000,000 over the remaining life of the Project, based on the design and operational parameters contained in this Report. Metal prices of $17.50/oz silver and $1,250/oz gold were used to calculate revenues based on metal sales. The LOM economics are provided in Table 1.6.

Table 1.6. Life of Mine Economic Analysis (Coeur, 2016)

Mine Production/Crushing/Processing		
Mineralized Material Tons	Tons (x1,000)	244,804
Mineralized Material Au Grade	opt Au	0.003
Mineralized Material Ag Grade	opt Ag	0.46
Metallurgical Recovery Au	%	92.0%
Metallurgical Recovery Ag	%	61.0%
Revenue		
Gold Price	$/oz	1,250
Silver Price	$/oz	17.50
Gross Revenue	$M	$2,225
Operating Costs		
Mining	$M	($549)
Crushing/Processing	$M	($613)
Smelting and Refining	$M	($20)
G & A	$M	($135)
Corporate Management Fee	$M	($35)
Net Proceeds Tax	$M	($43)
Royalties[1]	$M	$0
Total Operating Cost	**$M**	**($1,394)**
Cash Flow		
Operating Cash Flow	$M	$831
Capital	$M	($387)
Royalties and others	$M	($12)
Total Pre-Tax Cash Flow	**$M**	**$431**
Project Pre-Tax NPV (8% discount rate)	**$M**	**$223**

[1] See Royalties in Section 4

1.15 Sensitivity Analysis

Sensitivity analyses were conducted on four factors that are known to influence the Project economics: metal prices, ore grade, operating costs, and capital costs. Of these, three can be impacted by the operator: ore grade, operating costs, and capital costs. Coeur established a base case silver price of $17.50/oz and gold at $1,250/oz for the LOM that were used for comparison. The pre-tax net cash flow is most sensitive to metal price and grade, followed by operating cost, and capital costs. The results are shown in Table 1.7.

Table 1.7. Sensitivity of Project Performance to Changes in Gold and Silver Price and Grades, Operating Costs, and Capital Costs (Coeur, 2016)

Gold Price ($/oz)	Silver Price ($/oz)	Pre-Tax Net Present Value ($M)						
		Metal Price Only	+10% Grade	-10% Grade	+10% op cost	-10% op cost	+10% cap cost	-10% cap cost
$1,000	$14.00	($48.90)	$58.63	($156.44)	($138.91)	$41.10	($77.09)	($20.71)
$1,125	$15.75	$87.01	$208.14	($34.12)	($3.70)	$177.73	$58.82	$115.20
$1,250	**$17.50**	**$222.93**	**$357.65**	**$88.21**	**$131.50**	**$314.36**	**$194.74**	**$251.12**
$1,375	$19.25	$358.84	$507.16	$210.53	$266.70	$450.99	$330.65	$387.03
$1,500	$21.00	$494.76	$656.66	$332.85	$401.90	$587.62	$466.57	$522.95
$1,625	$22.75	$630.67	$806.17	$455.18	$537.10	$724.25	$602.49	$658.86

1.16 Conclusions

Coeur Rochester is an established operation with a long history to support the continued operations.

1.16.1 Mineral Resources and Mineral Reserves

The LOM schedule was based on proven and probable reserves, using only the year-end 2016 Mineral Resource model. Using this new model resulted in a gain of approximately 94 million tons of mineralized material from previous LOM schedules. This gain is due primarily to a large conversion of Mineral Resources based on additional exploration drill holes included in the model; an infill drilling program that reclassified Inferred mineralized material to either Measured or Indicated; and an actual and sustained reduction in operating costs, which resulted in a lower cut-off grade. Additionally, the revised pit designs targeted areas of recent exploration drilling, which were not included in previous models.

1.16.2 Economic Analysis

Rochester is an operating mine that has demonstrated positive cash flow. The financial analysis and associated assumptions conducted for this Report support the conclusion that the Rochester Mine is expected to continue to be profitable and generate acceptable returns over its remaining life.

1.17 Recommendations

The QPs for this Report have reviewed the Project data, drill hole database and production data. The QPs believe that the data presented by Coeur Rochester are generally an accurate and reasonable representation of the mineral Project and

adequately support the Mineral Resource and Mineral Reserve estimates reported herein. The QPs make the following recommendations:

1.17.1 Exploration

Verification of the 2016 sulfide model should be completed over the next three years, with wide-spaced drilling in the central portion of the pit, starting with 800 ft. spacing and decreasing to 400 ft. spacing, as needed. Estimated cost is $350,000.

Work should be continued to incorporate all known drilling into the acQuire® database and incorporate all relevant collar information, allowing for consistent querying and collation of the dataset. The data entry program entails research through historical documentation and data entry. Estimated cost is $30,000.

Based on review of current sampling practices and analysis of reconciliation results, further work should be conducted to determine the best sampling methodology with regards to RC drill sample collection. Sampling studies should include sample size analysis, alternative drilling methods that would allow dry sample collection, and close monitoring of sampling at the rig by trained geologists. A suggested course of action to undertake the study would be to have a trained geologist review drilling in various geologic areas with varying flows of water produced during drilling and duplicate sampling. A minimum of 3 DDH twins of existing RC drill holes should also be drilled in the East Rochester area to test RC sample results within the water table. Estimated program cost is $250,000.

While current standards utilized at Rochester are acceptable to support resource estimation, a study should be conducted to determine if standards specific to the geology of the deposit should be developed for future use.

To substantiate historical drilling in the Limerick area, twinning existing drill holes is recommended. While assays cannot be reviewed against original certificates for certain historical drill holes, they have been verified in cross-section, with surrounding drilling from more recent campaigns and geology. Mineralized intervals appear to be in the correct location and of reasonable length. A minimum of two drill holes (each 200 ft.) should be twinned at an approximate cost of $30,000.

1.17.2 Operations

It is recommended to continue running and refining quarterly and annual reconciliation (tons, grade, and metal) of mine production to resource block model to ensure that variances are within historically acceptable ranges (±10 percent variance) (including provision for corrective action for variance outside of acceptable ranges); and the

indicator values chosen during modeling are still valid, given the increased metal prices and subsequent lower cut-off grades.

Currently, in-house metallurgical testing continues to further refine metal recovery rates and ultimate recovery values; studies are ongoing. Additional test work will provide better understanding of process optimization, potential cost reduction, increased crusher throughput, and engineering support for future operational planning.

2. INTRODUCTION

2.1 Terms of Reference

This Report was prepared for Coeur by, or under the supervision of, the QPs for Coeur. The purpose of this Report is to:

- Update the Mineral Resources and Mineral Reserve estimates;
- Update the capital and operating cost estimates; and
- Update the financial estimate for the Rochester Mine.

This Report was prepared in compliance with NI 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and Form NI 43-101F1. The operating entity of the Project is Coeur Rochester, a wholly-owned subsidiary of Coeur.

2.2 Qualified Persons

This Report was prepared by Coeur and Coeur Rochester employees and consultants. The following individuals, by virtue of their education, experience, and professional association(s), serve as the QPs for this Report, as defined in National Instrument (NI) 43-101. Table 2.1 lists the QPs and the sections each individual is responsible for in this Report.

Table 2.1. Qualified Person Responsibilities – Coeur Rochester (Coeur, 2016)

Qualified Person	Registration	Title/Company	Sections of Responsibility
Gregory D. Robinson	P.E.	Assistant General Manager Coeur Rochester	1*, 2*, 3, 4, 5, 6, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25*, 26*, 27*
Kelly B. Lippoth	CPG AIPG	Senior Resource Geologist Coeur Rochester	1*, 2*, 12, 14, 25*, 26*, 27*
Raul Mondragon	RM SME	Director, Metallurgy Coeur Mining, Inc.	1*,13,17, 25*, 26*, 27*
Paul W. Hohbach	CPG AIPG	Professional Geologist Paul Hohbach & Associates	1*, 7, 8, 9,10,11, 25*, 26*, 27*

*Indicates some portions of this section have been prepared or reviewed by multiple QPs.

2.3 Site Visits and Scope of Personal Inspection

Gregory D. Robinson and Kelly B. Lippoth are employed directly by Coeur Rochester and work regularly at the site. Raul Mondragon is employed directly by Coeur and works at the Corporate office. Contributors to this Report are senior members of Coeur's

Corporate and technical staff and consultants retained to assist in preparing certain portions of the Report.

- Gregory Robinson has worked for Coeur Rochester since 2013 in the position of Assistant General Manager. Mr. Robinson works regularly at the mine site, where he oversees Technical Services and operations. Prior to this position, he was a Surface Engineering Superintendent for Coeur from 2011 to 2013 and worked on various engineering projects for the Company. As the Assistant General Manager of Coeur Rochester and a QP, Mr. Robinson is responsible for the overall information presented in this Report.
- Kelly Lippoth has worked for Coeur Rochester since 2013 in the position of Senior Resource Geologist. She works regularly at the mine site, where she conducts resource estimation and geologic data review. Prior to this position, she worked for Coeur from 2006-2013 as the Senior Geologic Database Administrator and Senior Resource Geologist on a number of projects.
- Raul Mondragon has worked for Coeur for the last four years in the position of Director of Metallurgy. Mr. Mondragon's most recent site visit was March 3 to March 6, 2015, where he reviewed processing parameters and metallurgical test work results.
- Paul W. Hohbach is currently an independent consultant. Mr. Hohbach has over 30 years of experience in the mining industry and mineral exploration. Mr. Hohbach was employed by Coeur as an exploration geologist from August 2012 to December 2014. Mr. Hohbach's most recent site visit was October 5, 2015.

2.4 Effective Dates

The following effective dates are applicable to the information provided in this Report:

- The effective date of Rochester in situ drilling used in Mineral Resource estimation is November 1, 2016.
- The effective date of the Rochester South stockpile material drilling used in Mineral Resource estimation is December 11, 2013.
- The effective date of Rochester North and West stockpile material drilling used in Mineral Resource estimation is November 21, 2013.
- The effective date of the Nevada Packard stockpile material drilling used in Mineral Resource estimation is October 30, 2013.
- The effective date of the Nevada Packard drilling used in Mineral Resource estimation is March 30, 2016.

- Date of latest information on mineral tenure, surface rights, and Project ownership is December 31, 2016.
- The effective date of the LOM Plan is December 31, 2016.
- The effective date of the financial analysis is December 31, 2016.
- The effective date of the Mineral Resource and Mineral Reserve estimates is December 31, 2016;
- The Report filing date is February 8, 2017.

2.5 Information Sources and References

Coeur Rochester has used internal reports and spreadsheets to support regulatory filings and this Report. Coeur Rochester has also used the information and references cited in Section 27 as the basis for the Report. Additional information on the operations was provided to the QPs from other Coeur employees in specialist discipline areas.

All figures have been prepared by Coeur Rochester, unless otherwise noted. Monetary figures are in U.S. dollars, and measurements are presented as U.S. standard units, unless otherwise indicated.

2.6 Previous Technical Reports

Previous technical reports filed for the Rochester Mine include:

- Coeur Mining, Inc., 2014. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report, filed February 18, 2015. Prepared by Coeur Rochester.
- Coeur Mining, Inc., 2013. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report, filed February 21, 2014. Prepared by Coeur Rochester.
- Coeur Mining, Inc. and Zachary Black, Gustavson Associates, LLC, 2013. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report, filed September 16, 2013. Prepared by Coeur Rochester and Gustavson Associates.
- Coeur d' Alene Mines Corp., Reserva International and Zachary Black, Gustavson Associates, 2012. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report, effective January 1, 2013. Prepared by Coeur Rochester.
- Coeur d' Alene Mines Corp., 2010. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report, effective January 1, 2011. Prepared by Coeur Rochester.

- Coeur d' Alene Mines Corp., 2009. Rochester Mine, Lovelock Nevada, USA, NI 43-101 Technical Report effective January 1, 2010. Prepared by Coeur Rochester.

2.7 Units

All units are U.S. standard, unless otherwise specified.

3. RELIANCE ON OTHER EXPERTS

This section is not relevant to the Report. Input was sourced from Coeur experts, as applicable, to the appropriate Report sections.

4. PROPERTY DESCRIPTION AND LOCATION

4.1 Project Description and Location

The Rochester property is located in the Humboldt Range of northwestern Nevada, approximately 13 miles east of Interstate 80 from the Oreana-Rochester exit, and 18 miles northeast of the city of Lovelock in Pershing County, Nevada (Figure 4.1).

The Rochester Property Package is located in the Rochester Mining District, inside the Lovelock Quadrangle (402455.3704mE, 4459888.6329mN) in the Universal Transverse Mercator (NAD 83), Zone 11T (Northern Hemisphere) (40˚17'02"N latitude, 118˚08'51"W longitude), and is situated, either wholly or partially, in the following sections within the Mount Diablo Base and Meridian (MDBM), Pershing County, Nevada:

- Township 27 North, Range 34 East: Sections 02, 03, 04, 05, 10, 11, and 12;
- Township 27 North, Range 33 East: Section 1;
- Township 28 North, Range 33 East: Sections 36; and
- Township 28 North, Range 34 East: Sections 02, 03, 04, 05, 07, 08, 09, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.

4.2 Land Tenure

Effective December 31, 2016, the Rochester Property Package comprises 16,334 net acres, which encompasses 734 federal unpatented lode claims, appropriating 11,075 net acres of public land; 21 patented lode claims, consisting of 357 acres; and, interests owned in 4,633 gross acres of additional real property and certain rights in and to 269 acres, held either through lease, letter agreement or license; all of which is controlled by Coeur Rochester. A schedule of the Rochester Property Package is provided in Section 29.1. The area described includes the Rochester and Nevada Packard surface mining operation areas, the ore-processing facility located east of the current Rochester Mine, ancillary facilities, and all dumps and stockpiles.

Figure 4.1 through Figure 4.4 depict the Rochester Property Package.

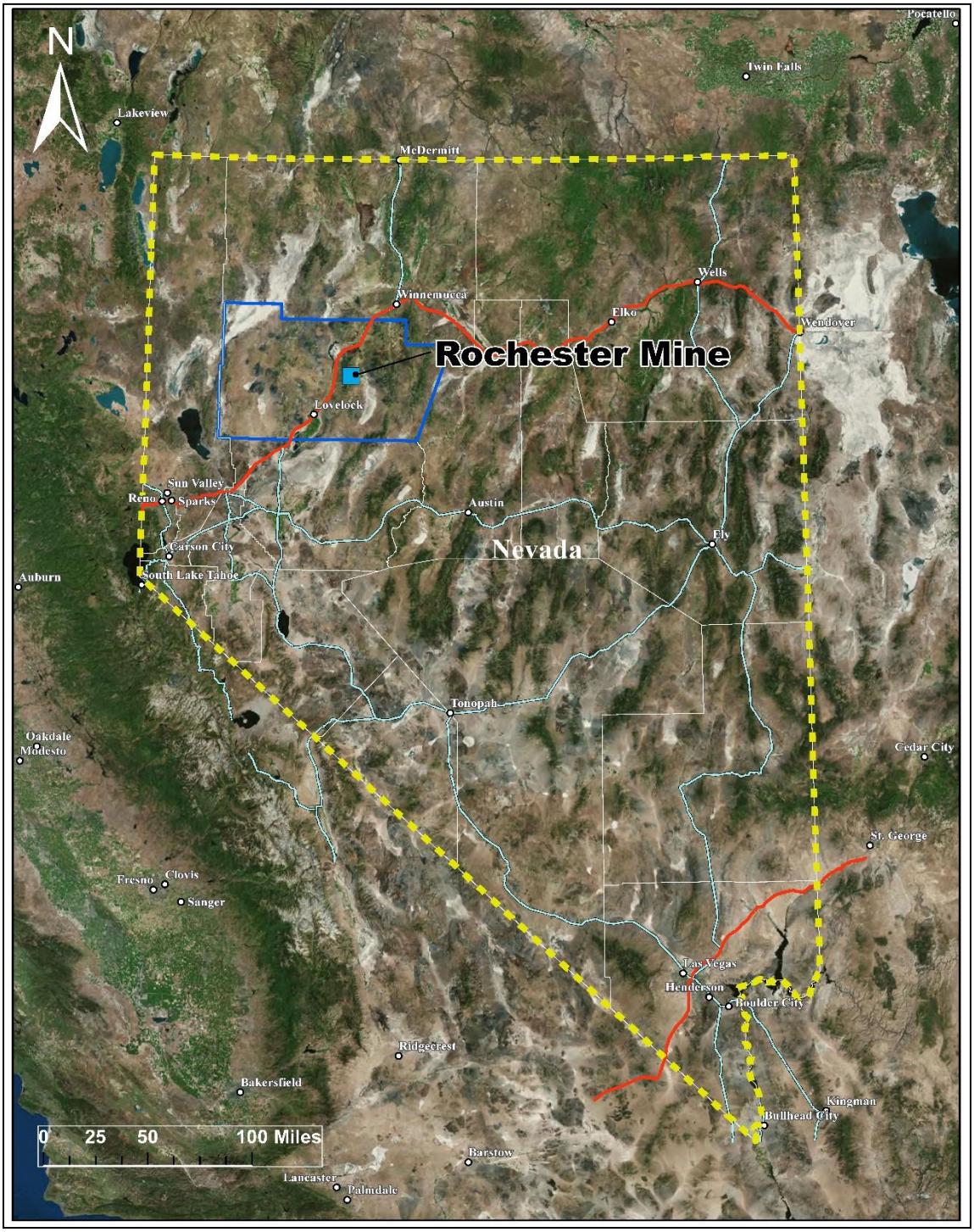

Figure 4.1. General Project Location (Coeur, 2016)

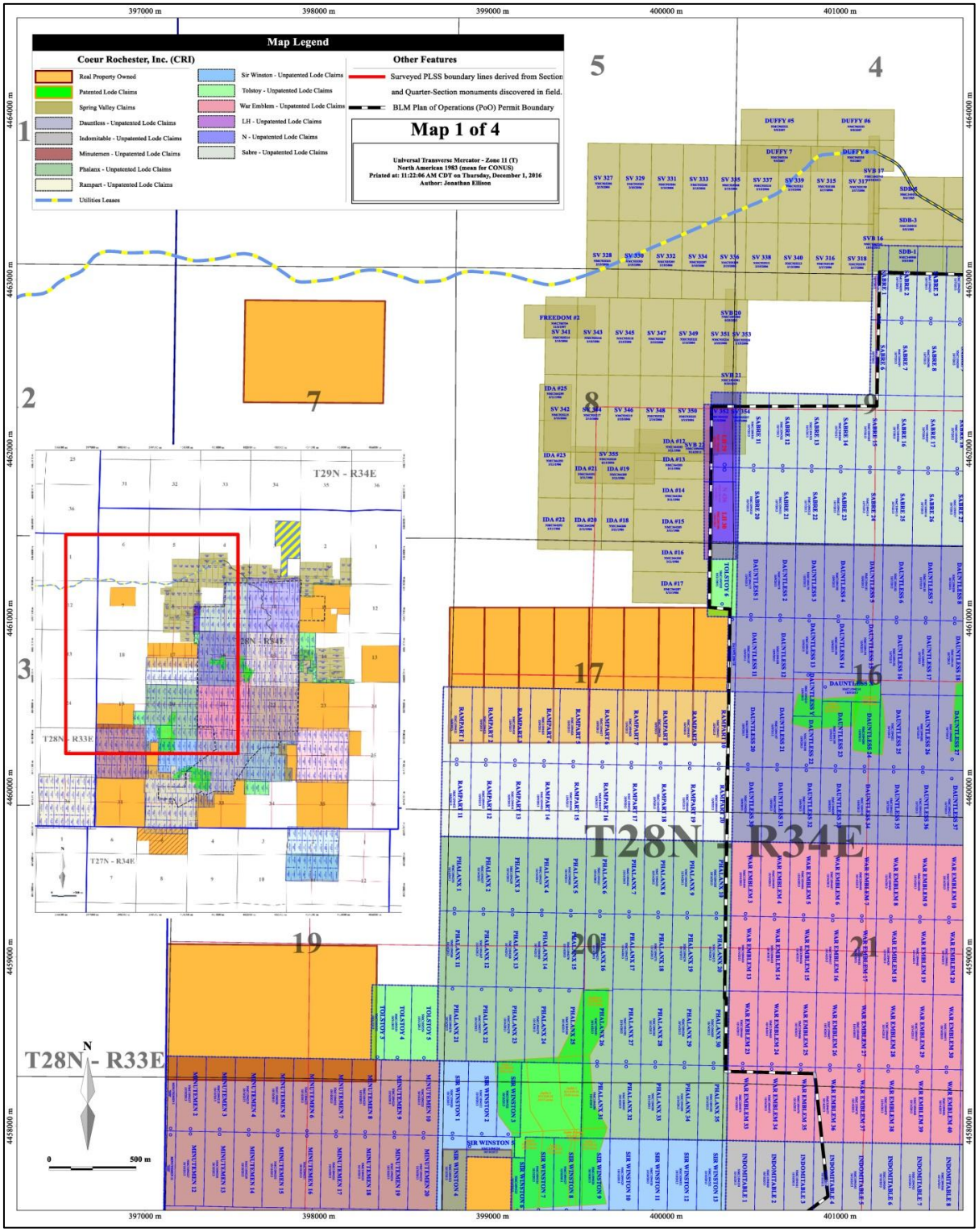

Figure 4.2. Coeur Rochester Land Control Map – Map 1 of 4 (Coeur, 2016)

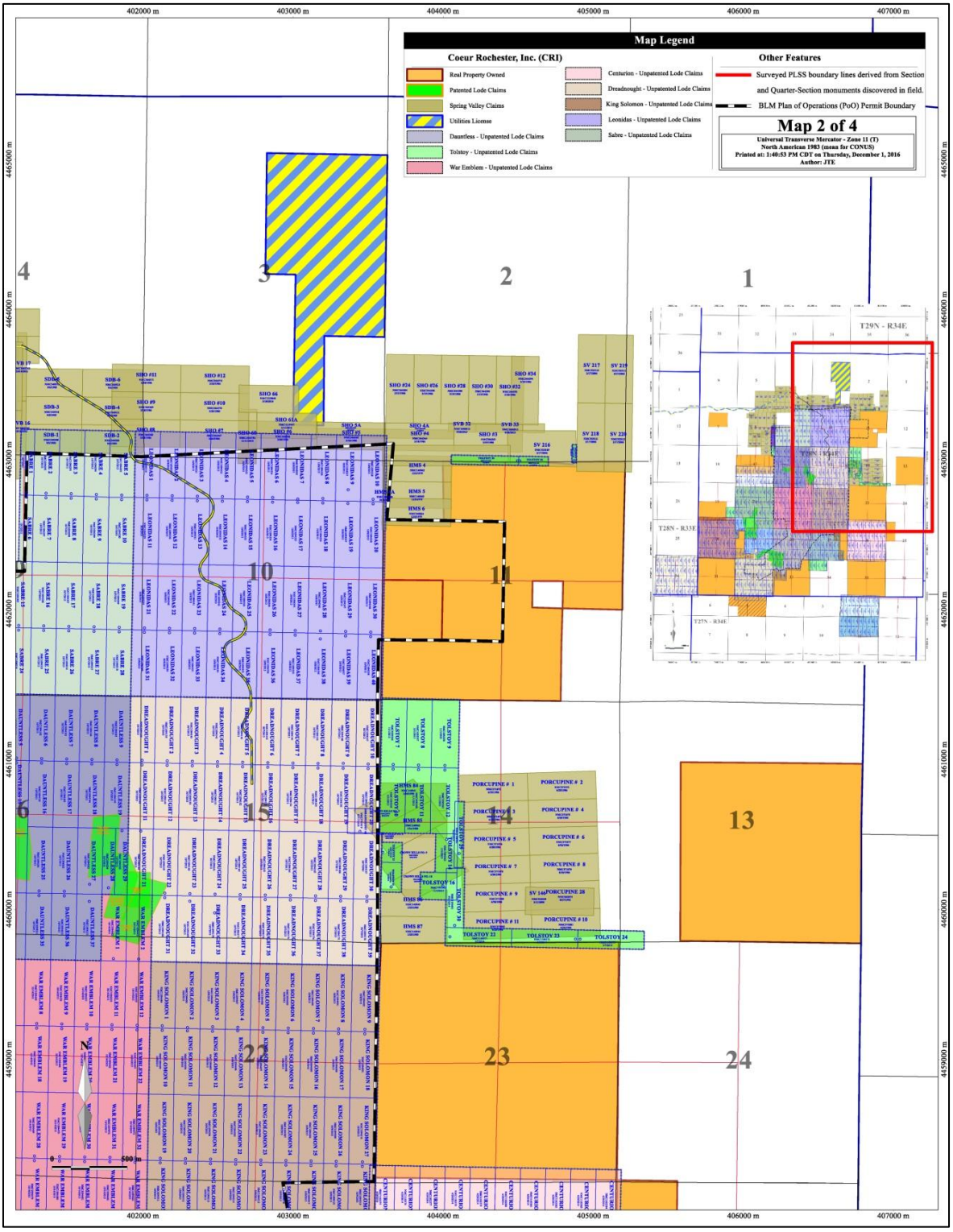

Figure 4.3. Coeur Rochester Land Control Map – Map 2 of 4 (Coeur, 2016)

Figure 4.4. Coeur Rochester Land Control Map – Map 3 of 4 (Coeur, 2016)

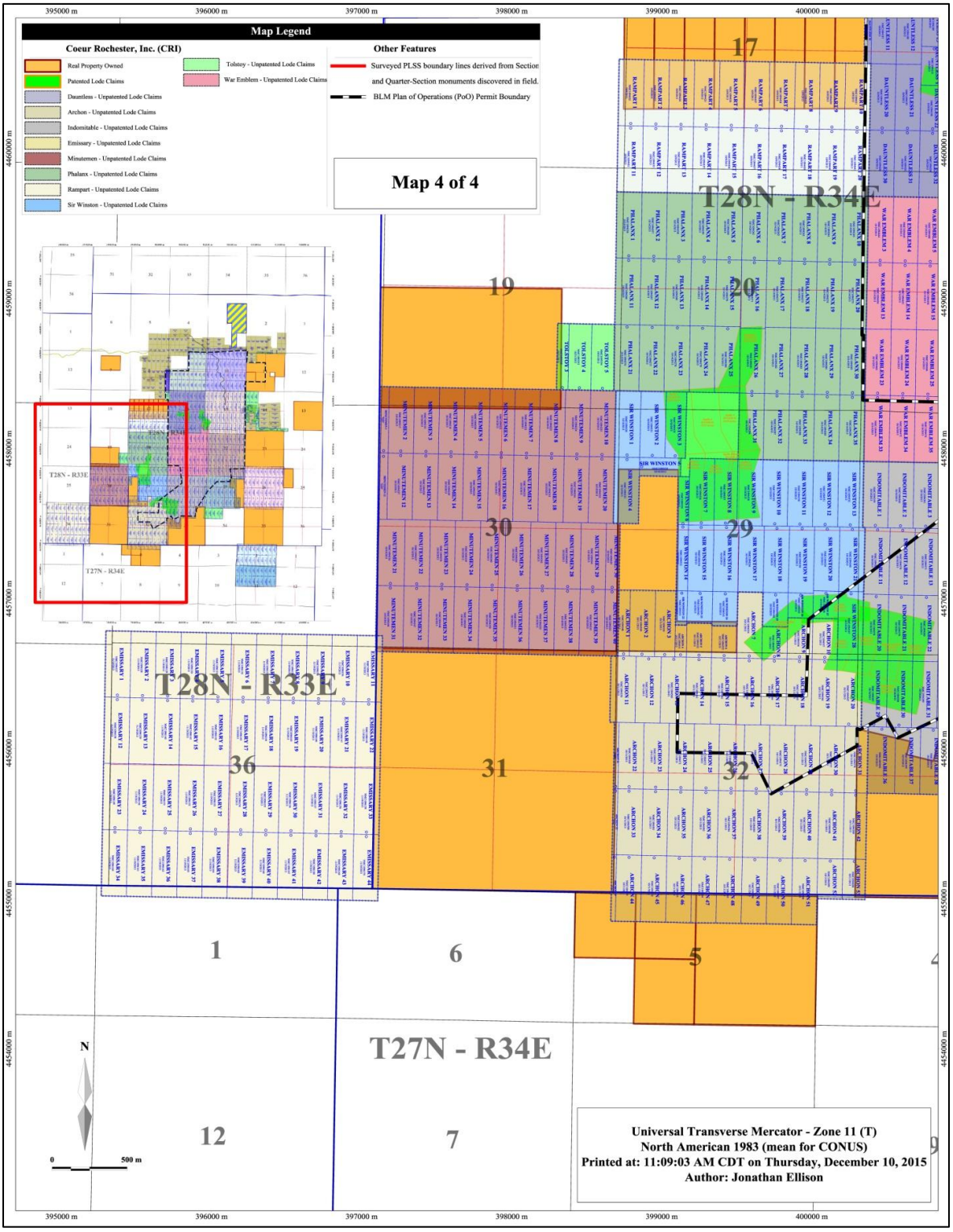

Figure 4.5. Coeur Rochester Land Control Map – Map 4 of 4 (Coeur, 2015)

The federal unpatented lode claims are maintained by the timely annual payment of claim maintenance fees, which are $155.00 per claim, payable to the U.S. Department of the Interior, Bureau of Land Management (BLM), on or before September 1. Should the annual claim maintenance fee not be paid by that time, the unpatented lode claim(s) are, by operation of law, rendered forfeited. As of the effective date of this Report, all such payments were up to date.

The patented lode claims are private land, and therefore, not subject to federal claim maintenance requirements. However, as private land, they, and Coeur Rochester's additional real property, are subject to ad valorem property taxes assessed by Pershing County, Nevada, which are due annually on the third Monday of August. As of the effective date of this Report, all payments were up to date.

4.3 Leases, Letter Agreements, Licenses, and and Grants

a) A Road Maintenance Agreement dated January 3, 2011 by and between Pershing County, Nevada and Coeur Rochester (the "Agreement"), whereby the parties shall be responsible for general road maintenance of county roadway Limerick Canyon Road from Oreana to the Rochester mine site. The segment of the road that is subject to the Agreement comprises approximately 13 miles. Under the terms of the Agreement, which does not contain an expiration date, Pershing County shall use its equipment, materials, and personnel to maintain and repair the road. Coeur Rochester shall defray one-half of the costs of the materials used for maintaining and repairing the road, annually. In addition, Pershing County shall supply Coeur Rochester with sand and salt for snow removal, and Coeur Rochester shall be responsible for the personnel and equipment as well as removing snow and ice from the segment of the road that is subject to this Agreement. As of the effective date of the Report, all payments were up to date.

b) A Letter Agreement (the "Letter Agreement") by and between a predecessor in interest to Newmont Mining Corporation ("Newmont") and Coeur Rochester, dated August 6, 1992, as amended April 26, 2010, providing Coeur Rochester certain rights in and to approximately 20 acres and located in S11-T28N-R34E MDBM. The Letter Agreement expires on June 1, 2020, unless further amended or extended by mutual consent of the parties. Coeur Rochester pays $1,000.00 annually, as required under the Letter Agreement, to Newmont. As of the effective date of the Report, all payments were up to date.

c) A nonexclusive pipeline, electric power line, and telephone line license granted by a predecessor in interest to Nevada Land and Resource Company, LLC. (the "Licensor") to Coeur, February 14, 1986 (the "License"), over and across approximately 250 acres, and located in S3-T28N-R34E MDBM. The License has a

term of one year and may be renewed annually, subject to all its provisions, and subject to the consent of the parties thereto and the acceptance by Licensor of the annual License fee, which was $2,782.17 for the 2016 term, must be paid in advance on or before each anniversary date of the effective date of this License, and upon expiration of each annual term, the Licensor shall have the right to increase the amount of the License fee for the next succeeding term. In addition, Coeur shall pay to Licensor, upon receipt of an annual billing, an amount equal to the annual state and county ad valorem taxes levied upon and assessed against said 250 acres, more or less.

d) A Right-Of-Way Grant ("RoW #1"), with a term of thirty (30) years, was conveyed unto Coeur Rochester, as assigned, December 6, 1985, by the BLM, and was amended in 2016 to remove sections of land that were included in the Plan of Operations boundary as well as renew RoW #1 for an additional twenty (20) years. The surface area of RoW#1 approximately 3,696 ft. in length and 40' wide, encompassing approximately 3.41 acres, all within, over, and through S4-T28N-R34E MDBM. The annual rental for the 2016 term paid by Coeur Rochester to the BLM was $603.15. The annual rental may be adjusted, whenever necessary, to place the charges on the basis of fair market value of uses authorized by RoW #1.

e) A Right-of-Way Grant RoW #2, with a term of thirty (30) years, was conveyed unto Coeur Rochester, June 15, 1989 by the BLM, the surface area of which is approximately 0.459 acres, located in S18-T27N-R31E MDBM. The annual rental for the 2016 term, paid by Coeur Rochester to the BLM, was $2,352.32. The annual rental may be adjusted, whenever necessary, to reflect changes in the fair market rental value, as determined by the application of sound business management principles, and so far as practicable and feasible in accordance with comparable commercial practices. RoW #2 expires June 14, 2019 and may be renewed. If renewed, the RoW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

f) An Exploration Agreement with Option to Purchase (the "Exploration Agreement") by and between Newmont USA Limited and Coeur Rochester, effective August 11, 2015, providing Coeur Rochester certain rights in and to approximately 1,162.85 acres in Sections 11, 27, and 33 of T28N-R34E MDBM, Pershing County, Nevada. This Exploration Agreement grants Coeur the exclusive right to prospect and explore for minerals on the Property and has a term of 10 years from the anniversary of the effective date of the Agreement. A Memorandum of Exploration Agreement with Option to Purchase is duly recorded in Document #492997, in the Pershing County Nevada Recorder's Office.

g) A Non-Exclusive Right-of-Way Easement ("RoW #3"), granted by Coeur Rochester, unto Barrick Gold Exploration, Inc. ("Barrick"), effective December 16, 2015, providing Barrick certain non-exclusive rights in and to those properties more particularly described in Exhibit "A" and Exhibit "C" of that certain Easement Agreement duly recorded in Document #494075 of the Pershing County, Nevada Recorder's Office. RoW #3 remains in effect until Barrick obtains from the BLM a right-of-way allowing Barrick's use of the Property or ten (10) years from and after the date of this Agreement, whichever comes first. If the BLM Right-of-Way is so obtained, the RoW shall continue in effect for so long as the BLM Right-of-Way continues in effect.

h) A Non-Exclusive Right-of-Way Easement ("RoW #4"), granted by New Nevada Lands, LLC ("NNL") unto Coeur Rochestereffective as of December 7, 2016, over and across existing roads within the NW/4 of Section 9, Township 28 North, Range 34 East, with an indefinite term subject to annual rental fees of $5,200.00 due on or before the anniversary date of the Agreement. As of the effective date of the Report, all payments were up to date.

Coeur Rochester has located new federal unpatented lode claims on grounds previously covered by those that were subject to lease agreements. Coeur Rochester has continued to pay lease fees to the lessors according to the rates set forth in the lease agreements. Coeur Rochester is not currently mining on any of these new claims; instead it uses the property primarily to facilitate access to other portions of the Rochester Property Package and to provide space for infrastructure.

4.4 Royalty Interest, Credit Agreement

a) Pursuant to an Agreement of Sale, Assignment and Purchase, dated November 30, 1983, by and between ASARCO Incorporated ("ASARCO") and Coeur, an overriding royalty is payable to ASARCO, quarterly, on all ores, concentrates, metals, or other valuable mineral products produced and sold from part of the Property (portions of federal unpatented lode claims and patented lode claims located within Township 28 North, Range 34 East M.D.B.&M., Sections: portions of S ½ of S ½ of S ½ of 03; portions of S ½ of S ½ of SE ¼ of 04 E ½, E ½ of SW ¼, of 09, 10, NW ¼; portions of SE ¼ of NW ¼ and W ½ of SW ¼, 15, E ¾, NW ¼ of SW ¼ of 16, NE ¼, E ½ of NW ¼; portions of N ½ of S ½ of 21, and N ¾ of 22), and shall be calculated as a percentage of net amounts paid by any smelter, refinery, or other buyer of said products after deduction of usual and customary charges and freight and insurance charges from the property to buyer's plant. The overriding royalty varies according to the "Adjusted Price of Silver", as defined in the agreement and shown in Table 4.1.

If, for any calendar year in which a royalty is payable, the cash flow (defined as net earnings before tax plus depreciation and depletion, less capital expenditures, determined in accordance with generally accepted accounting principles) from operation of the property is negative, then the royalty, which otherwise would be payable to ASARCO, shall be limited to a maximum amount for the year of $250,000.

Table 4.1. ASARCO Overriding Royalty Adjustments (Coeur, 2016)

Adjusted Price of Silver	Percent Royalty
Under $12.00 per Troy ounce	None
$12.00 to $13.99 per Troy ounce	1.0% of Net Returns
$14.00 to $14.99 per Troy ounce	1.5% of Net Returns
$15.00 to $15.99 per Troy ounce	2.5% of Net Returns
$16.00 to $16.99 per Troy ounce	3.5% of Net Returns
$17.00 to $17.99 per Troy ounce	4.5% of Net Returns
$18.00 and over	5.0% of Net Returns

b) A Net Smelter Returns (NSR) Royalty Agreement (the "NSR Agreement") dated June 27, 2013, by and between Coeur Rochester and Rye Patch Gold Corp. (RPG), which is duly recorded in Book 494, Page 591 et seq., bearing Document # 484838, in the Pershing County, NV. Recorder's Office. Under this NSR Agreement, Coeur Rochester granted, sold, transferred, and conveyed unto RPG a 3.4% net smelter returns royalty (the "NSR") on up to 39.4 million silver equivalent ounces produced and sold from a portion of the Rochester Mine (including stockpile ore, mineral processing facilities and mining claims located in the Sections set forth in the NSR Agreement) commencing January 1, 2014, and payable in cash on a quarterly basis. For each calendar quarter, the NSR will be payable on the actual sales prices received at the time of sale (exclusive of gains or losses associated with trading activities), less refining costs, of gold and silver produced and sold from the Rochester Mine. Under the terms of the NSR Agreement, the NSR is transferable by RPG after January 1, 2014, but only to an unaffiliated royalty and streaming company. The NSR Agreement also provides that Coeur Rochester has a right of first refusal to acquire the NSR if RPG receives a bona fide proposal to acquire the NSR from a third party. The lands encumbered by the NSR Agreement are all: (i) Mineral processing facilities (mill, leach pads, crusher, ponds, and leachate recovery); (ii) stockpile ore; and (iii) the portions of Federal Unpatented Lode Claims and Patented Lode Claims located within Township 28 North, Range 34 East M.D.B.&M., Sections 09, 10, 15, 16, the E ½ of 20, 21, and 22.

c) An NSR royalty of 5.0% burdens the Canyon and Canyon No. 1 (M.S. 4158, Pat. 469396) patented lode claims, which was reserved by Gladys L. Nelsen A/K/A

Gladys N. Stice, Pamela M. Kilrain, and Maurice A. Nelsen, pursuant to that certain Grant, Bargain and Sale Deed, dated August 19, 1988 and duly recorded in the Pershing County, Nevada, Recorder's Office in Book 216, Page 286 et seq., bearing Document #167227. Coeur Rochester is not presently exploiting, and has no immediate plans to exploit, the mineral estates of these respective patented lode claims.

d) An NSR royalty of 2½% burdens the Joplin No. 1, Joplin No. 2, Joplin No. 3, Joplin No. 4, Joplin No. 5, Joplin No. 6, Joplin Fraction, and Baltimore (M.S. 4395, Pat. 886486) patented lode claims, which was reserved by L.E. Davis and wife, Anne C. Davis, pursuant to that certain Deed, dated August 10, 1956, and duly recorded in the Pershing County, Nevada, Recorder's Office in Book 17, Page 133 et seq., bearing Document #45502. Coeur Rochester is not presently exploiting, and has no immediate plans to exploit, the mineral estates of these respective patented lode claims.

e) An NSR royalty of 3.0% burdens the 101 Spring Valley unpatented lode claims, which was reserved by Midway Gold US Inc. and Barrick Gold Exploration Inc. pursuant to that certain Quitclaim Deed effective December 16, 2015 and duly recorded in the Pershing County, NV Recorder's Office in Document #494071, in the Pershing County, Nevada Recorder's Office.

4.5 Significant Factors and Risks

The QPs are of the opinion that:

- Information provided by Coeur's legal and tenure experts on the land and mineral tenure held by Coeur Rochester in the Rochester Property Package supports that the Company has valid title that is sufficient to support declaration of Mineral Resources and Mineral Reserves;
- To Coeur's knowledge, Coeur Rochester has all necessary permits to conduct operations as currently conducted and there are no environmental liabilities to which the Rochester Property Package is subject;
- Information provided by Coeur's legal and tenure experts supports that the Rochester Project holds sufficient surface rights to enable mining operations and the declaration of Mineral Resources and Mineral Reserves;
- Environmental liabilities for the operation are limited to those that would be expected to be associated with an operating silver and gold open pit mine, including roads, site infrastructure, and waste and tailings disposal facilities; and
- There are no other known significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The nearest town to the Rochester property is Lovelock, Nevada, which is located approximately 90 miles northeast of Reno, Nevada. Primary access to Rochester is by way of the Limerick Canyon Road from Interstate Highway 80 (I-80) at the Oreana-Rochester exit (Exit 119). Pershing County maintains the county road from I-80 to the cattle guard at the Limerick Canyon Summit/Spring Valley Pass. Coeur Rochester maintains, and will continue to maintain, the paved road from the Unionville road cut-off to the Project throughout the Project's active mine life and post-mining responsibility period under ROW N-042727. A detailed description of the Road Maintenance Agreement is discussed in Section 4.3.

5.2 Climate

The mine site climate is typical of north-central Nevada, with hot summers, cold winters, and low average annual precipitation occurring mostly in the winter and spring months, allowing for year-round mining operations.

Site-specific data have been intermittently collected since 1986. Climatic conditions, such as wind speed, wind direction, precipitation, solar radiation, barometric pressure, relative humidity, pan evaporation, and temperature are monitored continuously at an on-site meteorological station. A meteorological station was installed on top of the Stage I heap leach pad in 2000, and updated in 2010 to collect detailed climate data.

The mean annual precipitation (snow and rain) at the mine site is approximately 13.2 inches. The average monthly precipitation ranges between 0.63 and 1.42 inches. Most precipitation occurs from November through March, with nearly two inches per month during the wettest months (Coeur Rochester, 2016).

The average annual evapo-transpiration (ET) rate for the mine site was estimated by using the average pan evaporation rate from the nearest station (Rye Patch Reservoir, Western Regional Climate Center [WRCC], 1948-2005) of 59.4 inches per year (at an elevation of 4,160 ft. above mean sea level [AMSL]). The Rye Patch pan evaporation was adjusted for the mine-site elevation difference and distributed monthly on a proportional basis. An ET of 53.6 inches per year was derived corresponding to a site elevation of approximately 6,400 ft. AMSL (Coeur Rochester, 2016).

Average monthly temperatures range between 20.5 and 69.4 degrees Fahrenheit (°F). The warmest months are June through August (Coeur Rochester, 2016).

Storm precipitation information is obtained from the National Oceanic and Atmospheric Administration (NOAA), using the Project location latitude and longitude. Table 5.1 presents a range of storm precipitation frequencies and associated depths, including the 10, 25, 100, and 500 year return events (NOAA, 2015).

The design standard for process components is storage of the 25-year, 24-hour event and withstanding the 100-year, 24-hour event (NAC 445A.433). For closure, a 500-year, 24-hour storm event of 4.04 inches was used in designing the surface drainage features for runoff (Coeur Rochester, 2016).

Table 5.1. Storm Precipitation Depth and Frequency for Rochester Project Area (NOAA, 2015)

Return Event	Duration	Precipitation Depth (inches)
10 year	24 hour	1.97
25 year	24 hour	2.40
100 year	24 hour	3.12
500 year	24 hour	4.04

Source: Precipitation Frequency Estimates from NOAA- 40.27442 N and 118.1452 W 6981 feet

5.3 Local Resources and Infrastructure

The Project is located in Pershing County, Nevada (Figure 5.1). The Rochester property is located on a combination of private lands (patented mining claims and surface estates) owned or controlled by Coeur Rochester and public lands managed by the Winnemucca District Office of the BLM. The surface and subsurface mineral estate associated with the BLM-managed public lands are discussed in Section 4 of this Report.

Figure 5.1 displays the proximity of the Rochester property to surrounding counties and communities. The communities of Lovelock, Winnemucca, Fernley, and Fallon have sufficient populations to support the mine, and are within a reasonable commuting distance of the mine. Much of the workforce is recruited from these urban areas. Site specific details regarding power, water, heap leach facilities, and site access are discussed in Section 18.

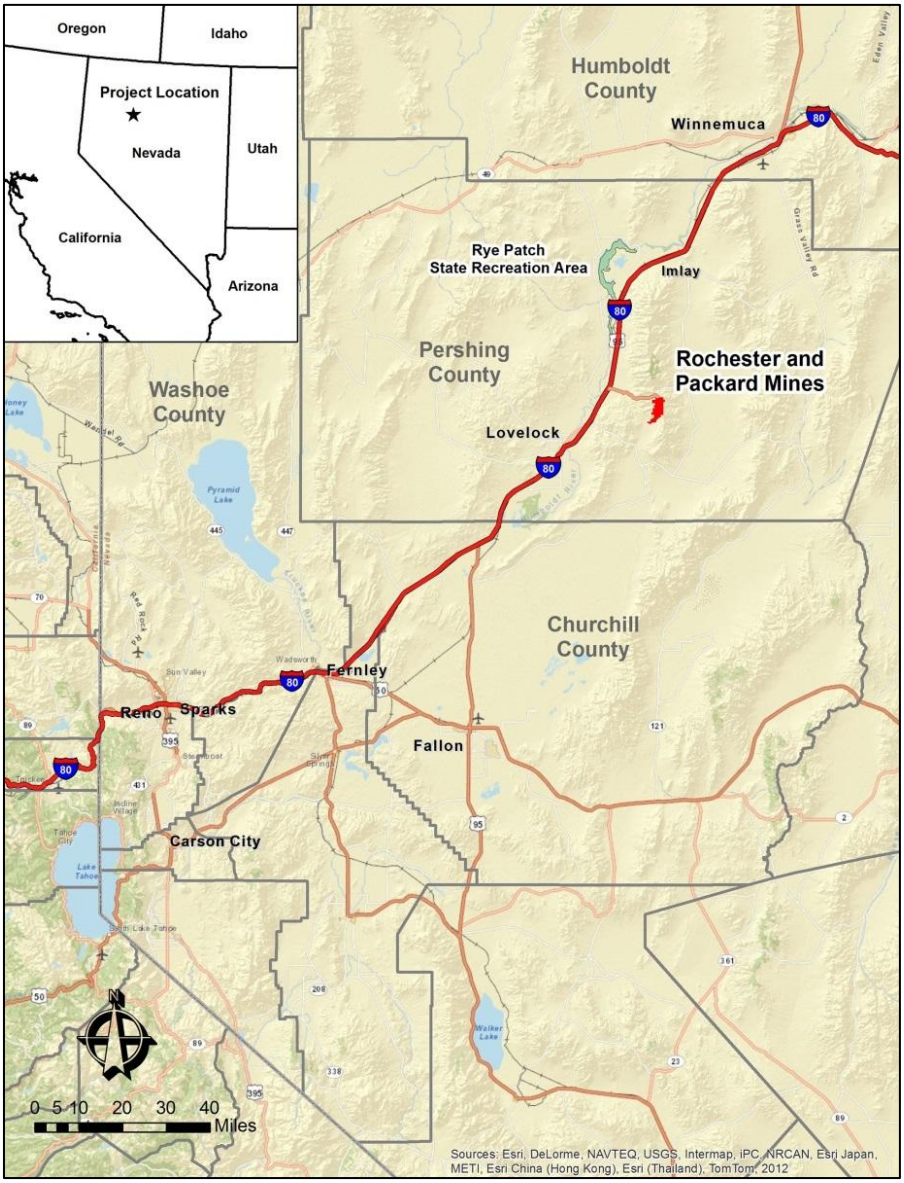

Figure 5.1. Rochester Mine with Surrounding Counties and Communities (Coeur, 2016)

5.4 Physiography

The Project area is situated in the Basin and Range physiographic province within the central region of the north-south trending Humboldt Range. The Basin and Range province consists of narrow, short mountain ranges of moderate to high relief, separated by broad alluvial valleys or basins. The Humboldt Range is bounded on the east by the Buena Vista Valley and to the west by the Humboldt River Valley. The Project area encompasses elevations ranging from 4,960 ft. AMSL at the Nevada Packard Mine, to approximately 7,300 ft. AMSL at the highest point of the Rochester property.

In the Humboldt Range, exposed rocks span from Permian to Quaternary in age. See Section 6.2 for a detailed discussion. Unconsolidated alluvium, colluvium, and minor lacustrine sediments (Qo - undifferentiated) on the Project area are limited in extent and deposited in a non-alluvial fan environment. The shallow sediments comprise of laterally discontinuous alluvium and colluvium associated with the main drainages in the Project area. The majority of unconsolidated alluvium is located within ephemeral surface water drainage channels, the base of slopes, upper American Canyon, and Sage Hen Flat. At the Nevada Packard Mine, the area west of the pit is underlain by alluvial fan sediments along the northern margin of the Nevada Packard Flat. The alluvial fans are unconsolidated material derived from outwash deposits from the adjacent ranges. Alluvial thickness in production wells west of the Nevada Packard pit ranges from 300 to 400 ft. (SWS, 2012).

5.5 Flora and Fauna

Vegetation is sparse, consisting of high desert grasses and shrubs and a sparse assortment of trees in the higher elevations.

Fauna are typical of the arid/semi-arid environment of the central Great Basin region. Wildlife observed either within or adjacent to the Project area include mammals, upland game birds, migratory birds (both raptors and non-raptors), and reptiles.

5.6 Significant Factors and Risks

In the opinion of the QP's:

- The existing local infrastructure and population are supportive of LOM operations in the Project area.
- Local climate allows operations to be conducted year-round.

6. HISTORY

There are 46 historical mining districts within Pershing County that have produced silver, gold, tungsten, antimony, iron, gypsum, copper, and diatomite since 1856. Mining in the Rochester District began during the 1860s by a group of miners from Rochester, New York. Originally, hard rock shaft gold mining was practiced; however, during the late 1880's and 1890's, the focus shifted to placer mining. Starting around 1900, additional exploration prospecting occurred, along with the filing of numerous claims. During 1911 and 1912, Joseph Nenzel made a significant discovery of rich silver ore. This discovery led to the 1912 to 1913 "Rochester Rush." Soon after, the Rochester Rush created four mining focal points that were established in the District: Nenzel Hill at the eastern head of Rochester Canyon; the Lincoln and Independence Hills; the north and south slopes of the lower end of Rochester Canyon; and, the Nevada Packard Mine south of Rochester Canyon.

From 1913 to 1929, the Rochester District was in its primary production period, producing silver, gold, lead, copper, zinc, antimony, tungsten, dumortierite, and andalusite. By 1929, closure of the mill at Lower Rochester ended the Rochester District's early boom-to-bust cycle. After 1929, only limited mining continued in the District. This activity included placer mining in Limerick Canyon and sporadic activities at several small mines and mills, which included the reworking of tailings (Simons et al., 2008).

6.1 Rochester

6.1.1 Property Ownership

Beginning in the 1980s, new mining priorities and technologies led to renewed interest in the mineral resources of the Rochester District and the current mineral development. In the early 1980's, ASARCO discovered a large tonnage, low grade silver deposit at Nenzel Hill. In 1983, Coeur purchased ASARCO's holdings in the District and formed Coeur Rochester.

The initial Plan of Operations (PoO) was approved by the BLM and Nevada Division of Environmental Protection (NDEP) in February 1986. Subsequent to the approval of the initial PoO, several amendments have been submitted to BLM and NDEP by Coeur Rochester. Ten amendments were submitted from 1988 through 2016.

6.1.2 Exploration

The first systematic drilling program was conducted by ASARCO in the 1980's. Beginning in the 1980s, new mining priorities and technologies led to renewed interest in

the Mineral Resources of the Rochester District and the current mineral development taking place. In the early 1980's ASARCO discovered a large tonnage, low grade, silver deposit at Nenzel Hill. Coeur obtained the drilling records from this work as part of the purchase agreement.

Exploration drilling was performed by Coeur Rochester on the Rochester property from 1987 to 2004, and from 2008 through 2016. Drilling is described in detail in Section 10.

6.1.3 Production

Approximately 387 million tons of material were mined (ore, low grade, and waste) from the Rochester pit from the start of modern operations in 1986 through the 2007 shutdown.

Coeur conducted studies to investigate the potential to recommence mining and leaching of new material in 2008, and completed feasibility studies in 2009 and 2010. These studies demonstrated the viability of expanding the mining and leaching operations at Rochester through 2017. Coeur prepared an amended PoO for resumption of mining within the existing and permitted Rochester pit and construction of an additional heap leach pad. The BLM deemed this plan complete in August 2009 under federal regulations, and initiated the National Environmental Policy Act (NEPA) process. The BLM issued a Decision Record (DR) and Finding of No Significant Impact (FONSI) for the mine in October 2010 to extend silver and gold mining operations. Mining operations recommenced in 2011. Coeur submitted a revised PoO in June 2013, which included an expansion of the Stage IV HLP and addition of a new Stage V HLP. The BLM deemed this plan complete in December 2013 under federal regulations, and initiated the NEPA process. The BLM issued a Record of Decision (ROD) approving the revised PoO in June 2016.

Since resuming operations in 2011, approximately 81 million tons of material have been mined (ore, low grade, and waste) through 2016. Over the LOM, approximately 468 million tons have been mined from the deposit. The Project production totals at the Rochester and Nevada Packard mines through December 31, 2016, are shown in Table 6.1.

Table 6.1. Rochester and Nevada Packared Mines Total Production – Life of Mine (Coeur, 2016)

Year	Crushed Ore					Run of Mine (ROM) Ore					Total Recovered Ounces	
	Tons x1000	Contained Ounces		Average Grade		Tons x1000	Contained Ounces		Average Grade			
		Gold	Silver	Au opt.	Ag opt.		Gold	Silver	Au opt.	Ag opt.	Au	Ag
1986	1,571	10,660	3,040,398	0.007	1.94	-	-	-	-	-	4,195	543,929
1987	5,119	39,552	9,361,163	0.008	1.83	-	-	-	-	-	26,821	4,010,547
1988	5,896	70,864	10,102,893	0.012	1.71	-	-	-	-	-	52,388	5,010,581
1989	6,232	93,354	8,666,722	0.015	1.39	-	-	-	-	-	75,837	4,626,955
1990	6,819	68,550	11,082,870	0.01	1.63	-	-	-	-	-	59,082	4,779,518
1991	6,982	62,740	10,818,699	0.009	1.55	-	-	-	-	-	60,565	5,707,700
1992	7,356	76,006	11,062,310	0.01	1.5	-	-	-	-	-	56,562	5,431,370
1993	7,248	64,193	11,123,337	0.009	1.53	-	-	-	-	-	66,412	5,943,894
1994	7,760	57,216	11,166,484	0.007	1.44	-	-	-	-	-	56,886	5,937,770
1995	8,244	64,218	10,212,559	0.008	1.24	-	-	-	-	-	59,307	6,481,825
1996	8,128	79,557	9,600,447	0.01	1.18	-	-	-	-	-	74,293	6,251,180
1997	8,738	103,213	10,699,213	0.012	1.22	4,815	21,656	3,766,198	0.004	0.78	90,019	6,690,704
1998	8,098	73,906	11,256,758	0.009	1.39	431	1,754	369,961	0.004	0.86	88,615	7,225,396
1999	8,244	73,508	10,944,692	0.009	1.33	2,841	13,922	1,924,981	0.005	0.68	70,396	6,195,169
2000	8,508	82,979	10,439,326	0.01	1.23	2,488	11,675	1,689,936	0.005	0.68	75,886	6,678,274
2001	8,459	74,725	9,440,481	0.009	1.12	3,425	14,032	2,205,080	0.004	0.64	78,182	6,348,292
2002	7,972	52,347	6,813,177	0.007	0.85	1,214	5,093	840,788	0.004	0.69	71,905	6,417,792
2003	7,324	35,512	6,893,982	0.005	0.94	71	338	41,264	0.005	0.58	52,486	5,587,338
2004	8,976	87,483	7,340,325	0.01	0.82	3,460	20,749	1,878,553	0.006	0.54	69,461	5,669,074
2005	9,050	90,850	8,342,797	0.01	0.92	277	1,419	127,124	0.005	0.46	70,298	5,720,489
2006	8,498	93,076	7,147,202	0.011	0.84	1,902	8,616	576,736	0.005	0.3	71,891	5,113,504
2007	4,862	29,545	3,222,728	0.006	0.66	199	533	42,022	0.003	0.21	50,408	4,614,779

Year	Crushed Ore					Run of Mine (ROM) Ore					Total Recovered Ounces	
	Tons x1000	Contained Ounces		Average Grade		Tons x1000	Contained Ounces		Average Grade			
		Gold	Silver	Au opt.	Ag opt.		Gold	Silver	Au opt.	Ag opt.	Au	Ag
2008	0										21,041	3,033,721
2009	0										12,663	2,181,760
2010	0										9,641	2,023,423
2011	1,593	8,296	843,361	0.005	0.53						6,264	1,392,433
2012	8,911	42,532	4,913,282	0.005	0.55	798	2,482	324,151	0.003	0.41	38,071	2,801,501
2013	10,694	29,240	5,884,989	0.003	0.55	1,618	5,262	922,507	0.003	0.57	30,860	2,798,937
2014	13,154	47,062	7,635,125	0.004	0.58	1,585	5,291	749,690	0.003	0.47	44,887	4,189,071
2015	13,294	43,553	8,580,479	0.003	0.645	3,120	8,951	1,783,001	0.003	0.571	52,588	4,630,738
2016	13,885	37,206	8,239,549	0.003	0.593	5,671	21,876	2,887,748	0.004	0.509	50,750	4,564,139
Total	221,613	1,691,942	234,875,348	0.008	1.06	33,915	143,649	20,129,751	0.004	0.594	1,648,663	148,601,800

6.2 Nevada Packard

6.2.1 Property Ownership

The original group of "Packard" claims was staked in 1912. In 1913, the Rochester Packard Mines Company was formed.

Cordero Exploration began exploration work on the Nevada Packard claims in 1969. D.Z. Exploration (James C. Taylor) acquired a lease on the patented claims in 1976.

In the 1980's mineral and surface rights were leased by Daile Scholz from Frank (Jr.) and Wilton Margrave as part of the Nevada Packard Joint Venture (Nevada Packard JV).

In 1987, the Nevada Packard JV entered an agreement with Wharf Resources to explore the property. Economic studies indicated a negative return with the addition of crushing and processing facilities. Wharf subsequently terminated the agreement.

Lease agreements between Scholz and Margrave continued through 1996 at which time Coeur Rochester entered into lease agreements. Coeur Rochester signed yearly lease agreements with buyout options with both parties. In October 1998, Coeur Rochester entered into buyout negotiations with Scholz. Buyout negotiations were completed in 1999, which culminated in Coeur Rochester's purchase of the Nevada Packard property. The Nevada Packard property is located three miles south of the Rochester Mine and is 100% owned by Coeur Rochester.

6.2.2 Exploration

Cordero Exploration began exploration work on the Nevada Packard claims in 1969.

D.Z. Exploration completed a successful drilling program in 1977 to 1978, after which a production scale heap leach test was conducted on historical dump ore, with facilities to crush, agglomerate, and refine (the tonnage processed is unknown). Feasibility was demonstrated and permitting was initiated in 1979.

In 1980, further exploration work was conducted. Another production scale 100,000-ton test was performed in 1981 on 70,000 tons of newly mined material and 30,000 tons of historical dump material. Recoveries were lower than expected and the project was placed on hold. Eight 1,600-ton heaps were constructed through 1983, which tested the recoveries of different sized crushed ore, agglomerated with and without cyanide. These activities were conducted under the direction of Dale Scholz, and were part of a buy-in

agreement for the Nevada Packard Joint Venture. Mineral and surface rights were held by Frank (Jr.) and Wilton Margrave at that time.

Exploration drilling performed by Coeur is described further in Section 10. A summary of drilling is provided below:

- In September 1996, Coeur Rochester drilled 11 1,000-ft. holes to penetrate untested stratigraphy. Mapping, sampling, and geophysical surveys continued into 1997, when 12 1,000-ft. holes were drilled within the known deposit or pit area, and adjacent areas. In October 1998, Coeur Rochester completed 76 development drill holes and verified the reserves published by the former operators. Twelve additional holes were drilled in 1999.

Exploration work performed at Nevada Packard during the feasibility study is summarized below:

- June/August 1996 – Coeur Rochester leased property from Margrave/Scholz, with the idea to explore deep potential and identify > 30 million ton deposit;
- Late 1996 – Coeur Rochester drilled 11 1,000-ft. holes through the current pit area; no deep mineralization was identified;
- 1997 – Following extensive mapping and sampling program to identify drill targets, Coeur Rochester drilled 12 more 1,000-ft. holes, but again, failed to identify any deep mineralization. Coeur Rochester then re-focused on shallow reserve potential identified by Scholz in their 1980's drilling;
- 1998 – Coeur Rochester initiated a 76-hole (11,120 ft.) development/confirmation drill program to verify earlier Scholz assays. Silver grades were confirmed, but average gold grades dropped from 0.0074 opt to 0.0044 opt;
- 1998 – Coeur Rochester generated updated Mineral Resource model and estimated costs for permitting, road construction, and reclamation. Economic analyses showed the property to be viable; recommendations were made to buy out Scholz/Margrave interests and acquire the property; and
- Between 2010 and 2016, Coeur Rochester conducted additional exploration drilling on the Nevada Packard deposit.

6.2.3 Production

In 1915, a 100-ton cyanidation mill was built, which was later increased to 175 tons per day. Approximately $2,000,000 in gold and silver was extracted from the underground mines from 1913 to 1923. Other records show that 114,000 tons were milled, from which over 845,000 ounces of silver were obtained through 1919. The mill operated until 1923.

Coeur Rochester mined the Nevada Packard pit from 2002 through 2007, with total mineralized material production of 6.3 million tons, yielding 9.4 million contained ounces of silver and 28,700 contained ounces of gold.

7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The area geology has been described in detail by a host of authors including, but not limited to, Schrader (1914), Knopf (1924), Kerr and Jenney (1935), Johnson (1977), and Vikre (1977; 1981). Several internal studies have been completed; recent work includes: Caddey & Cato (1995), Millennium Mining Associates (2001), Chadwick & Harvey (2001). A study of the district volcanic stratigraphy was done by Lipman (2014) and by Chadwick and Robinson at a larger scale (2015). Johnson, Hohbach et al., completed structural work at Rochester during 2014-2015.

The Rochester and Nevada Packard Mines are located on the southern flank of the Humboldt Range (Figure 7.1). The Humboldt Range lies within the Basin and Range province, where late Tertiary extensional movement has created large listric normal faults bounding generally north-south trending mountain ranges and adjacent down-dropped valleys.

Volcanic activity in the Humboldt Range began in the Permian, in association with the Sonoma orogeny (Silberling, 1973). Initial eruptions were mafic in composition, transitioning to felsic composition in the early Triassic as exhibited by the rhyolitic flows and tuffs at Rochester (Koipato Group). Interbedded sandstone and siltstone occur near the top of the Triassic volcanic rocks, in some cases capping the rhyolite flows, which suggests several periods of erosion and possible formation of caldera complexes.

Large intrusions of leucogranite, accompanied by quartz-sericite-pyrite (QSP) alteration, invaded the Limerick and Rochester (but not the Weaver Formation) in early Triassic time (Vikre, 1981). Coeval with deposition of the lower Weaver Formation, intrusions of feldspar porphyry (LeLacheur et al., 2011) invaded Rochester and Weaver rhyolitic ignimbrites and flows.

Later in the Triassic, a thick sequence of marine sediments dominated by limestones, was deposited on top of the transitional sandstones and siltstones forming the Star Peak Group and Grass Valley Formation.

A mid-Jurassic orogeny saw the southernmost Humboldt Range intruded by an extensive gabbro lopolith and related dykes; compressional tectonics related to the Luning-Fencemaker Thrust likely occurred at this time (Wyld et. al. 2003).

The tectonic regime changed in the mid-Mesozoic with the onset of plate subduction at the western North America continental margin, resulting in back arc volcanism and formation of large batholiths, such as the Sierra Nevada, and time equivalent smaller

intrusions in the Humboldt Range (gabbro above). Later in the Cretaceous Period, granodiorite stocks intruded older rock units in west-central Nevada, including the Humboldt Range (Vikre 1981, Crosby 2012). Faulting, folding, and uplift throughout the region accompanied subduction.

A period of significant erosion began in the Tertiary, with Miocene gravels being deposited in the area of the Humboldt Range. Bimodal volcanism also occurred during this time. After the Miocene, Basin and Range extension became dominant with uplift, producing widespread erosion and removing most of the Tertiary and Mesozoic rocks in the area, including some of the mineralized rocks at Rochester (Vikre, 1981).

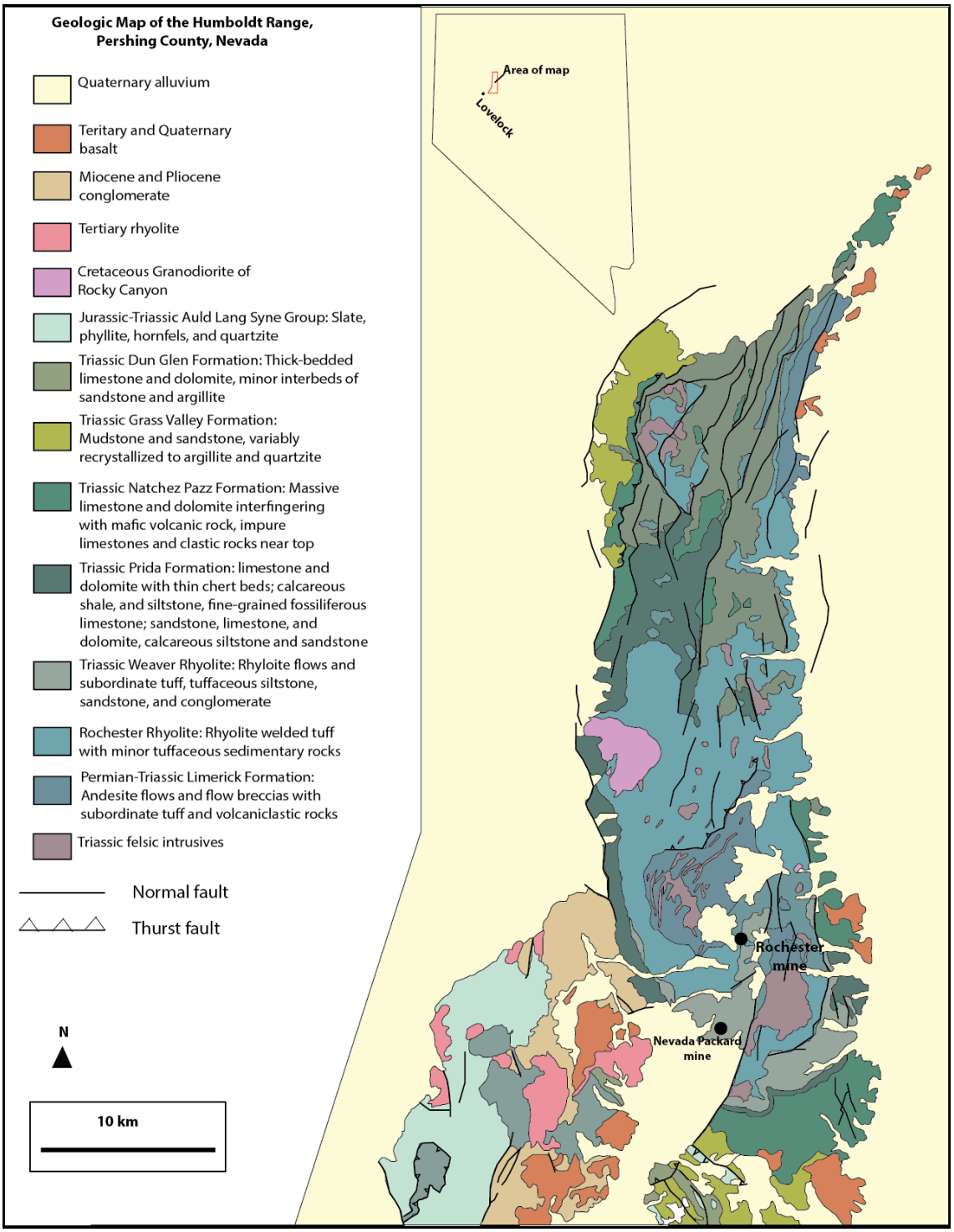

Figure 7.1. Geologic Map of the Humboldt Range showing the location of the Rochester and Nevada Packard Mines (Modified from Johnson, 1977)

7.2 Property Geology

The Rochester and Nevada Packard deposits are hosted in predominately rhyolitic flows and tuffs of the Permian-Triassic Koipato Group, which is subdivided into the Limerick, Rochester, and Weaver formations.

The basal Limerick Formation comprises dominantly andesitic flows altered to greenstone, lithic to crystal tuffs, and volcaniclastic siltstones. The overlying Rochester Formation is composed largely of felsic to sometimes intermediate poorly to strongly welded tuffs, rhyolitic ash flow tuffs, quartz latite to rhyolitic tuffs; and minor interbedded volcaniclastic rocks, siltstones, and conglomerates. The Limerick and Rochester Formations are each about 6,000 ft. thick (Crosby, 2012).

The Weaver Formation is the youngest unit of the Koipato Group. The Weaver Formation unconformably overlies the Rochester Formation and consists of rhyolitic flows, tuffaceous, and volcaniclastic sediments, which often show a phyllitic texture. The texture appears to be a product of greenschist facies regional metamorphism associated with the mid-Jurassic Luning-Fencemaker fold and thrust belt (Wyld et al., 2003).

The Luning-Fencemaker event is likely responsible for compressional features evident throughout the Humboldt Range, including the north-south trending anticlinorium upon which the Rochester Mine is located. A number of low angle thrust faults and related drag folds, are cut by younger, high angle Basin and Range normal faults. These structures are thought to originally be related to the Luning-Fencemaker tectonism.

An important structural feature within the southern portion of the Humboldt Range is the Black Ridge fault system. The Black Ridge fault system is an extensive shear zone that is, in places, hundreds of feet wide. Most of the Rochester silver-gold mineralization occurs in hangingwall faults, splays and cross-faults within the Black Ridge system. Renewed movements during the late Tertiary Period uplifted the core of the Humboldt Range along its' principal anticlinal axis.

Various intrusive igneous rocks are exposed in the southern end of the Humboldt Range. One of the larger intrusive bodies is an early Triassic-aged leucogranite, cropping out southeast and northwest of the Rochester Mine, suggesting that it may be part of a larger, blind intrusive body. Early Triassic rhyolite porphyry dikes crop out over much of the District. A mid-Jurassic gabbro lopolith has invaded the southernmost Humboldt Range, sending fingers of gabbro dykes into pre to mid-Jurassic stratigraphy. Cretaceous-aged granodiorite is exposed to the northwest of Rochester in Rocky Canyon, with smaller outcrops exposed to the northeast of Rochester. Diabase dikes of Tertiary age cut the Cretaceous granodiorite stock.

Extensive QSP alteration occurs throughout the District and has been attributed to at least three different hydrothermal events (Vikre, 1981). Figure 7.2 shows the Rochester District geology.

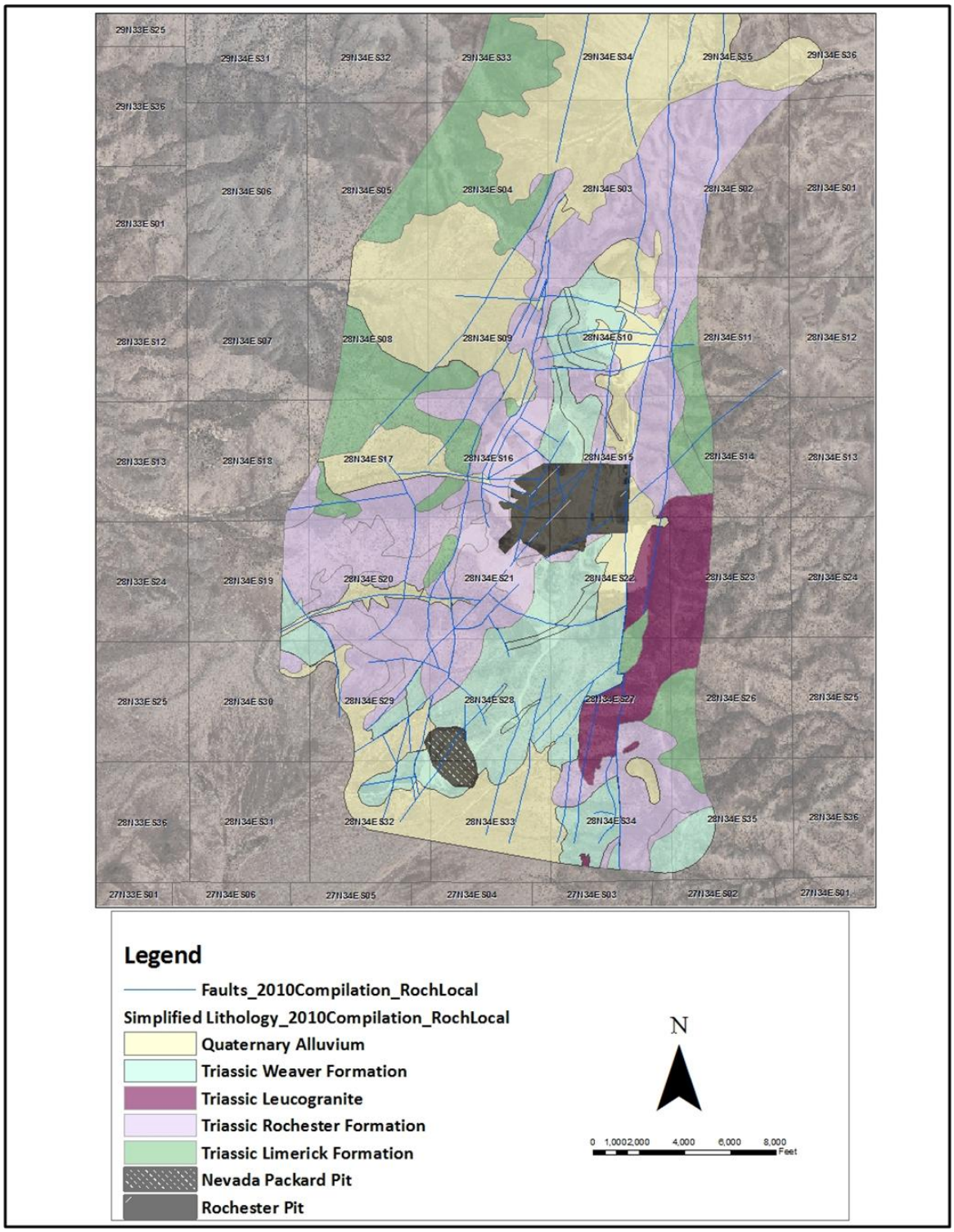

Figure 7.2. Rochester District Compilation of Historical Geologic Mapping (Coeur, 2010)

7.2.1 Deposit Geology

Silver and gold mineralization at the Rochester and Nevada Packard Mines is hosted by the Rochester and Weaver Formation volcanic and epiclastic rocks of the Koipato Group. The Rochester Formation exposed in the Rochester pit is comprised of rhyolite flows and tuffs, breccias, thin intervals of spherulitic and lithophysae tuffs, and fine-grained volcaniclastic rocks. Erratic intervals of conglomerate-breccia up to 100 ft. thick, occur at various places in the stratigraphy. The volcanic stratigraphy shows little continuity laterally and vertically, and is typically mapped as undifferentiated Rochester tuffs and flow banded rhyolites. The thickness of the Rochester Formation in the Rochester Mine area was estimated to be 1,800 ft., although recent estimates by Chadwick & Robinson (2015) estimate the thickness at approximately 1,380 ft. The Formation is also highly fractured, as described in a report by Golder Associates (2015) and detailed in Section 7.2.3**Error! Reference source not found.**.

The Weaver Formation consists of spherulitic tuffs, air fall and water-lain ash, shale/siltstone, fine-grained volcaniclastic rocks, tuffs, and lithic tuffs. The Rochester-Weaver contact is marked by a discontinuous lithic tuff with up to cobble sized clasts. The basal units of the Weaver Formation (W1t, W1lt) are the best mineralized host rock at Rochester. These units consist primarily of tuffs and lithic tuffs. Mineralization occurs within high and low angle faults, related breccias and veins. Mineralization may extend up to 500 ft. laterally away from the structures when in the vicinity of the Weaver-Rochester contact. A discontinuous ash layer (W1a) is sometimes identified along the base of the Weaver Formation. The ash W1a ash layer is typically lens-shaped and is not a favorable host to mineralization A volcaniclastic unit (W1c) lies stratigraphically above W1a and is relatively thin, approximately 60 ft. in thickness. The W1c unit is composed of sandstones interbedded with lithic tuffs and minor siltstone. Overlying W1c is a siltstone unit (W2), followed by the uppermost Weaver unit (W3), which is a predominately dark siltstone with a discontinuous spherulitic tuff at the base.

Units W2 and W3 do not host mineralization at Rochester, but unit W3 is the dominant host at the Nevada Packard deposit, particularly the spherulitic tuff facies. Unit W3 at Nevada Packard shows much greater structural preparation, although it exhibits a similar structural domain when compared to the same unit at Rochester. Figure 7.3 shows a stratigraphic column of lithology exposed in the Rochester pit.

7.2.2 Alteration

Both the Rochester and Weaver Formations are extensively altered by an assemblage of QSP. Distinct zones of sericitization are found throughout the deposit, including seriticization in some breccia matrices, although zones of brecciation are more commonly healed by silica. Silicification is very common throughout the property,

particularly in the conglomerate-breccia that occurs at the Rochester-Weaver contact. Hydrothermal clay alteration, other than sericite, also exists and consists of clay minerals such as kaolinite and halloysite. However, some clays are the result of the movement of meteoric water and oxidation of primary pyrite, particularly in the broken hangingwall of high angle normal faults. Hydrothermal clay zones can extend up to 50 ft. from the fault zones.

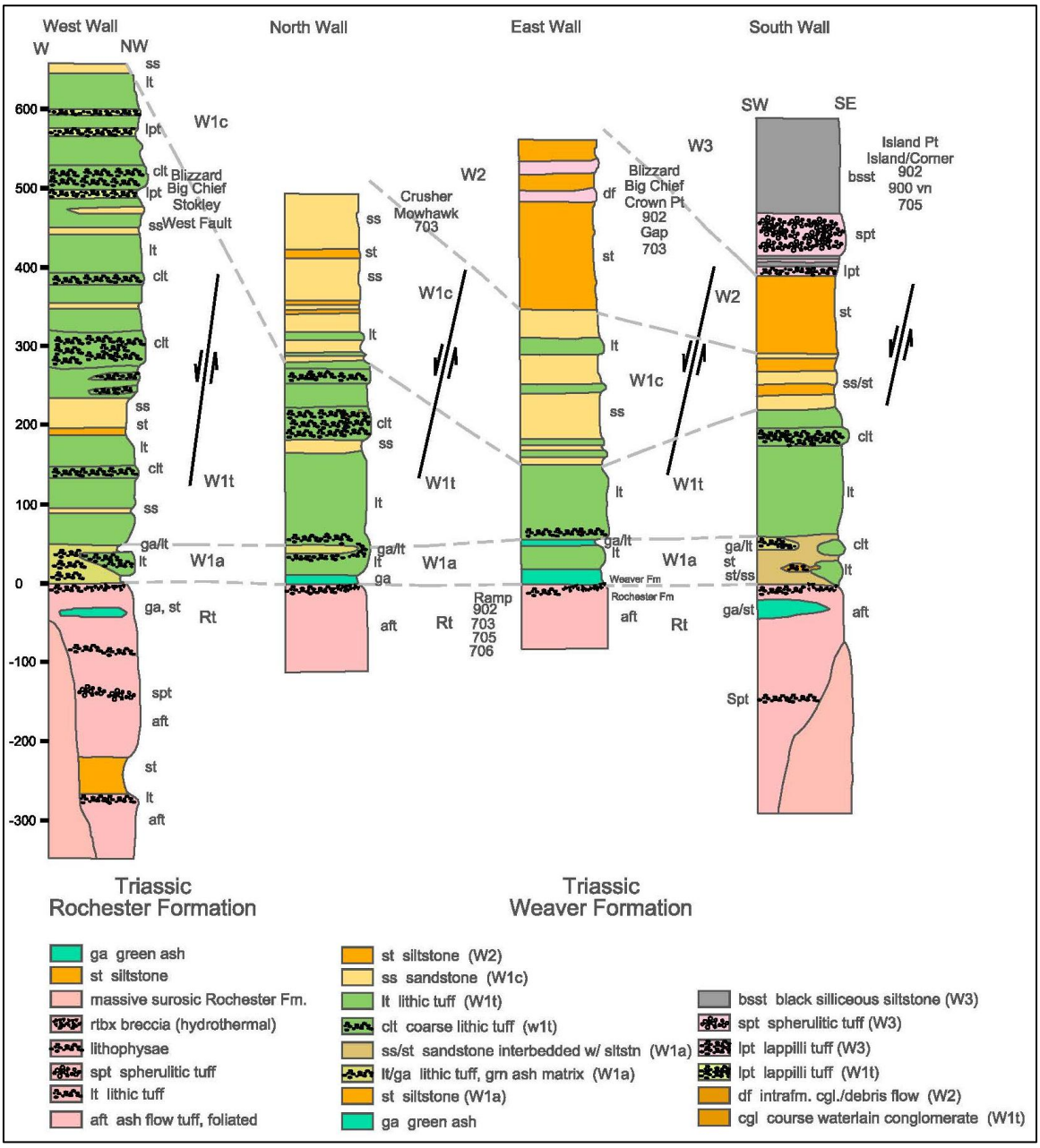

Figure 7.3. Schematic Stratigraphic Columns of the Rochester Mine Pit (Modified from Chadwick and Harvey, 2001)

7.2.3 Structure

Structural relations between mineralized and non-mineralized faults, fractures, and shear zones have been mapped in the field and compiled to generate a deformational history for the deposit. Structures related to at least three major tectonic events were identified in the Rochester pit by Caddey and Cato (1995).

After deposition of the Rochester Formation, leucogranite stocks invaded the stratigraphic sequence. After a brief hiatus, marked by the formation of conglomerate-breccia, the Weaver Formation was deposited. Feldspar porphyry plugs and dykes associated with gold at Spring Valley and near Rochester Mine invaded the area. Most likely, the ancestral north-south striking Black Ridge shear system first began to move during this time (Wyld et al., 2003).

In mid-Jurassic time, intial compressional stresses that became part of the Luning-Fencemaker Thrust system affected the Project area (Wyld et.al., 2003). Intrusion of the mid-Jurassic lopolith was likely a coeval event. Compressional stresses re-activated the Black Ridge system. Many of the west-dipping, low-angle, intra-formational faults formed during this orogeny. Later extensional forces affected the Black Ridge hangingwall; this led to the development of the West, Corner and other ENE linear structures. Many of these above-described faults host silver and gold deposits at Rochester. Vein intersections form the largest zones of mineralization, with triple point intersections (i.e., intersecting veins in conjunction with the Weaver-Rochester contact) forming the largest volumes of mineralization.

The final tectonic event (D3) was related to Tertiary-aged Basin and Range tectonism. This event formed a graben block bounded by the Black Ridge Main Fault on the east side and the parallel West Graben Fault on the west side.

Rochester Mine geology is characterized by penetrative reverse and normal faults overprinted by a complex structural system of high angle fracture sets. Compressional features include low angle thrusting and associated folding, most notably near the Weaver-Rochester contact. Some later high angle extensional faults are preferentially located within these fold axes.

7.2.4 Mineralization

Fracture intensity is poorly developed in the upper two units (W2 and W3) of the Weaver Formation. The lack of fracturing resulted in poor mineralization in these units. The basal Weaver (W1t) and upper Rochester units (Rt) are extremely fractured, which prepared these units for mineral emplacement by permitting fluids extensive access in these hosts.

Quartz veins and veinlets typically exhibit parallel and cross-cutting features, indicating multiple mineralizing events. Milky white quartz is typically overprinted by mineralized gray-to-tan cryptocrystalline quartz veins and stockwork. Tourmaline, possibly related to an early QSP alteration phase, is rare in the milky white quartz at Rochester, but can be seen in abundance outside of the property. High grade mineralization at Rochester is contained within discontinuous and anastomosing veins within compressional and extensional fault structures that range in thickness from 4 inches to 3 ft. These veins are steeply dipping at the surface (>60°) but at depth become shallower (<30°) and lower grade. Lower grade mineralization occurs as dissemination in veins, breccia stockwork, and throughout the rocks. In plan view, veins strike northerly and northeasterly at 10 to 30 to 70°. The highest-grade, best-developed undeground silver stopes were located on the East Vein, a conjugate 30°- striking shear between splays of the 10°- or northerly-striking Black Ridge Fault. In cross-section, mineralization associated with faults dips 35 to 65° west, while mineralization occurring near the formational contact exhibits shallow dips (0 to 30°) both to the east and west.

Currently mined ore is hosted in the oxide zone, where the Rochester-Weaver contact is the primary host for silver-gold mineralization, followed and influenced by mineralized fault zones with associated disseminated mineralization away from the faults. The contact is extensively brecciated and healed by silica in both the Rochester and Weaver Formations. Low grade mineralization is controlled by hypogene processes and possibly supergene enrichment. These low grade systems vary in width (both along strike and down dip) from tens to hundreds of feet. Below the oxidation zone, metal grade typically drops off, but high grades of silver-gold with minor base metal content can be found in narrow quartz veins. The Rochester and Nevada Packard deposits are completely oxidized to a depth of 300-500 ft. and partially oxidized to a depth of over 700 ft.

Currently identified mineralization at the Rochester deposit is discontinuous over an area of 5,100 ft. north to south and 6,000 ft. east to west. Mineralization dips to the west at an average of 30°, and mineralization is nearly parallel with topography, with an average true depth of 700 ft. Distal to favorable fault intersections, unit contacts, and structures, silver mineralization becomes erratic.

Supergene processes are thought to be responsible for the remobilization and enrichment of silver at Rochester and possibly at Nevada Packard. Supergene oxide minerals present include acanthite, chlorargyrite, embolite, hematite, kaolinite, halloysite, goethite, amorphous iron oxides, chalcanthite, chalcophanite, melanierite, jarosite, manganese oxides, and native silver. Acanthite and chlorargyrite are the most abundant oxide silver phases. Below the oxidation zone, the hypogene profile is preserved, consisting of: pyrite, sphalerite, galena, argentiferous tetrahedrite, chalcopyrite, arsenopyrite, pyrargyrite, and possibly pyrrhotite and owyheeite (Vikre, 1981).

Mineralization at Nevada Packard is similar to that exploited in the Rochester pit in that northeast trending, west dipping faults are the most dominant mineralized trends, and silver and gold are associated with structurally controlled veins. One difference in the Nevada Packard mineralization, is that silver tends to be of higher grade than at Rochester, while the gold grades tend to be lower. The Packard mineralized zones are broad and disseminated, but smaller than those at Rochester – typically no larger than 200 ft. wide. The discontinuous broad mineralized zones cover an area of 2,500 ft. by 2,300 ft. and up to 600 ft. in depth. Silver and gold mineralization below 300 ft. rapidly decreases in tenor.

8. DEPOSIT TYPES

The type of mineral deposit found at Rochester and Nevada Packard has been debated (low sulfidation vs. intermediate sulfidation), but there is strong evidence that they are low sulfidation epithermal deposits. Rochester is a complex deposit, with disseminated silver mineralization occurring within extensive clouds of QSP-type mineral alteration. In addition, many high-grade (>3opt Ag) silver vein occurences in faults exhibit chalcedonic or vuggy, crystalline quartz. These textures indicate an epithermal origin, possibly related to the later Cretaceous Rocky Canyon intrusion event. Low-tenor but persistent gold values disseminated throughout this deposit appear to occur with disseminated pyrite in the host. The lack of any significant manganese minerals and complex sulfides in the upper silver zone precludes an intermediate sulfide classification for Rochester.

Epithermal deposits are defined as the result of mineralization associated with hydrothermal activity related to volcanism or the resulting geothermal activity of circulating meteoric waters at relatively shallow depths and low temperatures. Precious metal epithermal deposits can exhibit themselves as stockworks, breccia pipes, and disseminations. The level of sulfidation refers only to the sulfide mineralogy. Pyrite, chalcopyrite, arsenopyrite, polybasite, acanthite, and at depth, other base metals (including the minerals galena and sphalerite) are common.

Supergene enrichment is most commonly found in porphyry copper deposits, but some recent work has shown supergene enrichment in silver-rich deposits (Anderson, 2016). Supergene enrichment is a process whereby meteoric waters percolate through pyrite-rich rocks that contain acid-soluble, metal ore-bearing minerals. Dissolved sulfide minerals then re-precipitate at or below the water table, which enriches sulfide mineralization and associated metals. The oxidized pyrite observed at Rochester could have provided the acid needed to remobilize and redeposit silver.

To find another deposit that is the exact type as Rochester and Nevada Packard is a difficult task, as it is unique. Deposits with similarities may include nearby Comstock, Nevada, a classic low sulfide deposit; Pachuca and Ocampo, Mexico; as well as Tonopah, Nevada, which are intermediate sulfidation deposits containing lots of manganese and higher-temperature minerals. The degree of oxidation, depth of oxidation, ounces contained, average grade, and amount of enrichment vary greatly among these deposits. However, they do have a few things in common, including acanthite and usually polybasite as a hypogene mineral and native silver occurring as a supergene mineral (Sillitoe, 2009).

Low-sulfide veins at Rochester include historically-mined, high-grade underground silver-gold veins in the extensional West Fault and the shear-hosted East Fault Set. These two vein systems were mined during the historical underground era of the early

1900s. Both systems consist of numerous parallel vein sets that have been identified during open pit mining. Periodicity of both sets range from 200 to 500 ft. Silver and gold mineralization is similar in both systems and is associated with the mineral assemblage of pyrite, galena, sphalerite, tetrahedrite, and silver sulfosalts. Oxidation typically is stronger in the higher grade zones.

Today, mining at Rochester is done on low grade mineralization on a bulk tonnage scale in an open pit. Important controls on mineralization used to target exploration include specific strata within the oxidation zone and breccia zones healed by chalcedonic and vuggy quartz occurring in a network of faults or shear zones. Higher grade mineralization is controlled stratigraphically, occurring along the Rochester-Weaver contact with typically decreasing grade away from the contact. This contact is well mineralized because it was a plane of weakness that was more readily brecciated, which allowed fluids to move through the rocks. Stratigraphically controlled higher grade mineralization is also exhibited in units capped by the upper Weaver units, consisting predominately of siltstone. Mineralization is structurally controlled and bound by low angle mineralized faults, which are in turn, cut by high angle, mineralized normal faults, truncating mineralized zones.

9. EXPLORATION

9.1 Grids and Surveys

All final survey coordinates used for exploration and near mine work are surveyed using Trimble GPS equipment converted into a local mine grid. The topography used for resource estimates is updated at year end. All active mining and rock disposal sites (RDS's) are surveyed on a regular basis. A final survey is completed at the end of the year based on those surveys. Topography contours updated in June 2016 outside the active surveyed areas are obtained from semi-annual orthophotos and photogrammetry. These contours are merged with the surveyed contours.

Survey equipment uses a radio repeater for increased accuracy and coverage area. The information is collected using longitude and latitude in radians. The location is then converted using Molodensky's Transformation Datum. The conversion applies a simple 3D origin shift, then mathematically converts the data curvilinear into the coordinates of the current mine grid. The reference location of the mine grid is on Black Knob (40°14'27.51"N, 118°13'17.99"W), south of the Nevada Packard pit. The mine grid covers the entire mine property and can be used anywhere throughout the Rochester property.

9.2 Geological Mapping

In 2010, Coeur Rochester geology staff and contract geologists compiled historical geologic maps to produce a District-scale map showing lithology and structure. In 2011, Coeur Rochester geology staff and contract geologists digitized archival materials for nearby areas previously identified as potential exploration targets – specifically the Plainview, Limerick, Sunflower Hill, and South Mystic zones. In 2012 and 2013, Coeur Rochester geology staff began compiling archived detailed pit mapping from the Rochester pit. Compilation and interpretation of this work continued in 2014.

Exploration work in 2014 and 2015 made use of the consultants Dave Rhys (Pantera Geoservices Inc.), Dr. Peter Lipman, and Tom Chadwick. The consultants have expertise in structural geology, volcanology, and regional exploration. Information provided by these consultants is used to further refine local and regional geologic models and assist in exploration targeting.

Dave Rhys of Pantera Geoservices Inc., conducted investigations in July 2014, to assess the geologic and structural controls on mineralization in the Rochester and Nevada Packard areas. His recommendations for deposit classification and exploration will be used in future work.

In 2014, Dr. Peter Lipman mapped the regional mine geology in an attempt to compare the volcanic depositional and structural features of the Koipato Group within the mine property to similar stratigraphic units in adjacent parts of the Humboldt Range. The mapping project was designed to: (1) identify and evaluate primary volcanic structures and stratigraphic features in the volcanic sequence that may have been significant in localizing mineralization; (2) to develop criteria for distinguishing such primary volcanic features from subsequent tectonic structures; and, (3) to provide a framework for evaluating whether volcanic-facies variations within volcanic units of the Koipato Group may have been significant in localizing mineralization.

District-wide field mapping was conducted from 2015 through 2016 by Tom Chadwick (2015-2016) and William Robinson (2015). Compilation and interpretation of the results into a comprehensive property wide geologic map have been ongoing. The map intepretation will be used to better define exploration targets throughout the Rochester property.

9.3 Geochemical Sampling

Previous exploration programs in outlying targets such as Plainview, LM, Sunflower Ridge, Weaver Canyon, Woody Canyon, and South Mystic, included surface and underground geologic mapping, soil and rock geochemical sampling, BLEG sampling, and limited exploration drilling. These programs identified targets that were investigated post 2008. No major soil and rock geochemical sampling campaign has been completed since 2008.

9.4 Geophysics

Two geophysical studies have been completed on the Rochester property. The first study was an Induced Polarization (IP) and resistivity survey that was flown in late 2001. This study included 13 lines flown 75 m apart at approximately 30 m above the ground and covered the south end of the property to the top of Weaver Canyon. Two more sets of lines were flown, the first set of lines included five lines with a bearing of N40°W and were located south of the Nevada Packard Mine. The second set of lines consisted of seven lines beginning north of the Nevada Packard pit flown at a bearing of N55°W.

The second geophysical study was a high resolution helicopter magnetic and ground-based gravity test, with data being collected in early November 2011. The aeromagnetic survey was flown on a flight line of N90°W, spaced 75 m apart with a final terrain clearance of 31 m. The gravity survey was completed with a 200 m grid where access was possible. The data from the 2011 survey was compiled in February 2013 by Ellis Geophysical Consulting (EGC Inc.) of Reno Nevada, and the survey interpretation was delivered in April 2013. Coeur continues to assess the interpretations.

9.5 Pits and Trenches

Locations of historical trenches have not been recorded. Seven trenches were cut on the 6,000 bench at the bottom of the Rochester Pit in 2007. These trenches were dug to help interpret the complex structure in a mined high-grade area with complex geology. The trenches have since been mined and are no longer locatable.

9.6 Petrology, Mineralogy, and Research Studies

The earliest records of petrographic studies are from late 1986. During that year, seven grab samples were taken from the pit and interpreted by Dr. John Longshore of LFS Petrographics. The samples were examined in thin section and a report was completed.

A total of 60 samples were taken and prepared for analysis in 1987; analysis was completed by LFS Petrographics and Globo de Plomo Enterprises. The same companies analyzed 16 samples in 1988: five samples in 1989 and nine samples in 1990. In 1992, the mine exploration staff began analyzing thin sections on-site. A total of 21 samples were prepared off-site and analyzed on-site.

These early studies were used to properly identify rock type and alteration assemblages to create an accurate interpretation of Rochester stratigraphy and mineralization.

Two petrographic studies have been completed since 2008. The first study was completed by Lawrence T. Larson in 2008. A total of 35 polished thin section samples, 19 grab samples, and 16 samples from core were included. Each sample was analyzed for rock type, microscopic description, overall mineralogy, alteration and any other identifiable characteristics. A report was completed with photomicrographs and a brief summary of the geologic implications for the entire study.

The second study was completed by Katrina Ross on seven grab samples: one from the lower Weaver Formation, and the other five from the upper Rochester Formation – all within the northern part of the Rochester pit. The seven sample study was part of a broader investigation conducted by Dave Rhys of Pantera Geoservices Inc., conducted in July 2014 (refer to Section 9.2).

9.7 Exploration Potential

The Rochester deposit remains open at depth in areas where earlier drilling terminated in ore grades, stopping typically after drilling encountered un-oxidized rock. In addition, several structural trends are being explored where they exit the pit walls. These areas are targeted based on grade and structural mapping. The area northwest of the pit is considered to have the most potential.

The East Rochester zone is adjacent to the eastern margin of the Rochester pit, located under an existing leach pad and crushed material conveyer system. The zone was identified in 2015 and is open both to the north and the south, providing potential for continued near-pit exploration.

A second potential near pit area is located on the southeast side of the current Rochester pit. The East Charlie zone, identified in 2015, is west of the East Rochester zone.

Regional mapping, interpreted in 2016, indicates the location of a favorable horizon and structures between the Rochester and Packard pits.

The hanging wall of the Black Ridge fault, south of the Rochester pit in the Woody Canyon area, has been identified as another potential host of precious metals within the Company's land position.

An additional exploration target near Independence Hill, west of the Rochester pit, has been identified from historical mining trends and confirmed with surface sampling.

10. DRILLING

10.1 Background and Summary

Reverse circulation (RC) and diamond core drilling programs have been performed at the Rochester Mine and Nevada Packard areas since 1969.

Drilling in the Nevada Packard area began in 1969. Cordero drilled 16 holes with a mud rotary drill for a total of 1,930 ft. From 1976 to 1980, D.Z. Exploration used a percussion drill rig to drill 22,033 ft. in 113 drill holes. NPJV/Wharf Resources drilled 87 RC drill holes for 15,142 ft., and 10 HQ core holes, totaling 1,212 ft. Additional information beyond the number of drill holes and footages of drilling performed at the Nevada Packard area from 1977 to 1996, by Cordero, D.Z. Exploration, and NP JV/Wharf, is not available.

Between 1969 and 1985, ASARCO drilled 485 exploration drill holes in the Nenzel Hill area of Rochester. Drilling consisted of 323 mud rotary and 61 RC drill holes, totaling 159,348 ft. Records for 101 drill holes do not exist; as a result, the drill holes are not in the exploration drill database.

From 2004 to 2008, approximately 24,000 ft. of drilling was completed in and around the Rochester pit. In 2008, drilling was concentrated around the Corner Fault and West Main structure. No drilling was conducted in 2009.

Beginning in 2010, exploration drilling focused on northern and western extensions of mineralization at both the Rochester and Nevada Packard pits. In 2011, Coeur Rochester increased exploration efforts at Rochester and Nevada Packard and began a drill program to inventory historical stockpiles adjacent to the Rochester pit. In 2012 and 2013, exploration drilling focused primarily on defining stockpile inventory. In situ expansion drilling at Northwest Rochester and additional target testing at South Mystic (SM), was also conducted. Stockpile drilling was completed in 2013. Drilling in 2014 focused on expanding the Rochester pit, as well as resource definition at South Mystic. The 2015 drilling program consisted of RC infill drilling within the Rochester pit area, Woody Canyon, and Nevada Packard areas.

The 2016 drilling program included both RC and core drilling for exploration and infill. A total of 117 RC holes were drilled, encompassing 89,120 ft. RC drilling was conducted east of the pit (East Rochester area), south of the pit (South pit area), and west of the pit (West pit area). The holes were primarily designed to infill areas between previous drilling that showed mineralized intercepts, and to test the extent of mineralization outward from the pit. The RC drillling is done using both the rubber tire and track drilling

rigs, using typical bit sizes ranging from 5.50- to 7.75-inch diameter open face drill bits. Core drilling used HQ (2.5-inch diameter) diamond drill bits.

Core drilling included both angled surface holes and near-horizontal holes, with locations in the East Rochester area, north of the pit (North Rochester area), the Sunflower area and the Lower Rochester pit.

A total of nine core holes were drilled (8,785 linear ft.). All core was drilled and oriented with the ACE II tool during drilling. Core was logged in the field for structures before being boxed and transported to the core shed for further geologic and geotechnical logging.

Exploration drilling was also done in American Canyon, north and west of Leach Pad 4. Exploration drilling in Section 33 (south of Nevada Packard), included eight RC drill holes ranging from 800 ft. to 1000 ft. in depth. The majority of these drill locations were designed to intersect parallel structures of the Blackridge Fault system. Piezometers were placed in a number of these holes for water testing purposes.

Table 10.1 contains the drill footage for exploration drilling, including holes drilled by previous exploration companies (prior to Coeur involvement), as well as annual drill footages for drilling completed from 2008 through 2016 in areas surrounding the Rochester and Nevada Packard pits. Figure 10.1 shows drill hole site locations at the Rochester Mine. Figure 10.2 and Figure 10.3 show all stockpile drilling completed through 2013 for the area surrounding the Rochester and Nevada Packard pits, respectively. No stockpile drilling was conducted after 2013. Figure 10.4 shows the location of drilling completed in American Canyon.

Table 10.1. Exploration Drilling – Rochester Mine (Coeur, 2016)

Year	Location	# of Holes	Ft.
1969-1979	Rochester	485	159,348
	Nevada Packard	64	9,002
	Total	**549**	**168,350**
1980-1989	Rochester	644	322,673
	Nevada Packard	162	31,315
	Total	**806**	**353,988**
1990-1999	Rochester	486	264,417
	Nevada Packard	122	39,242
	Total	**608**	**303,659**
2000-2007	Rochester	329	129,014
	Nevada Packard	169	49,350
	Total	**498**	**178,364**

Year	Location	# of Holes	Ft.
2008	Rochester	46	19,060
	Nevada Packard	4	2,095
	Total	**50**	**21,155**
2009	Rochester	0	0
	Nevada Packard	0	0
	Total	**0**	**0**
2010	Rochester	0	0
	Nevada Packard	36	14,680
	Total	**36**	**14,680**
2011	Rochester	61	40,265
	Nevada Packard	98	45,261
	Rochester Stockpile	36	3,410
	Total	**195**	**88,936**
2012	Rochester	56	28,370
	Nevada Packard	31	13,420
	Rochester Stockpile	460	96,331
	Total	**547**	**138,121**
2013	Rochester	54	38,790
	Nevada Packard Stockpile	45	4,010
	Rochester Stockpile	636	118,905
	Total	**735**	**161,705**
2014	Rochester	158	138,388
	Nevada Packard	25	19,490
	Total	**183**	**157,878**
2015	Rochester	50	36,330
	Nevada Packard	6	5,630
	Total	**56**	**41,930**
2016	Rochester	106	86,475
	Nevada Packard	2	1,100
	Total	**108**	**87,575**
Total to Date	Rochester	2,475	1,263,430
	Nevada Packard	719	230,585
	Nevada Packard Stockpile	45	4,010
	Rochester Stockpile	1,132	218,646
	Total Drilling	**4,371**	**1,716,671**

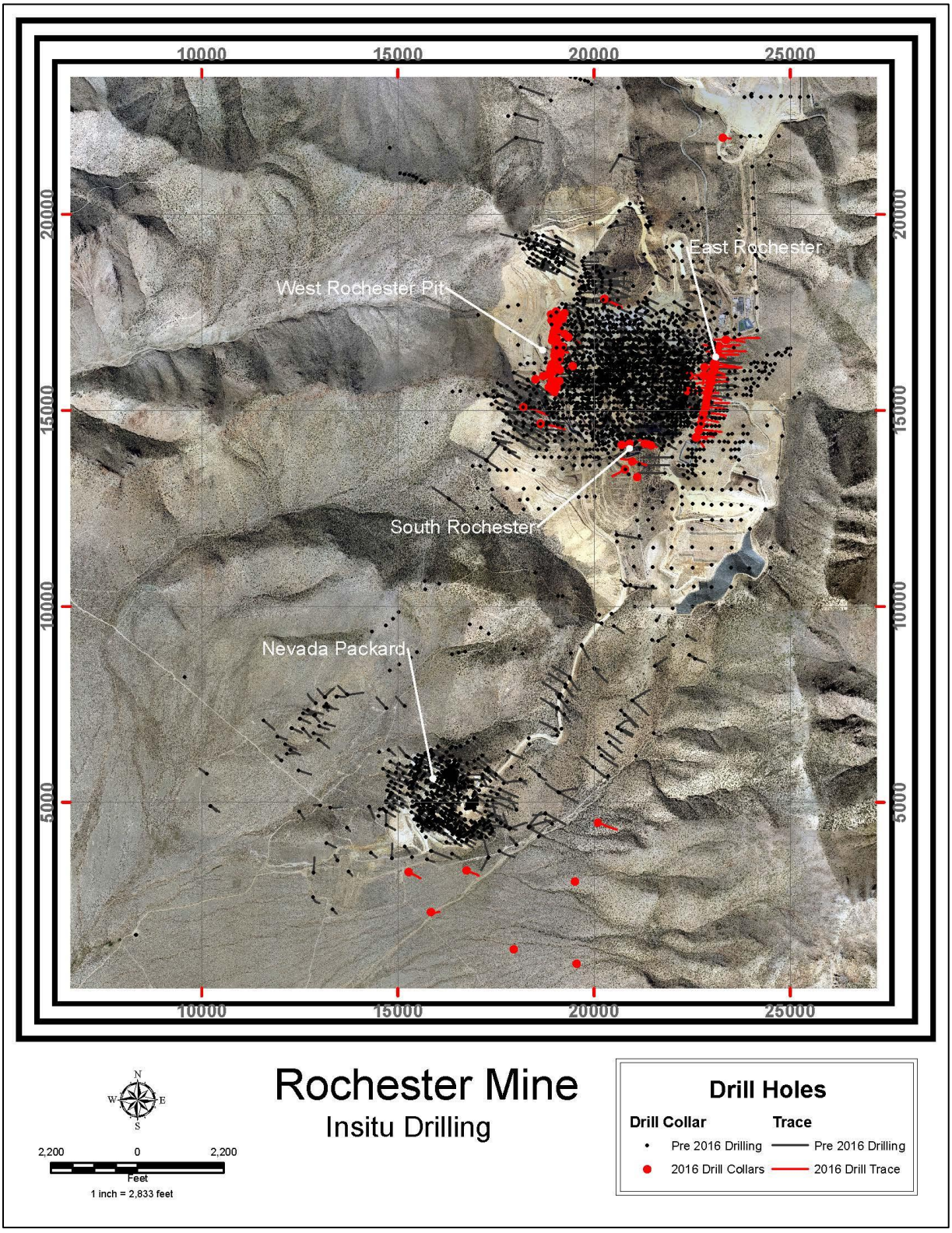

Figure 10.1. Rochester Mine Drill Hole Sites (Coeur, 2016)

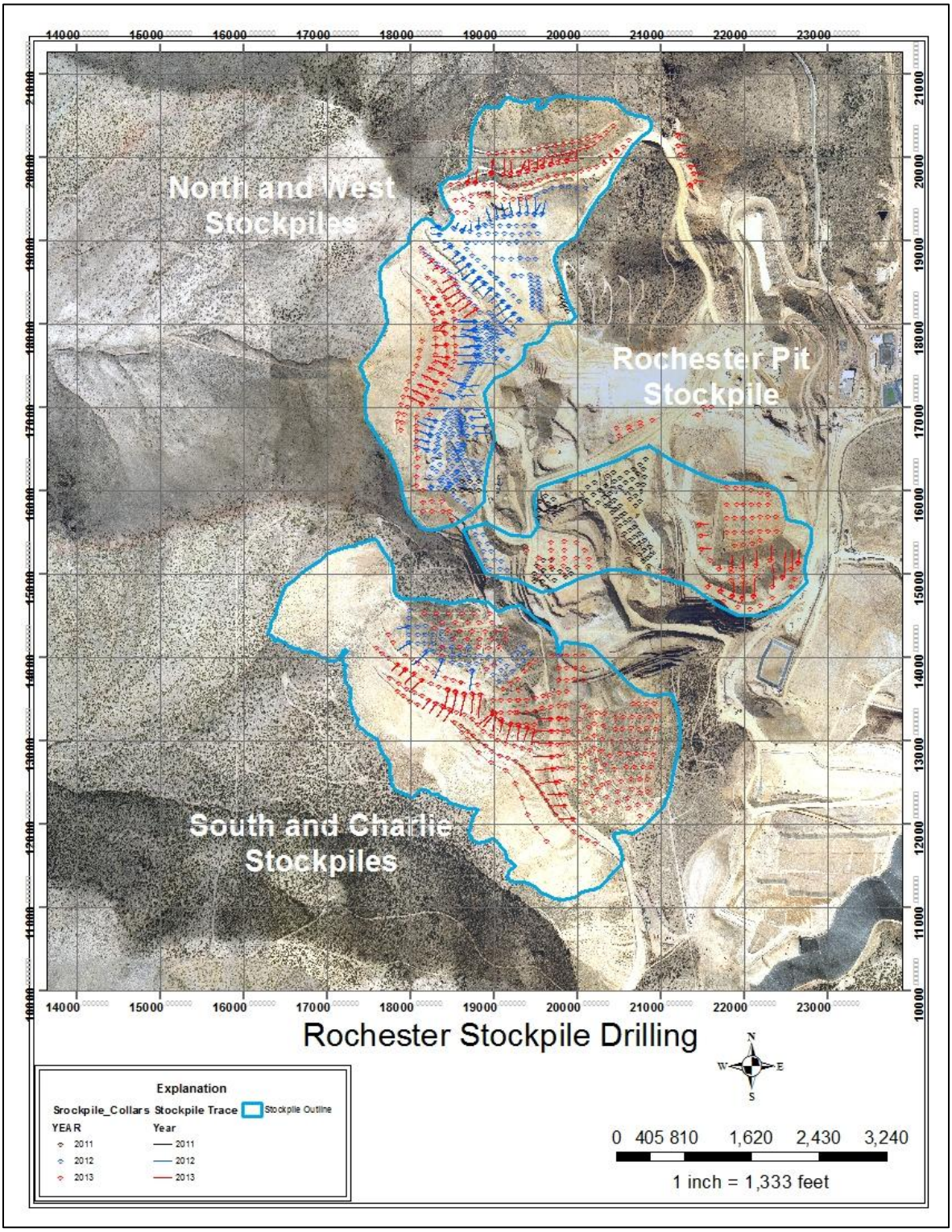

Figure 10.2. Rochester Stockpile Drilling (Coeur, 2016)

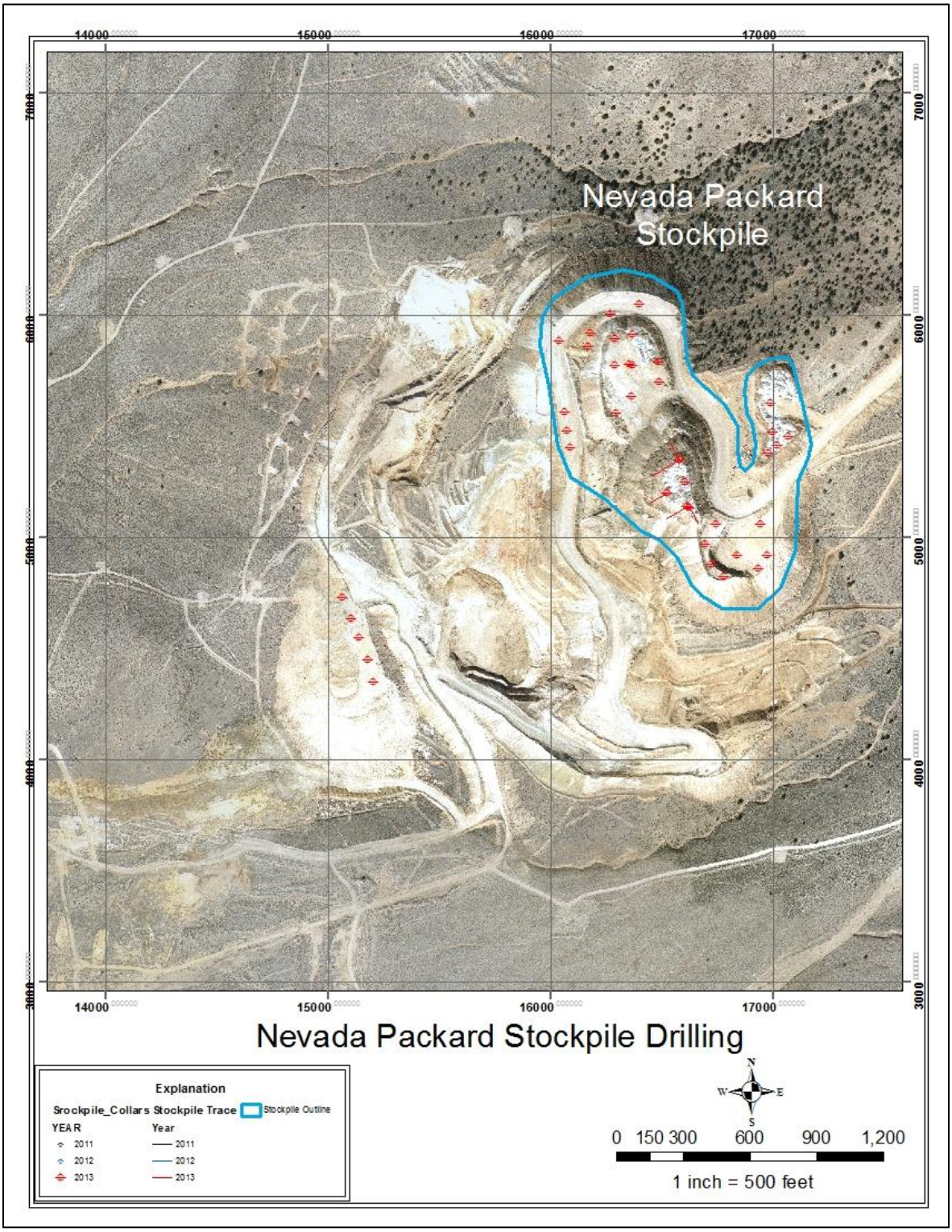

Figure 10.3. Nevada Packard Stockpile Drilling (Coeur, 2016)

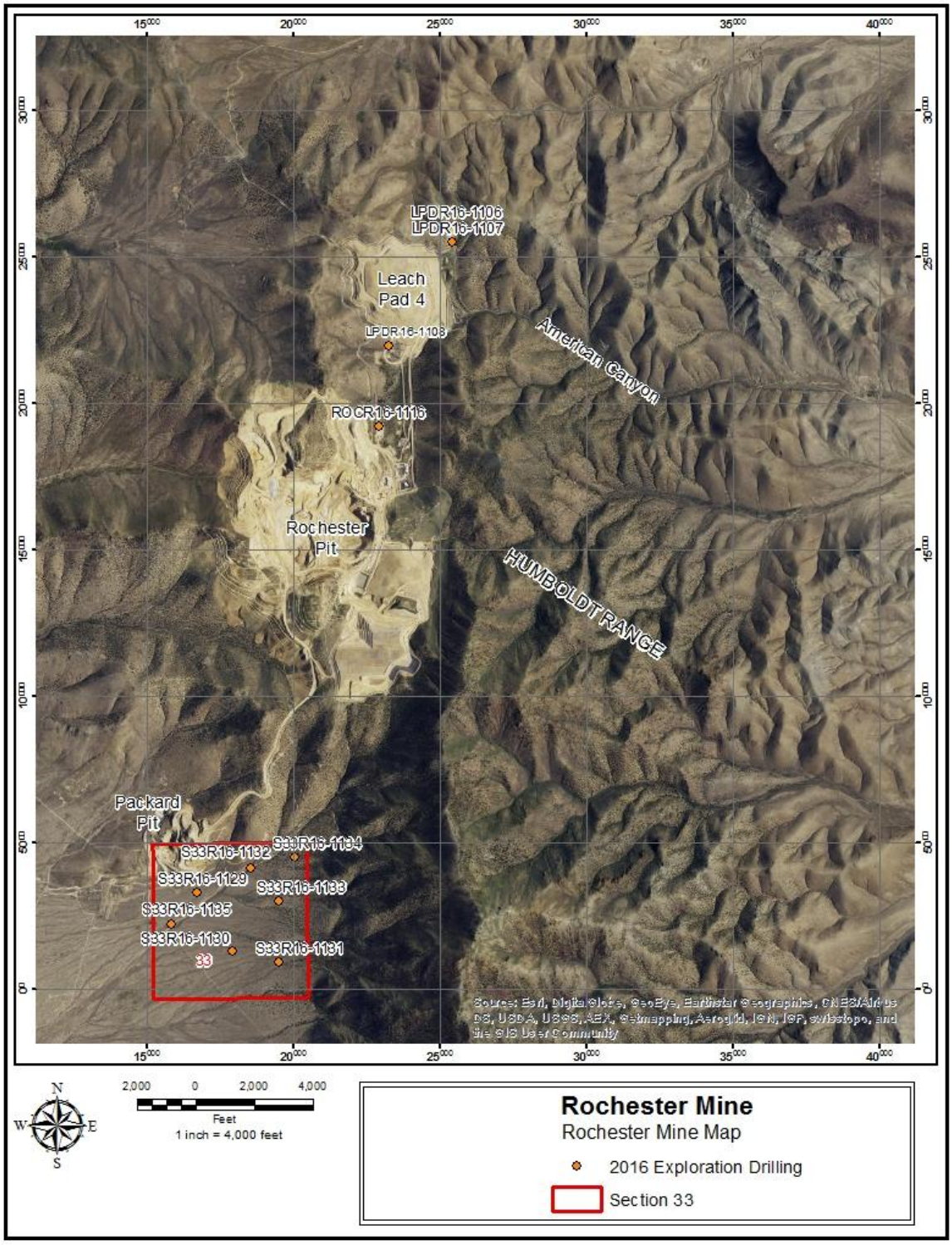

Figure 10.4. American Canyon and Section 33 Drilling (Coeur, 2016)

10.2 Geological Logging

Rochester geologists or contract geologists trained and supervised by Rochester personnel, performed the logging of the drill samples, beginning in 1987. Prior to this time, drilling and sampling was conducted by four different exploration companies, including ASARCO and Wharf Resources. The geologists for Coeur and ASARCO recorded detailed sample descriptions on standardized drill logs. These descriptions typically included location details, recovery problems, rock character, alteration (type/degree), quartz veining, sulfide presence, oxidation intensity, structural indicators and accessory mineralogy.

All data are stored in an acQuire® database.

10.3 Recovery

Data for historical drill recoveries were not recorded.

Since 2001, RC drilling has used primarily a 7.75-inch drill bit. Due to the fine nature of the mineralization at Rochester and Nevada Packard, all drilling is completed with wet drilling methods. A 10-foot sample interval typically produces 114 lbs. of cuttings. The drill cuttings are split to an average weight of 25 pounds (lbs.), using a wet rotary splitter. The wet rotary splitter continuously splits drill cuttings, producing samples that are equivalent to approximately 20% of the entire drill run.

10.4 Collar Surveys

Previously, drill hole locations were surveyed with Total Station survey equipment. Since 2008, drill hole locations have been designed using Geovia® GEMS software. The planned coordinates are then staked out by mine personnel using a Trimble SPS882 GNSS Smart Antenna.

Completed drill hole locations are surveyed with a Trimble GPS system by the Survey department. Geology personnel use an identical Trimble system to double check drill hole location coordinates.

As drilling and mining activity often occur in close proximity, some drill holes did not receive a final survey by either the Survey or Geology departments. The database does not contain information on holes drilled prior to 2001, or on how non-surveyed holes were handled. Since 2001, geology personnel have attempted to find collar locations of any completed drill holes that did not have a final survey. If the collar location could not be relocated, the planned hole location coordinates in the database were used as final coordinates. This method has been utilized on 1.8% of all drill holes from 2001 to 2015;

in 2016, only three final surveys were not completed on drill holes, which is 2.4% for the year.

10.4.1 Downhole Surveys

Downhole surveys were common practice after 1995 for all angled holes and for vertical holes over 400 ft. in depth. Prior to 1995, drill hole deviations were surveyed with gyroscopic instrumentation provided by Wellbore Navigation, Inc. of Tustin, California. Documentation for pre-1995 downhole surveys is sporadic. Examination of the deviation data, show that drill hole deviation ranges from 5 to 70 ft. with a mean deviation of approximately 5 ft. for every 100 ft. measured downhole. The typical absolute (x, y, z) displacement is 20 ft. for the bottom of the drill hole.

Starting in 2000, drill hole deviations were surveyed using downhole instruments provided by International Directional Services (IDS). Since 2010, 32% of all drill holes have been surveyed downhole. Commonly, the survey method used was either SRG or Maxibor. Seventy-five percent of angled holes in the dumps and 100% of all angled exploration holes have been surveyed downhole.

In 2016, only three of the 126 holes drilled did not have a downhole survey completed. The three holes were not surveyed because of encroaching mining activity, which precluded safe access to the drill hole.

10.5 Geotechnical and Hydrological Drilling

Geotechnical studies, including three angled, oriented HQ core holes totaling 1,950 ft., were completed in 2014. Geotechnical samples were chosen from these core holes for interpretation of structure and lithology in the south highwall. All three holes had a downhole survey completed by IDS upon completion of the hole.

Between 1985 and 2013, a total of 125 hydrologic drill holes were completed. Monitoring wells were completed for the Rochester Mine area (42), Nevada Packard Mine area (9), and Buena Vista Valley area (7). Four water production wells have been installed on the property. Sixty wells have been abandoned pursuant to the Nevada Division of Water Resources regulations. Three piezometers installed in 1991 are no longer monitored.

10.6 Sampling

Sampling of RC drill cuttings by Coeur Rochester was done on 10-foot intervals by the drillers under Geology department staff supervision. Selection of the 10-foot RC sample interval was based on the low grade nature and broad extent of the mineralization at the Rochester Mine. Drill samples are collected in cloth bags that drain water without losing

fine material. Sample bags are labeled by Geology staff with drill hole number, sample interval, and sample ID. Prepared bags are delivered to the drillers before the drill hole is collared. Sample bags are attached by drill personnel to the small discharge orifice on the cyclone, and drilling of the corresponding interval begins. This procedure is repeated only after the cyclone is cleaned from the previous sample interval. Field duplicate samples are completed by attaching a second, consecutively pre-numbered bag to the secondary discharge orifice on the cyclone. Filled sample bags are placed on the ground near the drill rig and residual water is allowed to drain. Before the sample bags are removed from the drill site, the bags are inventoried and checked off a sample list to eliminate the possibility of incorrect sampling. Filled sample bags are picked up at least once a day, placed in a 48 cubic ft. bin, and delivered to a holding area, where they are allowed to continue draining until the bins are placed on a transport vehicle to be taken to the assay laboratory.

Prior to 2008, core logging and sampling intervals ranged from a minimum of 1 ft. to a maximum of 10 ft., based on geologic characteristics. After logging, core is cut, split and sent to the lab for assay, and in some cases, LECO testing.

Information does not exist about how previous companies such as Wharf and ASARCO collected samples during drilling campaigns on the Rochester property.

10.7 Comments on Drilling

In the opinion of the QP, the quantity and quality of existing drilling data is sufficient for resource estimation of silver and gold, excluding rotary drilling samples collected by companies prior to Coeur Rochester ownership. ASARCO, Wharf, Cordero, and D.Z. Exploration data are not used in the Mineral Resource and Mineral Reserve estimation for the Rochester Mine. The QP acknowledges that a limited number of downhole surveys and collar surveys have not been completed on the property. The drillhole density and generally shallow drill depths support the inclusion of the drillhole data. The QP also acknowledges the inherent differences between RC drill sample quality and DDH sample quality. Recommendations to study sampling practices are included in Section 26 of this Report.

11. SAMPLE PREPARATION, SECURITY, AND ANALYSES

11.1 Sampling Methods

11.1.1 Historical Drilling

As noted in Section 10.7, there is no information available to Coeur Rochester on the sampling performed by ASARCO or Wharf.

11.1.2 Pre-2008 Drill Sampling

Sampling completed by Coeur Rochester since 1987, was performed primarily on ten-foot increments for RC drilling under strict geologic supervision. When drilling core, interval size ranges from a minimum of 1 ft. to a maximum of 10 ft., based on geologic characteristics.

RC samples were collected using a Gilson dry splitter and a wet rotary cyclone splitter. Dry samples were split down to 25-50 lb. samples, and wet samples were collected in an 8 mil plastic bag placed in a bucket to obtain an adequate sample. Porous bags have been used since 1997; flocculent was used for wet samples to collect and settle out fine-grained material. Duplicate field samples were collected every 100 ft. to confirm drill results. Samples were submitted to the laboratory by the rig geologist. All sampling procedures were completed according to industry standards.

After splitting, core samples were treated the same as RC samples for assaying: one quarter of a core sample was submitted for assay: one quarter was used for metallurgical testing; and half was retained for future test work or further descriptive/mineralogical work. Photographs were taken of the core prior to splitting for a permanent record. These photographs are stored in binders at the Coeur Rochester geology facilities.

Drill cuttings and residual core samples were maintained in boxes, vials, or chip trays and stored at the Rochester Mine site. Additionally, coarse reject samples and 90% of the 1 lb. pulps were collected and stored on-site for review or re-sample.

11.1.3 Sampling 2008-2016

Additional information on sampling is included in Section 10.7.

RC samples are collected using a wet rotary cyclone splitter over 10 ft. intervals. Since 2008, samples have been collected through a wet splitter on 10 ft. intervals. The splitter is cleaned prior to the addition of new drill pipe. Samples are collected in a five-gallon

bucket lined with a cloth sample bag, tied off, and laid out to dry. Chip trays containing a screened split of each interval are collected by the drill sampler. Prior to removing the samples from the drill site, the geotechnician reviews and documents the sample intervals (noting missing intervals), sample IDs, and hole IDs to ensure each sample is intact, correctly labeled, and the hole is complete. Samples and chip trays are picked up by a geologist or geotechnician before the end of each drill shift. Chip trays are delivered to the geology logging facilities. Chips are logged for lithology, mineralization, alteration, structure, and oxide mineralogy. Chip trays are then stored permanently on-site at the logging facility.

Core samples are recovered in 5 ft. intervals using a triple tube, where the core is removed from the split tube core barrel by the drillers and placed in a split PVC pipe. The length of the recovered core was measured, recorded and written on a wooden core marker and placed at the end of the run by the drillers. The core remains in split PVC pipe until photographs are taken and certain geotechnical data are collected for each run. Geotechnical data collected for each run at the drill rig includes:

- Total recovery;
- Solid core recovery;
- RQD (Rock Quality Designation);
- Natural fracture count;
- ISRM strength index;
- Weathering/alteration index; and
- Footage of zones of breccia, gouge and/or broken core.

After geotechnical logging, the core was placed in plastic core boxes. From 2008 to 2015, the full core boxes were picked up by a geologist or geotechnician and delivered to the geology core logging facilities before the end of each drill shift. In 2016, boxed core was transported to the core logging facilities by the drill crew before the end of each drill shift.

The core is photographed in the boxes and logged for:

- Lithology;
- Mineralization;
- Alteration;
- Structure;
- Veining;

- Oxide mineralization; and
- Detailed discontinuity attributes.

Upon completion of geologic and geotechnical logging, the core is split, as described in Section 11.1.2.

11.2 Metallurgical Sampling

Metallurgical samples are discussed in Section 13.

11.3 Density Determinations

A tonnage factor of 1.5424 tons per cubic yard is used for all in situ modeling. This tonnage factor has been confirmed by mining operations and third party studies undertaken in 1992 and 2002.

No historical density sample data are known to exist other than data collected for geotechnical studies (see Section 10.5).

11.4 Analytical and Test Laboratories

11.4.1 Pre-2008 Samples

Exploration and development drill samples collected by Coeur Rochester were analyzed by Inspectorate America Laboratory and American Assay Laboratories, both of which are independent of Coeur and governed by Independent Standard Organization (ISO 9002), and by Coeur Rochester's in-house laboratory, which is not ISO-certified. ISO is a certifying organization that oversees QC and standards for analytical labs. The majority of pulps and ore grade coarse rejects collected prior to 2007 have been eliminated. The decision to eliminate the samples was due to deterioration of the bags and contamination from rodents.

11.4.2 2008-2016 Samples

All exploration drilling samples taken since 2008 were analyzed by the following outside commercial laboratories. Figure 11.1 contains a timeline for the primary laboratories used.

- American Assay Laboratories (Sparks, Nevada; ISO-IEC 17025);
- ALS Chemex, Now called ALS Geochemistry (Sparks, Nevada; ISO 9001);

- Pinnacle Lab (Lovelock, Nevada; ANSI/ISO/IEC Standard 17025:2005; Testing Laboratory TL-484);
- Inspectorate Laboratory (Sparks, Nevada; ISO-ISD 9002);
- Skyline Laboratories (Tucson, Arizona; ISO/IEC 17025:2005); and
- McClelland Laboratories Inc. (Sparks, Nevada; ISO 17025:2005; Testing Laboratory TL-466).

The decisions that led to changing laboratories in recent years include lack of certification (Rochester laboratory), poor turn-around times, laboratory closure (Pinnacle and Skyline), and QA/QC issues that necessitated excessive re-assaying.

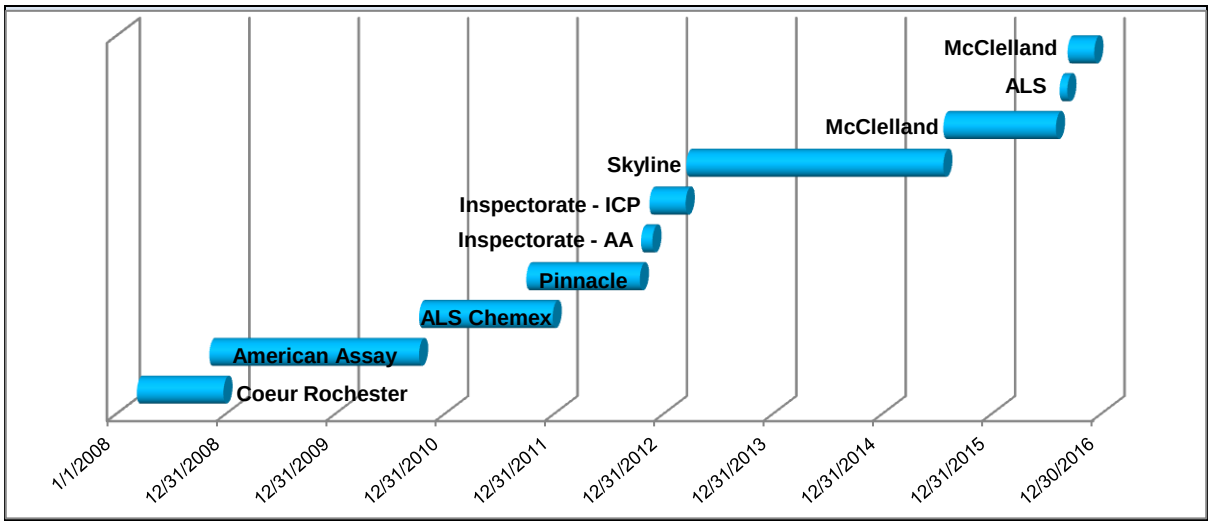

Figure 11.1. Primary Lab Timeline (Coeur, 2016)

The majority of drill samples taken at Coeur Rochester since 2008 were analyzed using a 1-assay-ton (1AT) fire assay with AA finish. Due to the lower grade of stockpiled ore, 2012 stockpile inventory drill samples were analyzed using a 1AT fire assay for gold by AA finish, and a 2-acid digestion with AA finish for silver. Assays greater than 0.5 ppm Au and 50 ppm Ag were checked by fire assay with a gravimetric finish. All results are reported in oz/ton.

Four assay methods were used at the Skyline Laboratory. Two fire assay methods were used for both Ag and Au assaying. The two methods for silver are Ag FA-3 and Ag FA-9. These two methods have different upper and lower detection limits: 29.2 opt (upper) and 0.001 opt (lower), and 2.92 opt (upper) and 0.003 opt (lower), respectively.

The two methods used for gold assays by Skyline are coded Au FA-2 and Au FA-9, and have detection limits of 29.2 opt (upper) and 0.005 opt (lower), and 0.088 opt (upper) and 0.001 opt (lower), respectively.

Mid-year 2015, Skyline Laboratories closed the local analytical laboratory. McClelland Laboratories Inc. was chosen to replace Skyline Laboratories. Both Skyline and McClelland assay laboratories have similar sample preparation methods and use a palladium inquart method of fire assaying. The use of palladium inquart method of fire assaying was discontinued by Coeur in August 2016.

At the start of 2016 drilling, McClelland was Coeur Rochester's primary laboratory for analysis of exploration drill samples. Beginning in early August 2016, ALS Geochemistry of Reno became the primary lab.

Four assay methods were used by McClelland. ALS's silver test methods are coded Ag_Ag-GRA21_opt and Ag_ALS_OG62b_opt, with detection limits of 292 opt (upper) and 0.1 opt (lower), and 21.9 opt (upper) and 0.03 opt (lower), respectively. Gold test methods are coded Au_GRA21_opt and Au_AA23_opt, with detection limits of 292 opt (upper) and 0.001 opt (lower), and 0.292 opt (upper) and 0.0001 opt (lower), respectively.

At the end of August 2016, the failure rate of standards and blanks at ALS was determined to be significantly higher than the typical failure rate at McClelland, and turnaround time increased. McClelland became the primary lab again, beginning in early September 2016. Since that time, McClelland has been used for all primary analyses and reruns.

11.5 Sample Preparation and Analysis

11.5.1 Pre-2008 Samples

Coeur Rochester's on-site laboratory prepared samples that were roll crushed, as necessary, to achieve minus three-eighths inch passing, which was then split to approximately 150 g and oven-dried at a temperature of 220° F. After drying, the entire 150 g sample was pulverized using a ring and puck pulverizer. The pulverizer was preset to run for 50 seconds to produce a minus 100-mesh product for assay.

After pulverizing each sample, the bowl, ring and puck assembly were disassembled with the pulverized sample and placed on a rolling cloth. The pulverizer assembly was placed back in the bowl with another sample. Two assemblies are used in an alternating fashion. The pulverized sample was rolled and transferred to a numbered envelope. Silica sand was pulverized at the end of the entire sample run in order to minimize possible contamination for the next run. No cleaning of the pulverizer assembly was performed during any single sample. No significant material was carried over from sample to sample with this equipment and methodology.

Each sample was fire-assayed with a 29.167 g sample using a traditional lead oxide flux, as well as a known addition of silver, referred to as an inquart. The samples were placed in one of four William and Wilson electric assay furnaces (15 samples per furnace) for approximately 35 minutes. The fusion of the flux and inquarted sample produced a molten mixture that was poured into conical molds and cooled. The lead button formed during the fusion process was separated from the cooled slag and pounded to remove any adhering slag. The lead button was then cupelled using a magnesium oxide cupel. The remaining doré bead was flattened and weighed. The weighed doré was placed in a 10 mm x 150 mm test tube, to which three drops of concentrated nitric acid were added. The test tube racks were placed in an oven (220°F) and allowed to digest to dryness overnight. The parted and dried samples were removed from the oven the next morning and cooled. After cooling, 10 g of a 10-gm/L sodium cyanide solution and one drop of hydrogen peroxide were added to each sample. Precious metals left in the test tube from the parting step were subsequently dissolved by the cyanide solution and analyzed using atomic absorption spectrophotometry.

QC standard samples were collected that contain the same rock matrix as the samples being submitted for assay. Three standard samples were collected from the mine site that represented typical Rochester mineralization. The three standards were then evaluated using a round-robin assay program, and splits of these standards were inserted into each fire assay tray to monitor the analytical quality and precision of the commercial laboratories (Inspectorate and American Assay).

The commercial laboratories received samples from the field technician and logged them into the drying furnace. The samples were dried and sent through a primary crusher (1/4') and 10-mesh secondary crusher, then passed through a multiple split Jones Riffle splitter resulting in a 200-300 g split. The secondary crusher was cleaned with a wire brush after each sample. The split sample was pulverized to 150-mesh with a ring and puck pulverizer, which was cleaned with tested barren sand after each sample, in order to eliminate contamination. The pulverized sample was weighed and rolled to ensure homogenization. The sample was then fire assayed, followed with an AA assay.

The exploration samples sent off-site to commercial labs for initial assay that are then received back at Coeur Rochester for storage, are randomly selected for assaying by Coeur Rochester as a check.

11.5.2 Sampling 2008-2015

RC samples weighing 15 to 25 lbs. are collected at the drill rig from a wet rotary cyclone splitter in pre-numbered sample bags. Samples are sent to an independent certified lab where they are dried, crushed to 10-mesh, split and pulverized to 150-mesh.

Rejects were stored for up to three months at the laboratory and used for check assay analysis. Pulps were returned to the Coeur Rochester core shed for storage and also used for check assay analysis. Check assays were performed by ALS Geochemistry of Reno, and have been since 2010. Prior to 2010, check assays were completed by Inspectorate.

11.6 Quality Assurance and Quality Control

11.6.1 Pre-2008 Sampling

In addition to the assay pulps and ore-grade coarse rejects being retained, other QC programs were in place for drill samples. Barren samples (blanks) were inserted into each development drill sample lot at regular downhole intervals to monitor potential sample contamination during preparation. A bulk barren sample was collected off-site and assayed by several different labs to confirm very low or non-detectable levels of gold and silver. Non-certified silver and gold barren material was collected from the property that resembled the color of typical drill samples from Rochester and Nevada Packard. Rochester geologists selected the barren sample insertion position with the intent, when possible, to follow strongly mineralized sample intervals. The barren sample was treated as a routine sample and labeled with the actual hole depth of the sample it was “replacing”. The true sample that was “replaced” was re-labeled with a hole depth added to the bottom of the hole; this information was noted on the geologic log form by the Coeur Rochester geologist. If the barren sample was returned with an anomalous value, the lot was considered invalid. The laboratory was informed of the error and instructed to prepare the coarse reject for re-assay. The value obtained for the sample interval that was substituted was obtained and re-inserted into the correct hole and interval.

Duplicate field samples were collected from random drill intervals to evaluate commercial lab sampling reproducibility. These samples consisted of cuttings obtained from the same interval from the discharge side of the rotary splitter on the drill rig. These duplicate samples were collected without altering the routine sample collection. Duplicate samples were labeled, separated from the routine drill samples and submitted blindly (i.e., without drill depths noted on the sample bag).

QC standard samples were collected that contain the same rock matrix as the samples being submitted for assay. Three standard samples were collected from the mine site that represented typical Rochester mineralization. The three sample types were evaluated by a round-robin assay program and these samples were inserted into each fire assay tray to monitor the analytical quality and precision of the commercial lab.

At the Rochester on-site laboratory, in addition to each load of 38 samples, two blanks (inquart, flux and silica sand), four duplicate samples, and one standard were included as QC samples (seven total per load). Every month, while in production, the Coeur Rochester laboratory randomly selects samples, either blasthole or metallurgical (e.g., column test sample), and sends them to reputable commercial labs for check assaying. The results are used to compare against precision and accuracy of the Coeur Rochester laboratory.

11.6.2 Sampling 2008-2015

Prior to sample pick-up at site by the assay laboratory, QC samples are inserted into the sample stream, consisting of a minimum of 5% standards, 5% blanks, and 7.5% duplicates. When results are received, the assay certificate is imported directly into acQuire®.

After importing an assay certificate, QA/QC reports for the certificate are generated immediately. Potential issues with assay quality are identified via failed standards, blanks, and duplicate assays.

A standard is considered to have failed if it falls outside three standard deviations from the expected value, with both the expected value and standard deviation being determined by round-robin assay conducted by the laboratory that certified the standard (CDN Resource Laboratories of Langley, B.C., Canada for standards used for 2012 drilling). A standard is also considered unacceptable if two standards in sequence fall between two and three standard deviations on the same side of the mean (showing bias).

A failed blank is any blank that assays greater than five times the detection limit of the analysis method. Blanks at Rochester consist of both local material that has proven to contain gold and silver grades below detection limits, as well as blanks purchased from a commercial laboratory.

A pulp duplicate is considered a failure if it is not within ±10% of the original assay. A crush/preparation duplicate is considered to have failed if it is not within ±15% of the original.

Assays associated with any failed QC samples are then quarantined from the database so they are not unintentionally utilized before they have passed Coeur QA/QC guidelines outlined in the Coeur's QA/QA protocols *Exploration Quality Assurance and Quality Control (QA/QC) Program and Protocols* (January 2012). Associated assays consist of all assays both up and down the assay stream to the next passing standard (in case of a failed standard) or blank (in case of a failed blank). Failed QC samples and their

associated samples are then rerun by the assay laboratory and the results are imported into the database. If the rerun assays pass the QA/QC guidelines, they are accepted and can be used for downstream activities. If the re-run QC samples fail QA/QC guidelines, the assays remain quarantined and the samples are then sent to a secondary outside laboratory for further analysis.

On a quarterly basis, 11% of all samples are pulled (10% from pulps and 1% from coarse rejects) and sent to a secondary laboratory for analysis as umpire samples. In the case of a serious discrepancy in any of these results, the samples were then sent to a third ISO certified laboratory.

QA/QC procedures, along with the sample collection and submission process at Coeur Rochester, has remained unchanged from 2010 through 2015.

In addition to the standards and blanks submitted to the lab by Coeur Rochester personnel, the laboratory inserts their own standards, blanks, and duplicates into the sample stream. These consist of greater than 10% insertion rate for duplicate and standard samples.

11.6.3 Sampling 2016

Sampling procedures in 2016 are very similar to the 2008-2015 procedures, with a few exceptions. After importing an assay certificate and generating QA/QC reports for the certificate, samples are rejected primarily based on failing standards and blanks. Failed duplicates are considered, but are not strictly used as a basis to reject samples.

When choosing which associated samples to rerun because of a standard or blank failure, the batch now consists of all assays both up and down the assay stream to, *but not including*, the next passing standard (in case of a failed standard) or blank (in case of a failed blank).

Umpire samples were not taken on a quarterly basis in 2016. In mid-December 2016, at the completion of drilling for the year, umpire samples were chosen at the same rate as previous years and sent to a secondary laboratory for analysis. If a serious discrepancy appears in any of these results, the samples will be sent to a third ISO-certified laboratory.

11.7 Data Security

Samples and chip trays are picked up by a geologist or geotechnician before the end of each drill shift. The samples are placed in a bin and transported to an off-site contract laboratory for analysis. Three unique documents are produced for each lab submittal,

including a lab sample submittal sheet, acQuire® dispatch form, and sample interval spreadsheet. The acQuire® dispatch form lists sample IDs and job number, and the spreadsheet includes sample intervals with QA/QC samples representing every tenth sample. The geotechnician either transports the samples directly to the laboratory or the contracted laboratory picks up the samples at the mine site where they are reviewed by a laboratory representative and chain of custody is transferred. Coeur Rochester retains a sample list signed by the laboratory representative to document chain of custody.

11.7.1 Databases

An acQuire® SQL Server database developed by acQuire® Technology Solutions was implemented at Rochester in 2010. The system is secured using Windows based log-ins for data input and export privileges. Access to the SQL Server is restricted to Coeur Information Technology personnel and the database administrator at the Corporate level. An automated backup of the system is completed on-site daily.

11.7.2 Sample Security

Historical samples (pre-2008) that were submitted to the Coeur Rochester laboratory were collected by Coeur Rochester employees and hand delivered to Coeur Rochester's assay laboratory. Coeur Rochester laboratory personnel verified sample hole numbers and assay intervals and stored samples inside the laboratory. Historical and post-2008 samples sent to off-site contracted commercial laboratories were collected from Coeur Rochester by each lab's personnel and the Coeur Rochester geologist retained a written chain of custody for the samples, with signature of the commercial lab technician. The chain of custody is secure and directly traceable from the field to the commercial lab. Laboratories return assays electronically in text and secured pdf format. Assays are directly imported into the acQuire® database with laboratory references to batch and analysis date.

11.8 Qualified Person Statement

In the opinion of the QP, QA/QC procedures, sample security, and analytical methodologies for Coeur sampling programs are acceptable and are adequate for Mineral Resource and Reserve estimation of gold and silver. This statement excludes rotary drill samples managed by ASARCO prior to Coeur Rochester ownership.

Based on a review of current sampling practices and analysis of reconciliation results, further work should be conducted to determine the best sampling methodology with regards to RC drill sample collection. Sampling studies should include sample size analysis, alternative drilling methods that would allow dry sample collection, and close monitoring of sampling at the drill rig by trained geologists. A trained geologist should review drilling in various geologic areas with varying flows of water produced during

drilling and duplicate sampling. It is also recommended to drill a minimum of 3 DDH twins of existing RC drill holes in the East Rochester area to test RC sample results within the water table. Estimated program cost is $250,000.

It is recommended that umpire check samples be submitted to a secondary laboratory once a month. No additional cost should be required.

12. DATA VERIFICATION

12.1 Summary

Data used for the Rochester open pit and stockpile resource estimates were exported from the Rochester acQuire® database prior to verification. The acQuire® database is currently under review by the Rochester Geology department. Completion of this project is expected by the next Resource estimate update. This review involves comparing original logs to the final acQuire® database records, auditing data quality and documenting the data review process and lockdown procedures.

Updated data validation and QA/QC includes:

- Drilling data added to the resource models between July 1, 2014 and November 1, 2016;
- All drilling in the Nevada Packard pit area as of March 30, 2016; and
- 515 drill hole results collected between 1988 and 2010 in the Rochester pit area.

12.2 Historic Review

Several major data reviews have been conducted on the Rochester area drilling data. The most recent, in 2014, included a review of all drill holes in the Rochester resource area. The review included spatial verification and assay certificate verification. Based on this review, 384 ASARCO drill holes were removed from the resource model dataset. Ten drill holes completed by Coeur Rochester since 1982, were also removed from the resource dataset based on failed verification against original assays certificates. QA/QC sample reviews were only completed on drilling programs conducted since 2007. Three drill holes were failed based on QC analysis, as per Coeur's internal QA/QC guidelines. It was recommended that the 13 drill holes, failed since 1982, be reviewed and updated prior to inclusion in future resource estimates.

Seventy-nine drill holes in the Limerick resource area were reviewed in 2014. Overall, performance of standards, blanks, and duplicates were within acceptable limits. Bias was detected in the standard analyses, where results were consistently within the $\pm$3 standard deviation (SD) limits. Check sample analysis quotas did not meet the internal Coeur QA/QC guidelines. No drill holes were found to have obvious collar, dip, or azimuth inconsistencies.

12.3 Rochester

12.3.1 Assay QA/QC

A total of 222 drill holes completed between 2014 and 2016, were considered for assay review as part of the Rochester drilling campaigns. Five percent of the drill holes were chosen for assay review against original certificates, while all assays were reviewed in cross-section. The results used in the resource estimate database were compared against hard copy or electronic assay reports. No major issues were identified for drill results completed between 2014 and 2016. Hard copy data is in place for all drill holes reviewed. Further review and update of drilling completed in the Rochester pit area prior to 2015, included review and update of silver and gold assay values for 256 drill holes by the QP. Another 259 drill holes from the Rochester pit area were reviewed by exploration personnel for assay values missing from the database. The missing values were replaced with values recorded on handwritten hard copy logs.

Assay QC samples were reviewed for drill holes added to the Rochester resource between July 2014 and June 2016. Assay QC includes analysis of blanks, standards, duplicates, and secondary laboratory check sample analysis.

Three blanks were used from 2014 to 2016:

1. Blank-BL-10 – Certified pulp blank from CDN Laboratory;
2. Blank-Coarse –Uncertified material from CDN Laboratory; and
3. Blank-Uncert – Uncertified silica sand from Anachemia Science.

A review of the blank results from ALS Chemex Laboratories, McClelland Laboratory and Skyline Laboratory found no failures were reported for blank samples finalized in the database between 2014 and 2016.

Four standards prepared by CDN Resource Laboratories or Rocklabs were included in sample batches analyzed in 2012: three standards from CDN Laboratories were used in QA/QC from 2014 through 2016 data analysis. Overall, standards performed well for the primary test methods utilized for sample analysis. Cyclicity is noted in standards run between the 2014 and 2016 analysis period by Skyline Laboratories and McClelland Laboratory, for both gold and silver analyses. This trend is most prevalent with the ICP finish and less with gravimetric finish. A procedure for rolling and preparing the pulp samples from jars of standard material was implemented in 2016 to address the problem. The failure rate at $\pm$3 standard deviations for all standards is less than 1%.

A duplicate is considered a failure if there is more than 20% relative difference between the primary and duplicate sample assay for this analysis. Coeur QA/QC guidelines

specify a maximum difference of 10% for pulp duplicates, 15% for crush duplicates and 20% for sample duplicates. Coeur QA/QC guidelines state that if pulp or crush duplicates fail, then the duplicate and primary samples should be re-run, and if within acceptable limits, the new results should replace the original results in the database.

Overall, silver duplicates perform as expected, with decreasing failures as the sample material is processed to a finer state when a 20% relative difference is applied to all duplicate types. Results shown in Table 12.1 indicate that sampling bias was reduced in 2015, but overall duplicate failures have increased from 2014 to 2016 for sample, crush, and pulverized duplicate pairs. While reproducibility of values below 0.005 opt for gold is difficult, sample duplicates analyzed for the 2016 data show a high rate of failure across the full range of values, while the majority of failures for 2014 to 2015 occur below 0.005 Au opt.

Table 12.1. Overview of Duplicate Performance 2014-2016 Sample Collection Period (Coeur, 2016)

Silver Duplicate Failure Rate				Gold Duplicate Failure Rate			
Year	Sample	Crush	Pulp	Year	Sample	Crush	Pulp
2016	37%	9%	8%	2016	44%	30%	28%
2015	29%	3%	5%	2015	30%	21%	14%
2014	29%	7%	7%	2014	28%	14%	14%

Sample pulps and course reject sent to a second laboratory are considered check samples. All check samples available between June 2014 and November 2016 were reviewed. Samples initially analyzed in 2014 and 2015 at Skyline Laboratory or McClelland Laboratory were sent to ALS Chemex for re-analysis (Figure 12.1). No other check samples were found in the acQuire® database for other laboratories used during this time period. The number of check samples submitted for analysis meets the requirements outlined in the Coeur QA/QC guidelines for 2014 and 2015. Results of the 2016 check sample program were not availabe due to the infrequent submission of samples to a secondary laboratory.

Assay results for silver and gold show that Skyline results with regards to pulp samples above 1.5 opt for silver and 0.003 opt for gold, are slightly higher than results from ALS Chemex. Crush sample results for gold are also slightly higher for Skyline results, while the silver results from Skyline are lower in the case of fire assay gravimetric finish. Similar results were generated by McLelland and ALS Chemex. The differences may be attributed to differences in methodology and initial sample size. Until mid-2016, a palladium inquart fire assay with AA finish was used for primary silver samples submitted to Skyline and McClelland. The method was changed in August 2016 to a 4-acid digestion AA method, to better account for the high grade silver content of Rochester samples.

Only 1.2% of the samples from the 2012 drilling campaign included in the 2016 Mineral Resource estimate were submitted for check sample analysis at ALS Chemex. This does not meet internal QA/QC guidelines. Results analyzed were inconclusive.

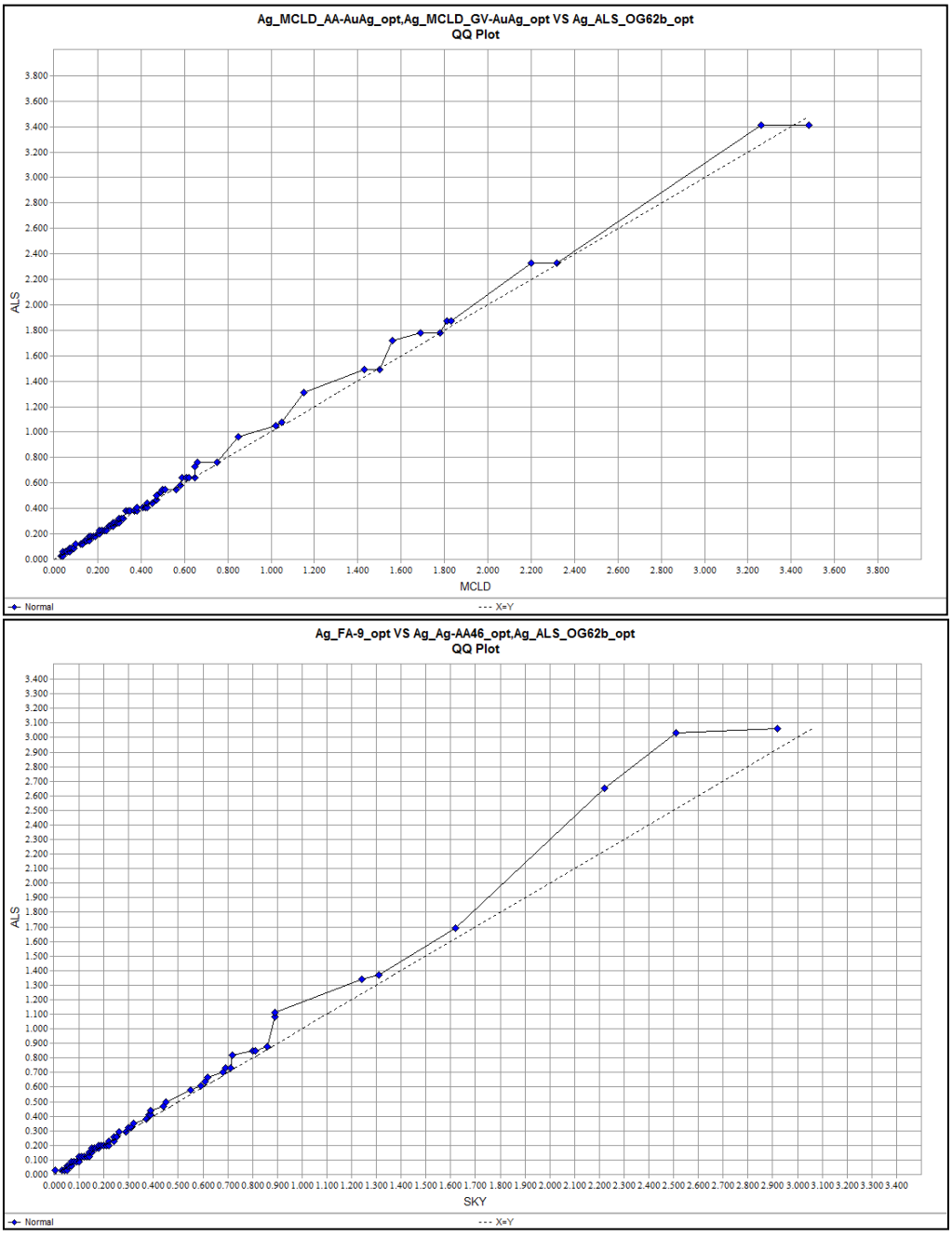

Figure 12.1. Silver Check Sample Results for ALS Chemex vs. Skyline Laboratories and ALS Chemex vs. McLelland Laboratories (Coeur, 2016)

12.3.2 Collar and Downhole Survey

All drill hole collar locations and surveys for data added to the 2016 Mineral Resource estimate since the last resource estimate, were reviewed in plan view and on 50 ft. cross-sections, looking north. Drill hole dip and direction were compared with surrounding assay results and interpreted geologic model structures.

Fourteen drill holes were sent back to geology for review and update of the collars and downhole surveys. Seven drill holes were found to have missing azimuth and dip information. Missing information was replaced and all 14 drill holes were included in the resource estimation.

12.4 Nevada Packard Data Validation

12.4.1 Assay QA/QC

A complete review of the Nevada Packard area (all drilling south of the Rochester pit) assay data was conducted as of March 30, 2016. A total of 678 drill holes were reviewed.

- 189 drill holes were completed by Wharf Resources. Documentation for this data is not available. Only visual validation was completed.
- 281 drill holes completed by Coeur Rochester between 1988 and 2005, were validated, but assay QA/QC data was not reviewed. The data is available in hard copy only and metadata pertaining to standards and blanks is no longer available.
- 208 drill holes were completed in the area between 2010 and 2015. QA/QC and validation were completed on this entire dataset.

Drill samples taken in 2010 were analyzed at the Rochester site lab and 8% of the 2010 samples were also analyzed at ALS Chemex Reno. Standard insertion rates included with the drill samples were sufficient to meet Coeurs' internal standards and guidelines, while the blanks and duplicate analyses fell short of the required completion rates. Blank failures were noted for silver results but were not considered significant. No standard failures were noted for silver analyses. Gold analyses for blank material all passed within acceptable limits, while minor failures were noted. Overall, sample duplicates for both gold and silver show high failure rates below 0.25 opt Ag and 0.002 opt Au. Sample duplicates also indicate there was bias in the initial sampling process.

The duplicate sample is typically higher grade than the primary sample taken. There is good correlation between the Rochester Laboratory and ALS Chemex results, as seen in Figure 12.2. Since adequate checks were completed at an outside laboratory and the

data validation found no significant issues, the results from this drilling campaign were included in the Nevada Packard Mineral Resource estimate for 2016.

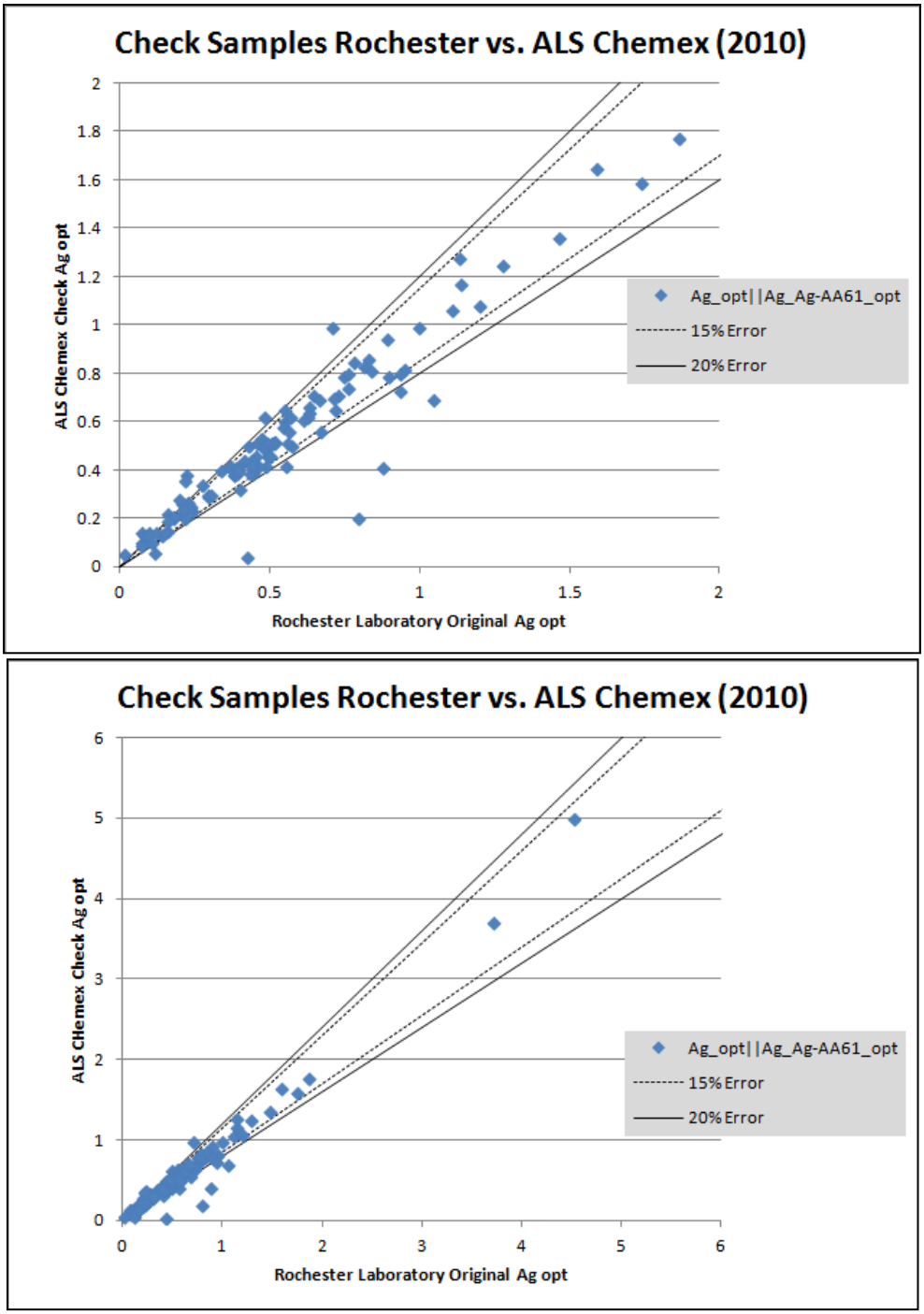

Figure 12.2. Check Sample Analysis, 2010 Drilling Campaign Results (Coeur, 2016)

The 2011 drill samples were analyzed at American Assay Laboratory in Reno, Nevada or Pinnacle Laboratory in Lovelock, Nevada. The QA/QC program for 2011 did not meet the overall Coeur internal standards and guidelines. While the correct number of standards was submitted, the blanks, duplicates, and check/umpire samples submitted were below recommended levels.

Standards used for 2010-2011 QA/QC are shown in Table 12.2 and Table 12.3. Review of the results indicates that no follow up was completed on failed results. Given the grade range of gold in the Nevada Packard deposit where <2% of all assays are >0.01 opt, all standards with the exception of ME-12 were inappropriate for this deposit, with regards to gold. Either the mean value, or in the case of standard ME-6, the standard deviation is too great to be meaningful. Standard ME-6 would also be considered inappropriate for most of the silver analyses, since approximately 2.4% of the silver grades are above 2.0 opt Ag.

Table 12.2. Silver Standard Values (oz/ton) used in 2010-2011 QA/QC Program (Coeur, 2016)

STANDARD ID	Mean	SD	3x SD		2x SD	
			Lower Limit	Upper Limit	Lower Limit	Upper Limit
ME-12	1.53	0.06	1.34	1.72	1.41	1.66
ME-15	0.99	0.05	0.83	1.15	0.88	1.10
ME-6	2.95	0.10	2.63	3.26	2.74	3.15
SI25	0.97	0.04	0.84	1.09	0.89	1.05

Table 12.3. Gold Standard Values (oz/ton) used in 2010-2011 QA/QC Program (Coeur, 2016)

STANDARD ID	Mean	SD	3x SD		2x SD	
			Lower Limit	Upper Limit	Lower Limit	Upper Limit
ME-12	0.0101	0.0006	0.0084	0.0119	0.0090	0.0113
ME-15	0.0405	0.0015	0.0360	0.0450	0.0375	0.0435
ME-6	0.0236	0.0079	0.00001	0.0472	0.0079	0.0394
SI25	0.0526	0.0013	0.0487	0.0565	0.0500	0.0552
SJ32	0.0770	0.0020	0.0710	0.0830	0.0730	0.0810

Only sample duplicates were created for the 2010-2011 drilling program. Results indicate sample biasing during the initial sampling process. A majority of the duplicates analyzed at American Assay Laboratories are within the ±20% acceptable error range, while a majority of the duplicate pairs analyzed at Pinnacle Laboratory fall outside of the acceptable ±20% error range.

Given the results of the QA/QC program with regards to the 2011 drilling program, results were reviewed for each batch sent and received from the laboratory. Based on this review, the majority of the errors could be linked back to 15 individual drill holes. After validation, these drill holes were removed from the resource dataset until the samples can be re-analyzed with appropriate standards and blanks inserted, and results verified by an umpire laboratory.

Excluding secondary laboratory re-checks, sample submission rates were acceptable for the 2014 and 2015 drilling campaigns consistent with Coeur internal guidance. Samples collected during 2014-2015 were analyzed at Skyline Laboratory in Reno, Nevada, and McClelland Laboratory in Reno, Nevada.

Blanks are currently analyzed at five times the detection limit and standards are analyzed using $\pm$3 standard deviations from the mean to determine pass/fail. Overall, blanks performed adequately across all laboratories and test methods used. Two blank failures were noted in drill hole WC15-021 for one batch analysis completed at Skyline. Standard failures for both gold and silver were limited to analyses completed at Skyline. Typically, when the silver analysis failed, the gold analysis failed as well, which suggests potential contamination of the standard material or incorrect documentation of the standard inserted.

Duplicates taken for the 2014-2015 RC drill program performed as expected: pulp and crush duplicates perform better than sample duplicates. Review of the duplicates from McClelland and Skyline indicate there is a bias in the results between the primary and duplicate samples split at the drill rig. Typically, the original sample value is slightly higher than the duplicate value. A small bias was also seen in the Skyline results, where the original sample values were slightly higher than the crush and pulp duplicate prepared at the laboratory. Regardless of the bias noted, only minor failures >15% were noted.

Available umpire checks performed at ALS Chemex during the 2014-2015 drilling period do not contain sufficient standards and blanks per batch. Samples below 0.6 opt Ag appear to compare well, but grades above 0.6 opt Ag appear to be biased between ALS and Skyline, with the ALS method producing slightly higher results, indicating potential issues between assay methods used at each laboratory. Overall, the results are sufficient to support use of the primary assay results in resource estimation.

12.4.2 Validation

Ten percent of the drill holes completed between 1990 and 2014 were reviewed against original hardcopy or electronic pdf assay certificates, topographic surface, and geologic cross-sections. Wharf Resources drilling was not compared to original certificates.

Assay validation shows the most significant problem found was ‘mis-keyed’ data entry of historic assays from hard copy and inconsistent data entry and flagging of detection limit values.

Visual review of the assay data in cross-section found inconsistencies in some of the 2011 drilling with regard to surrounding drill hole intercepts and structural geology models. Most of the problem drill holes also had assay QA/QC failures. As previously noted, 15 drill holes were removed from the resource dataset until further work is completed on the data to qualify it for inclusion in the resource estimate. Four drill holes (pre-1990) were removed after visual inspection of the results against geology and surrounding drilling results.

Review of collar surveys shows that the Wharf Resources drill hole locations appear to be generated on several drilling grids and probably were not surveyed after completion. The Wharf Resources drill holes were also compared against historic topographic surfaces. Several drill holes appear to have been collared in fill/dump material that may have been moved prior to the topographic surveys that were completed at a later date by Coeur Rochester. These drill holes do line up with surface mapping that indicates mine dumps in the areas. Collars for the Wharf drilling were not corrected back to the topographic surface and are considered reasonably correct. Drill hole collars for all Coeur Rochester drilling completed between 1990 and 2010 appear correct. Not all drilling completed in 2011 was surveyed after completion; sixty of the 2011 drill holes utilized planned coordinates. Eight of the drill holes completed in 2011 and included in the resource estimate for that year, were later moved when a final survey was applied to the drill holes. All of the 2014 and 2015 drill hole locations appear correct with regard to topography and geologic structures. Silver results for the twin drill holes analyzed at Pinnacle Laboratories are significantly higher grade than the drill holes analyzed at American Assay.

Downhole survey information was reviewed for drilling completed since 1990. One drill hole completed in 2000 was removed from the resource model based on significant azimuth deviations, when compared to the hard copy survey report and viewed in 3D. Twenty-five drill holes, completed in 2011 and used in the resource estimate for that year, were found to have changes made to the survey information after 2011. These were reviewed against survey certificates and cross-section and appear to be appropriately located. Review of the 2014-2015 drill hole downhole surveys found several drill holes did not have downhole survey information entered. The missing records were for drilling north of the classified material area; all drill holes in this northern area will be updated prior to the next resource estimate.

12.4.3 Twin Hole Comparison

Two RC drill holes were twinned with RC drilling in 2011. Results of the twin comparison are inconclusive. The original drill hole samples were assayed at American Assay, while the twin was analyzed at Pinnacle Laboratory. Both laboratories utilized 2-acid digestion with AA finish. The primary drill holes were sampled on 10 foot intervals, while the twin drill holes were sampled on 5 foot intervals. The drill holes from one set of twins are missing sample values for a portion of each drill hole. In the case of one set of twin drill holes, results from Pinnacle Laboratory are consistently greater than the results from American Assay for both gold and silver; while the results for the other twin set is varied. For the purposes of resource interpretation, the original drill holes were retained, while the twins were removed from the dataset.

12.5 Nevada Packard Stockpiles

12.5.1 Asssay QA/AC

Forty-six drill holes were considered for review. Initially, 105 drill holes were examined, but it was determined that the remaining 59 drill holes were not of sufficient quality to be used for resource estimation. Eleven drill holes from the original dataset of 105 drill holes were reviewed against hardcopy certificate. No problems were found with regards to original assay certificates.

Assay QC samples were reviewed for drill holes completed during 2013 for this resource area. Skyline Laboratories of Reno was the primary laboratory used, and American Assay Laboratory, Reno, was the secondary or check sample laboratory.

All blanks submitted with primary samples are composed of pulp samples that test the analytical process only. These blanks fall within Coeur's specified QA/QC limits required to be considered passing.

One hundred and fourteen standards from the 46 accepted drill holes were analyzed in 46 batches (sent to Skyline) and one batch (sent to ALS Chemex). Two failures greater than 3x the standard deviation, one gold, and one silver result were noted for standard ME-1101. Each failure is from a different laboratory, and no action was taken. Blanks and standards were inserted that exceeded Coeur's QA/QC guidelines. No problems were found with the blank and standard results.

Duplicates analyzed were taken at the sample, crush, and pulverization stages of the sample collection and preparation process. Overall, performance was adequate. Failures were spread out over 25 assay batches (a total of 45 batches were analyzed).

Fifty-two samples (or 13%) were submitted for duplicate analysis, which meets Coeur's QA/QC requirements. A duplicate summary is provided in Table 12.4.

Eight percent of the dataset was submitted for second laboratory verification. Three samples were submitted for crush duplicate analysis and 43 pulps were submitted to ALS Chemex. Original Skyline Laboratory results were fire assay with ICP finish, while the ALS Chemex assays were completed using atomic absorption methodology. Silver detection limits for both methods are 0.03 opt, while the lower detection limit for the Skyline gold fire assay is 0.001 opt and the ALS Chemex limit is 0.0003 opt. Results were compared using ±15% absolute relative mean difference. Results are inconclusive. Assay test methodology is not similar. No follow up was conducted on the outlier samples.

Table 12.4. Duplicate Summary (Coeur, 2015)

	Failure Rate 15% Absolute Relative Difference		
	Sample Duplicates	**Crush Duplicates**	**Pulp Duplicates**
# Sample Pairs	15	50	45
Ag_FA9_opt	13%	22%	13%
Au_FA9_opt	20%	26%	18%
	Failure Rate 20% Absolute Relative Difference		
# Sample Pairs	15	50	50
Ag_FA9_opt	13%	6%	9%
Au_FA9_opt	20%	26%	18%

12.5.2 Collar and Downhole Survey

Seven drill hole locations were re-surveyed as a validation check in April 2015. Eleven of the 46 drill holes used in the resource estimate do not have final surveyed collar coordinates. Further review of the collars in section view, with regards to the final topographic survey, revealed some of the un-surveyed drill hole coordinates were off (up to 22 ft. in elevation), while surveyed drill holes agreed well with the topographic surface. All drill holes were shifted vertically to the final topography for consistency and the original survey elevation was retained in the Gemcom drill hole database for future review.

Drill holes range in length from 40 ft. to 220 ft. No downhole survey instrumentation was used to determine deviation on the five angled drill holes included in the resource estimate. Planned azimuth and dip is used for drill hole orientation. This drilling is used in the resource, but since no physical collar or downhole survey was conducted, the resulting resource that is not supported by other drill holes will be considered Inferred.

12.5.3 Twin Analysis

No twinning has been completed for the Nevada Packard stockpile resource dataset.

12.6 North and West Stockpile

12.6.1 Assay QA/QC

A total of 528 drill holes were considered in this review. Assays were compared back to original certificates for 6% of the total drill holes. No issues were found with the primary assays. Analysis of the QA/QC results was completed on the Limerick and West data sets individually, but resource estimation combines both drilling programs into one resource model.

Three primary laboratories were utilized for sample analysis from April 2011 through November 2013. Pinnacle Laboratory, located in Lovelock, Nevada, was the primary laboratory until October 2012. Samples were submitted to Inspectorate from late 2012 until April of 2013. The current laboratory used for exploration results is Skyline. ALS Chemex is used for check sample analysis.

Two blanks were utilized in the assay QA/QC program. Blanks used were a prepared blank purchased from CDN Laboratories and silica sand. All blanks passed within the five times detection limit threshold, as established by Coeur QA/QC guidelines, and the insertion rate of 5.6% exceeds the minimum requirement.

Nine standards were used in the QA/QC program. All were purchased from CDN Resource Laboratories. Overall, standards performed well for the primary test methods utilized for sample analysis. Less than 1% failure was noted for all standards.

Duplicates taken for the North and West stockpile sampling QA/QC program include a combination of sample split, crush split and pulverized (pulp) splits. A failed sample pair is considered >±20% difference.

Gold sample pairs have the highest failure rate. A majority of the high error rate is attributed to samples at or near the detection limit results. Where $1/10^{th}$ of the detection limit is reported, the results are highly skewed. Most (96%) of the gold duplicate original values assayed between <0.001 and 0.005 opt Au. Values returned near detection limits are difficult to reproduce.

With regards to silver pairs, correlation coefficients for duplicates are highest for pulps, and then decrease for crushed and further decrease for coarse samples. In the case of Inspectorate, pulp duplicates show lower correlation than crush duplicates (0.984 vs.

0.976 opt Ag). Use of the Inspectorate Laboratory was discontinued due to consistent failure of standards and concerns over contamination during sample preparation. Skyline duplicates show better correlation for crush (0.99) and pulp duplicates (0.992) than duplicate pairs ran at Inspectorate. No duplicates were analyzed by Pinnacle Laboratory.

Check samples (pulps or coarse reject prepared by the primary laboratory) are sent to ALS Chemex for re-analysis. The results between the laboratories are compared using a maximum value of ±10% difference between sample pairs as the criteria for failure. Since test methods and detection limits at each laboratory are not exactly the same, results with a detection limit below 0.03 opt Ag are removed from the analysis. Approximately 16% of the total samples were submitted for check assay analysis. A higher failure rate with regards to silver is noted between check samples analyzed at Skyline and ALS Chemex (19-25%) than Pinnacle (17%), ALS, Inspectorate (18%), or ALS Chemex. Gold check samples from ALS compared best for Skyline (13% failure). Results from Pinnacle, run at ALS, failed 25%, while Pinnacle checks against ALS failed 23%.

12.6.2 Collar and Downhole Survey

Collar locations and downhole surveys were reviewed in tabular format and three dimensional (3D) plots to determine the following:

- Location correlated with surrounding drill holes;
- Vertical location relative to topographic surfaces; and
- Downhole dip and azimuth.

Minor corrections were made during the review period and all drill holes used in the resource estimate.

No drill holes were found to have obvious dip and azimuth inconsistencies.

12.6.3 Twin Analysis

Drill holes utilized in the resource model were drilled using water. Dry RC drill holes were completed as twins. Forty sonic drill hole twins and 43 dry RC twins were completed for North and West Rochester stockpiles.

Gustavson Associates, LLC (Gustavson) completed analysis of the twin drill holes in 2012. Gustavson compared descriptive statistics, conducted a Student's T-Test and a Z-Test to determine whether the average silver concentration in the twin holes were similar. Failed statistical evaluations were related to the sonic drilling method. The discrepancies between the wet and dry RC, and sonic drilling methods occurred at

frequencies of 11% and 14%, respectively. The statistical evaluation suggests the silver assay data results for twin holes are in agreement 93% of the time. Only data from wet RC drilling was used in resource estimation, regardless of the percentage of agreement.

12.7 South and Charlie Stockpile

12.7.1 Assay QA/QC

For QA/QC analysis, a total of 315 drill holes were queried on December 17, 2013 from drill holes coded Charlie stockpile and South stockpile. A review of assays against original certificates was not completed for this set of drill holes.

Assay QC samples were reviewed for drill holes completed by December 7, 2013.

Two blanks were utilized in the assay QA/QC program. Blanks used were a prepared blank purchased from CDN Laboratories and silica sand. All blanks passed within five times the detection limit threshold as established by Coeur's QA/QC protocols; the insertion rate of 7.4% exceeded the minimum requirement.

Nine standards were used in the QA/QC program. All were purchased from CDN Resource Laboratories. Overall, standards performed well for the primary test methods utilized for sample analysis. The failure rate for gold and silver standards was 2% and 4%, respectively. The majority of the failures were from use of two high sulfur standards that were not representative of the stockpile material in general. The use of high sulfur standards has been discontinued.

To compare how sample, crush, and pulp duplicates perform against each other, failures were counted as samples exceeding the ±10% and ±20% error limit. Table 12.5 shows the duplicate failures by test method and the overall percent failure at 20% difference. Error rates should decrease as material size decreases. Results from Skyline show higher failure rates for silver pulp and crush duplicates than sample duplicates. Inspectorate results are mixed with silver sample duplicates, showing the highest failure rate at 22%; crush duplicates at 14%; and pulp failures at 17%. Potential causes could include contamination during sample preparation, loss of fines during sample collection, silver and gold particle size, or analytical error. Similar results are seen for Inspectorate gold results, where sample duplicates have a 19% failure rate, crush duplicates at 12%, and pulp duplicates at 23%. Skyline results for gold are 24% failure for sample duplicates and 15% for both crush and pulp duplicates. No duplicates were run at Pinnacle.

Check samples for primary assays from Skyline and Inspectorate were sent to ALS Chemex for re-analysis. No primary samples assayed at Pinnacle were sent to a

secondary laboratory for check sample analysis. Comparison between laboratories is poor, utilizing a 10% difference threshold. Results between Skyline and ALS for silver crush and pulp duplicates fail 24% and 21%, respectively, while gold fails 24% for both duplicate types. Pulps from Inspectorate ran at ALS for check analyses failed 33% of the silver results and 17% of the gold, using the 10% difference criteria.

Table 12.5. Duplicate QA/QC Summary (Sample, Crush, and Pulp Duplicates Combined) by Test Method for South and Charlie Stockpile Assays (Coeur, 2013)

Lab Code	Assay Method	Number Duplicate Pairs	Number Samples <10% Error	Number Samples 10-20% Error	Number Samples >20% Error	Percent Failure
PINN	Ag_AAS-2A-Ag_OPT	20	5	11	4	20%
INSP	Ag_AR-TR_opt	98	36	17	45	46%
INSP	Ag_AuAg-1AT-ICP_opt	163	82	36	41	25%
SKY	Ag_FA-3_opt	1			1	100%
SKY	Ag_FA-9_opt	987	487	5	239	24%
INSP	Au_1AT-AA_opt	98	56		42	43%
INSP	Au_AuAg-1AT-ICP_opt	163	116	4	47	29%
SKY	Au_FA-2_opt	1	1			0%
PINN	Au_FA-30Au_OPT	20	13		6	30%
SKY	Au_FA-9_opt	987	692	260	291	29%

12.7.2 Collar and Downhole Survey

Collar locations and downhole surveys were reviewed in tabular format and 3D plots to determine the following:

- Location correlated with surrounding drill holes;
- Vertical location relative to topographic surfaces; and
- Downhole dip and azimuth deviation.

Minor corrections were made during the review period. Final collar surveys were not available for 26 of the drill holes and planned coordinates were used in these cases. All drill holes were used in the resource estimate.

Downhole surveys were completed for 38 drill holes. No obvious dip and azimuth inconsistencies were found.

12.7.3 Twin Analysis

Sixteen drill hole twins were recorded for the South stockpile area. Of these, fifteen pairs were analyzed. The remaining twinned drill hole was not included due to a discrepancy

in collar surveys. During the time period between the original and the twin drill holes completion, the primary assay laboratory was changed from Inspectorate to Skyline.

Percent frequency distribution graphs and downhole comparison plots indicate a slight bias in the mean grades when the twinned drill hole was analyzed at a different laboratory from the original drill hole. This is not evident in the remaining drill hole pairs where the same laboratory was used for analysis. The results suggest calibration differences between the two laboratories used. Overall, the twin data compares very well statistically.

12.8 Qualified Person Statement

In the opinion of the QP, sample preparation, security, and analytical procedures in place during the Coeur Rochester work programs for sampling mineralization amenable to open pit mining and for stockpile material, are acceptable to support Mineral Resource and Reserve estimation. As noted in this section, some drill holes have been excluded from the resource database, as data verification indicated QA/QC issues that preclude their use in estimation.

Given the importance of the historic data used in resource estimation at Rochester, a timeline and completion date for ongoing validation and update should be established in 2017.

While current purchased standard material utilized at Rochester are acceptable to support resource estimation, it is recommended that a study be undertaken to determine if standards specific to the geology of the deposit be developed for future use.

Twinning of RC drill holes with core is recommended to confirm RC sample results currently in use to estimate grade below the water table surface. At this time, RC samples are not considered adequate for confidence class above Inferred, below the water table surface. A minimum of three DDH holes should be completed as twins in the East Rochester area, each approximately 1,200 ft. in length. Estimated cost is approximately $250,000.

The timing of samples submitted to a secondary umpire laboratory for use in the QA/QC review process is considered inadequate. Samples should be submitted on a monthly basis to provide for a timely analysis. No additional costs should be incurred.

Based on the results of data verification of the recent Rochester drill results and historical drill data, the author’s opinion on the adequacy of the use of the results in Mineral Resource and Reserve estimation is acceptable without confidence class restrictions, except in the area of the Nevada Packard stockpiles.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Historical Metallurgical Test Summary

Metallurgical test work on Nevada Packard mineralization was conducted by previous mine owners/operators. Information compiled by Pincock, Allen & Holt, Inc. (PAH) for the *Nevada Packard Project Feasibility Study*, notes that pilot leach tests were conducted in 1978 on stockpiled Nevada Packard material using Merrill-Crowe plant for metal recovery. Poor percolation characteristics of the test heap resulted in blinding and channeling of solution and very low silver recovery. Gold recovery was not adequately monitored to establish gold recovery values (PAH, 1988).

The *Nevada Packard Project Feasibility Study* also referenced additional metallurgical testing completed in 1979 on dump material containing a high clay content. The mineralized dump material was crushed to minus 9/16-inch, and agglomerated with cement. Test work indicated a silver recovery of 60% was achieved in 11 days from the pilot-scale heap leach (PAH, 1988).

According to statements in the *Update on Feasibility Studies Nevada-Packard Silver Project* report compiled by N. Tribe & Associates, Ltd. (N. Tribe), a 100,000 ton production-scale heap leach test was conducted in 1981 using about 70,000 tons of newly-mined ore and 30,000 tons of previously leached dump and surface ore. Material head grade was 1.73 opt silver and 0.010 opt gold. Crush size of the test material was 70%, passing 5/8-inch. The material was agglomerated with cement and heaped by stacker conveyor in 14 ft. lifts. The material produced recovery values of 33% and 51% for silver and gold, respectively. The low recoveries were attributed to “crushing to too coarse a size especially for deeper ore where there is a higher proportion of acanthite” (Ag2S) (N. Tribe, 1990).

In 1983, several bottle roll tests were performed. Bottle roll tests were conducted on minus 3/8-inch material from the stockpile and open pit. Recoveries of 30% to 40% of the silver were obtained in 24 hours. Heinen-Lindstrom Associates conducted bottle roll tests on minus 3/8-inch material. Test conditions were 72 hours leaching, using a solution containing 5 lb./ton cyanide. Recoveries averaged 51% for silver and 80% for gold. Long term (11 day) bottle roll tests of drill hole composite samples gave silver recoveries of 70% and gold recoveries greater than 60%. Previous 24-hour bottle roll tests on the same material resulted in 56% silver recovery and 55% gold recovery. Table 13.1 contains summaries of the bottle roll test results (N. Tribe, 1990).

Extensive pilot-scale heap leach tests were also conducted in 1983 on three different crushed material sizes. Some tests included pre-cyanide treatment. Each heap contained 1,600 tons of mineralized material taken from a small test pit. The heaps were

constructed with a front-end loader to 7 ft. in height. The results are shown below in Table 13.2 for pre-cyanide treated mineralized material (N. Tribe, 1990).

Coeur cannot comment on the representative nature of the mineralized material samples used in test work conducted by previous mine owners and/or operators. It is presumed these material samples, having been obtained from the Nevada Packard stockpiles and pit, would provide representative test results consistent with the Nevada Packard mineralization.

Table 13.1. Nevada Packard – 1983 Bottle Roll Results (N. Tribe, 1990)

Particle Size	Length of Test	Recovery	Sample Type
-3/8	24 Hrs	30 - 40%	Stockpile & Pit Material
-3/8	72 Hrs	Ag - 51%, Au - 80%	Pit Material
+10 mesh	11 Days	38%	Drill Fraction
-10 mesh, +200 mesh	11 Days	70%	Drill Fraction
-200 mesh	11 Days	94%	Drill Fraction
Composite from above	11 Days	Ag - 70%, Au - 60%	Drill Fraction
Composite from above	24 Hrs	Ag - 56%, Au - 55%	Drill Fraction
-3/8	72 Hrs	0.59	Dump Material
-3/8	72 Hrs	Ag - 51%, Au - 80%	Dump Material
+10 mesh	11 Days	38%	Dump Material
-10 mesh, +200 mesh	11 Days	70%	Dump Material
-200 mesh	11 Days	94%	Dump Material
+3/16	11 Days	Ag - 70%, Au - 60%	Pilot Plant Crusher
-3/16, +1/8	24 Hrs	Ag - 56%, Au - 55%	Pilot Plant Crusher
-10 mesh, -100 mesh	72 Hrs	59%	Pilot Plant Crusher

Extensive pilot-scale heap leach tests were also conducted in 1983 on three different crushed material sizes; some tests included pre-cyanide treatment.

Each heap contained 1,600 tons of mineralized material taken from a small test pit. The heaps were constructed with a front-end loader to 7 ft. in height. The results are shown in Table 13.2 for pre-cyanide treated mineralized material (N. Tribe, 1990).

Table 13.2. Nevada Packard – 1983 Pilot Heap Test Results for Pre-cyanide Treated Material (N. Tribe, 1990)

Particle Size	Length of Test	Recovery	Sample Type
-3/8	2 weeks	Ag - 56%, Au - 87%	Test Heap Material
-1/4	2 weeks	Ag - 59%, Au - 64%	Test Heap Material
-1/8	2 weeks	Ag - 62%, Au - 64%	Test Heap Material
Column tests associated with above heap leach tests			
-3/8		Ag - 44%	Test Heap Material
-1/4		Ag - 50%	Test Heap Material
-1/8		Ag - 53%	Test Heap Material

In January 1988, Bateman Metallurgical Laboratories conducted column tests on several different rock types taken from core crushed to minus 3/8-inch. The rock was crushed, mixed with 1 lb./ton lime, loaded into 6-inch diameter by 6-ft. tall columns, and treated with cyanide solution. The average recoveries of 12 columns, containing 10 different rock types, were 87% for gold and 58% for silver.

In 1997, Coeur Rochester performed several column tests on HQ core and two on stockpiled material. The material was crushed to match the size gradations typically seen from tertiary-crushed material at Rochester (nominal 3/8-inch). Average recoveries were concluded to be similar to Rochester oxidized material, and projected to be 93% for gold and 61.5% for silver.

On a monthly basis, the metallurgical department reconciles the ounces placed on the pads to their anticipated recoveries from the Matrix model. The Matrix model uses historical recoveries for both silver and gold to predict the amount of metal that will extract from each pad on a month-to-month basis. On a weekly basis, process solutions are analyzed for deleterious elements such as copper, cadmium, mercury, and zinc to recognize any significant changes to the extraction of precious metals. At this time, there are no deleterious elements present in the process solutions that are hindering the extraction of silver and gold.

13.2 In-House Metallurgical Testing

Crusher product samples from the N-pit and X-pit crusher circuits are collected each shift and analyzed for contained moisture and contained size fractions and then assayed to determine silver and gold grade delivered to the leach pads. ROM samples from delivered ore to the leach pads are taken every two hours from the active areas on the Stage III and IV pads. This ROM analysis is used to determine characteristics of the ore being delivered to the heap leach pads. The daily crushed ore and ROM composite samples are also composited monthly for use in bottle roll and column tests to evaluate

recovery trends and reagent consumption, and analyzed for contained moisture, contained size fractions and assayed to determine silver and gold grade.

At the laboratory, bulk samples are categorized and split into proportionate test samples. One split of each ore type (crushed or ROM) is crushed, pulverized, divided into six increments, and fire assayed to produce a set of values for contained silver and gold. The average of the six assay runs is considered to be representative of the crushed material produced and placed into leach for the corresponding day. The second split is used for moisture determination and screen analysis. A third split is used to generate monthly composites of ROM and crushed ore for metallurgical analysis.

The monthly composites of crushed ore and ROM material are independently split into two equal sub-samples, each weighing approximately 110 lbs. A head assay by size fraction is completed for each sub-sample, and column tests are performed on both. The monthly column leach tests are run in a manner that is analogous with production heap conditions, and deliver test results that are good indicators of expected production heap performance. The crusher columns are run for 60 days and the ROM columns are run for 180 days.

The solution that percolates through the test column is collected every day and weighed and assayed for silver and gold. Upon completion of the leach cycle – the tails material is rinsed, removed from the test column, dried, screened, and the individual screen size fractions are weighed. A split from each size fraction is run for silver and gold assay.

The head assays, final tails assays, together with weights and assays from the daily solution samples are used to determine overall percent recovery and rate of recovery, and for determining recovery by size fraction. Cyanide consumption and lime addition requirements for pH modification are determined for expected reagent use for Process & Operations.

Figure 13.1 shows the recent column test recoveries against the predicted recoveries, which are based on historical data for silver and gold. The predicted recovery is based on the logarithmic curve and the 60 day column to predict the 180 day recovery for silver and 90 day recovery for gold. The laboratory stopped running the 180 day columns of crushed material in March 2015 to focus on other metallurgical test work. The variance in gold recoveries in the bulk of 2014 is best explained by the fact that PAG material has a lower initial gold recovery.

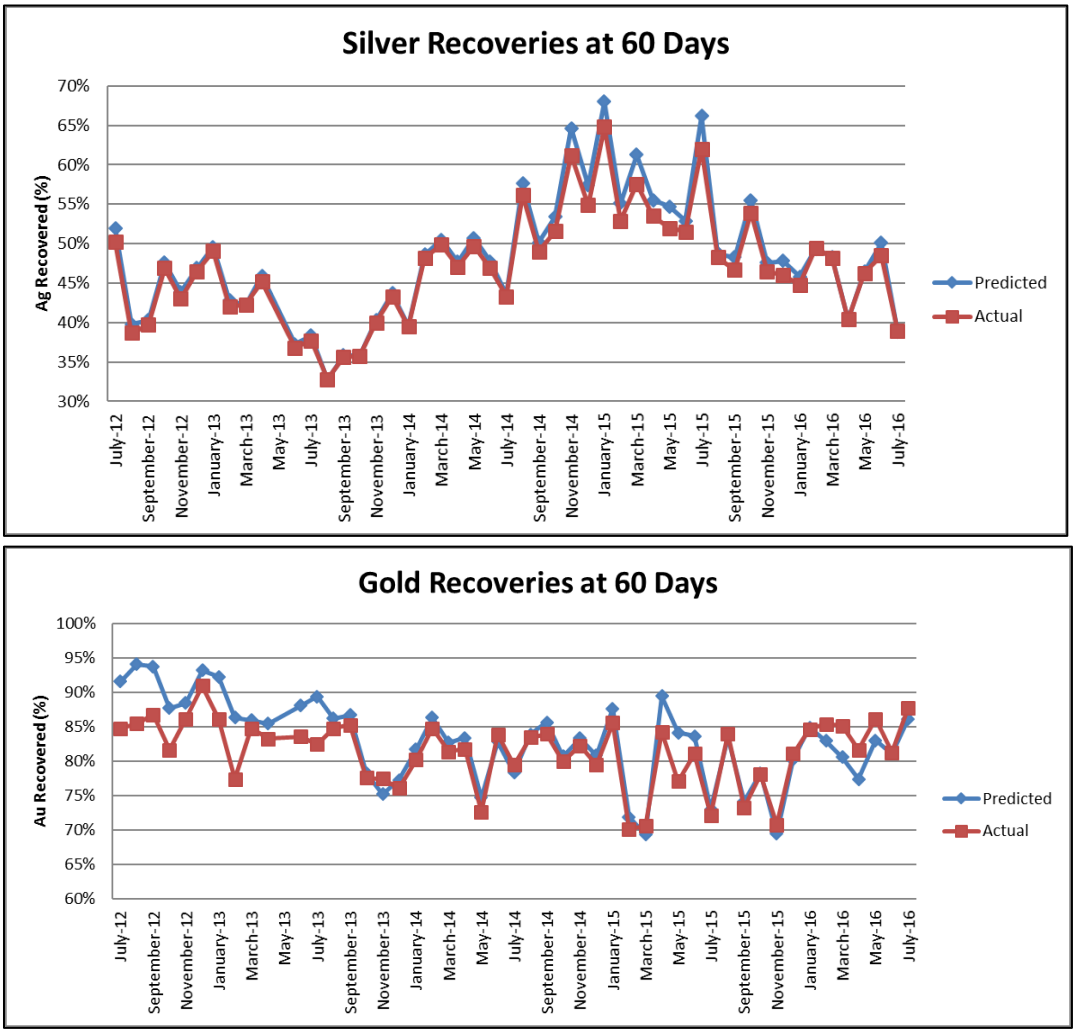

Figure 13.1. Silver and Gold Recovery (Coeur, 2016)

Metallurgical gold and silver recovery information of crushed and ROM columns tests are compared against historical recoveries of crushed and ROM ore. Historical recoveries of crushed ore and ROM ore are provided in Table 13.3. Metallurgical test work at Rochester continues to further refine metal recovery rates and ultimate recovery values. This type of metallurgical testing is necessary to provide better understanding of process optimization, potential cost reduction, increase crusher throughput, and to provide engineering support on future operational planning.

The mine site has conducted an extensive study on this ROM material via column tests and test heaps to gather a further understanding of the recoveries. The historical ROM recoveries are 70% Au and 30% Ag but this was mostly ROM that was different than the material currently being hauled to Stage III.

Figure 13.2 and Figure 13.3 show the recoveries of all the ROM columns processed in the metallurgical lab since October 2013 through October 2015 for silver and gold, respectively. The recovery calculations have been calculated to show the actual pad recovery relative to the size of the column and length of the test performed. It can be clearly seen that both the silver and gold recoveries are significantly higher than the current historical rates being used.

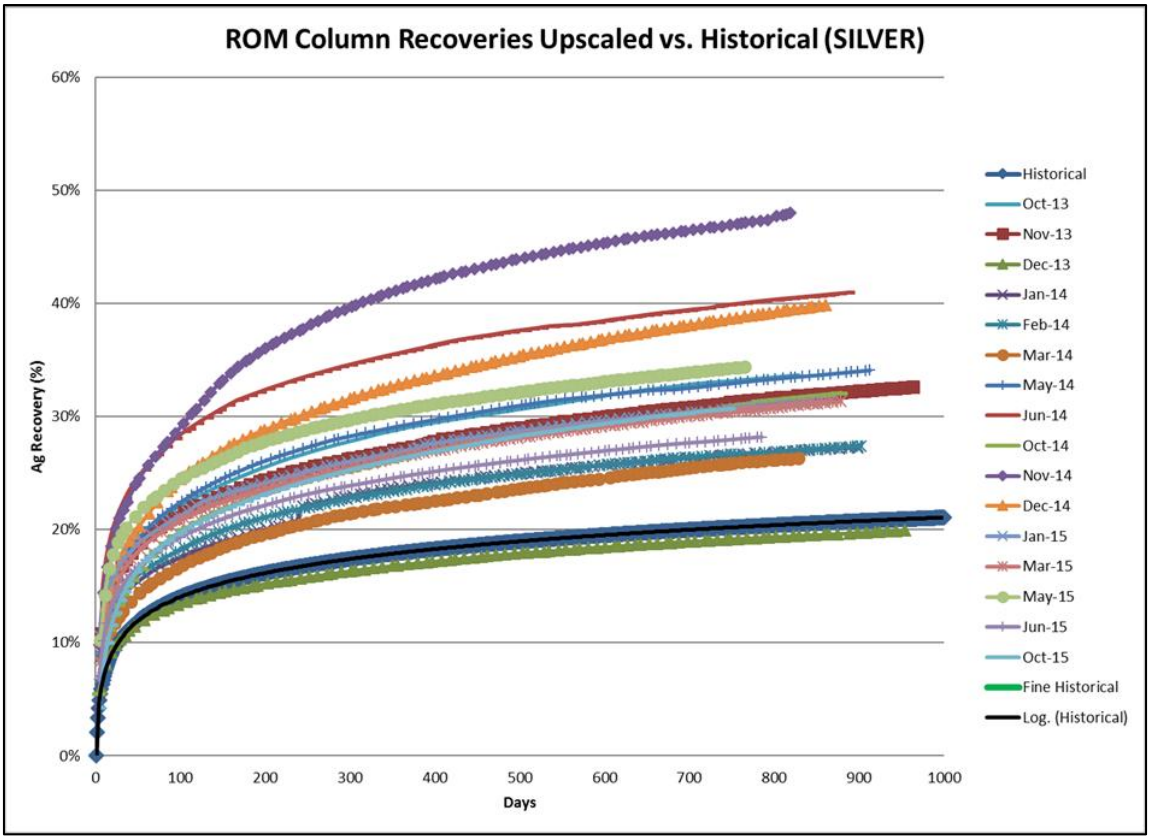

Figure 13.2. ROM Column Recovery – Silver (Coeur, 2016)

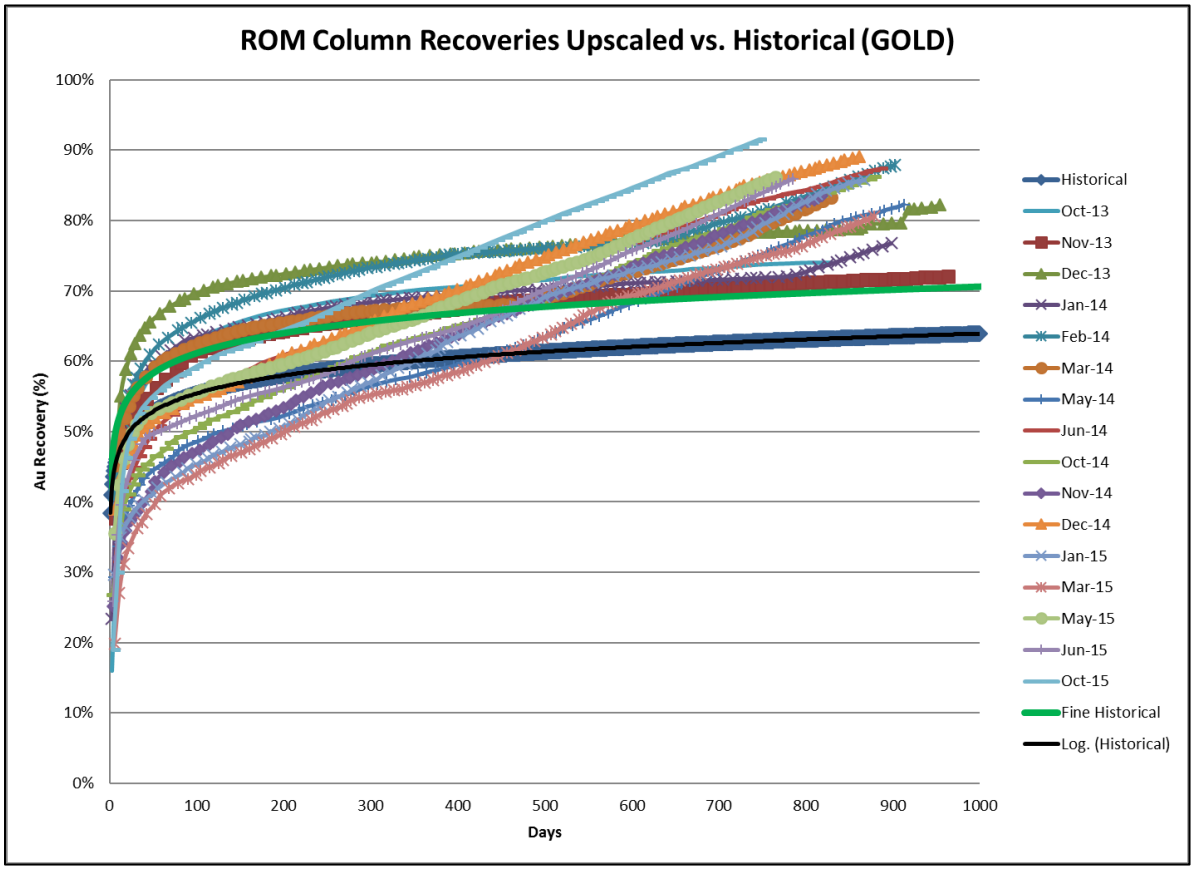

Figure 13.3. ROM Column Recovery – Gold (Coeur, 2016)

Based on the analysis of current testing, the recovery calculations used in the prediction matrix will be adjusted based on the results of the test pads, monthly columns, metallurgical balances and METSIM analyses. The crushed silver and gold recoveries will have a reduced initial leach, but still reach same total recovery in one year. The ROM material will have an increase in total silver and gold recovery, but also have an initial delay for silver and gold.

With the addition of the METSIM software for simulating the pads, it was apparent that the historical recovery rates for both crushed and ROM material needed adjustment. Through extensive trials in both METSIM and the matrix, new recovery rates have been established for the material being hauled to Stage III. Historical recoveries for silver and gold are shown in Table 13.3, while updated recoveries for silver and gold are shown in Table 13.4. Table 13.5 shows the equations for the historical and the updated recoveries.

Table 13.3. Historical Au/Ag Recoveries of Crushed and ROM Ore (Coeur, 2015)

Leaching Years	Leaching Days	Crushed Ore		ROM Ore	
		% Recovery			
		Ag	Au	Ag	Au
	30	30.5%	73.1%	11.9%	51.0%
	60	35.5%	76.0%	14.3%	53.5%
	90	38.2%	77.7%	15.7%	55.0%
	180	42.6%	80.6%	18.2%	57.6%
1 Year	365	46.8%	83.5%	20.7%	60.2%
5 Years	1,826	55.2%	90.2%	26.3%	66.1%
10 Years	3,653	58.4%	93.0%	28.7%	68.7%
20 Years	7,305	61.4%	95.9%	31.1%	71.2%

Table 13.4. Updated Au/Ag Recoveries of Crushed and ROM Ore (Coeur, 2016)

Leaching Years	Leaching Days	Crushed Ore		ROM Ore	
		% Recovery			
		Ag	Au	Ag	Au
	30	26.3%	78.9%	1.7%	65.0%
	60	31.1%	80.8%	6.2%	68.2%
	90	33.9%	81.9%	8.8%	70.0%
	180	38.7%	83.7%	13.3%	73.1%
1 Year	365	43.6%	85.7%	17.9%	76.3%
5 Years	1,826	54.8%	90.0%	28.4%	83.6%
10 Years	3,653	59.6%	91.8%	32.9%	86.7%
20 Years	7,305	64.5%	93.7%	37.4%	89.8%

Table 13.5 Recovery Equations

Material	Historical	Current (this report)
Crushed Silver	1 – (days)^-0.107	0.0695*LN(days) + 0.0263
Crushed Gold	0.0415*LN(days) + 0.59	0.0269*LN(days) + 0.6978
ROM Silver	0.0305*LN(days) + 0.00	0.0650*LN(days) – 0.2042
ROM Gold	0.0369*LN(days) + 0.3842	0.0451*LN(days) + 0.4969

13.3 Metallurgical Variability

Historically, Coeur Rochester estimated the recoveries for all sulfide materials to be 61% silver and 60% gold. Sulfide recoveries are based on prior test work results. New column tests on representative sulfide ore samples were initiated in 2015, with columns and a

test cell completed in 2016. The PAG ore that was tested in the columns and on a 3,000 ton test cell confirmed the recovery rates for gold and silver, and is shown in Figure 13.4.

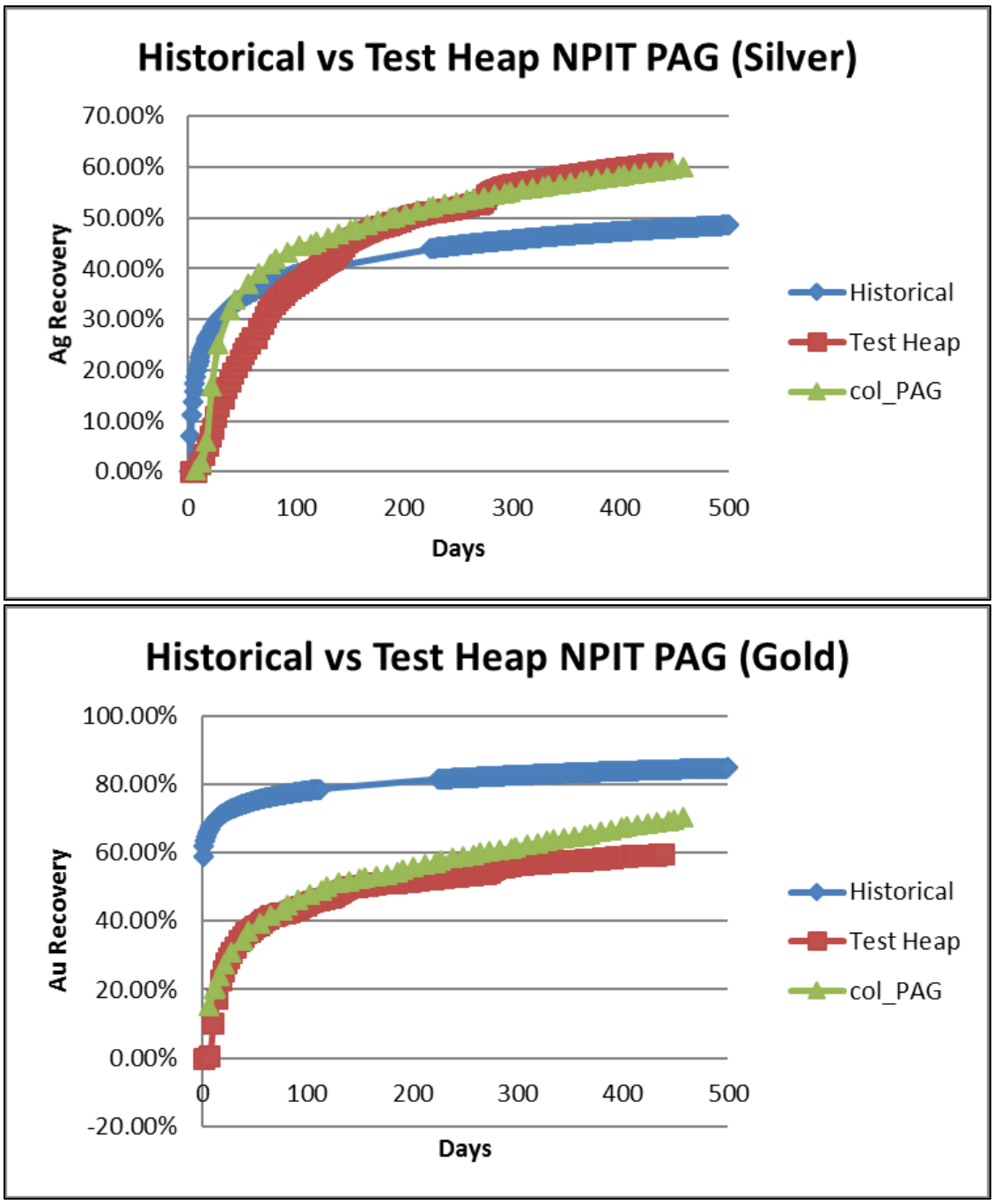

Figure 13.4. Recovery Results of PAG Columns and Test Cell, 2015-2016 (Coeur, 2016)

The long term effect for metal recovery would be a faster return on silver ounces, but a longer delay in return of gold ounces.

13.4 Qualified Person Statement

Current metallurgical test work confirms that the material to be mined presents similar response to the heap leaching process as previously mined ores. The ultimate metal recovery assumptions are derived from historic performance of the leaching operation and applying METSIM modeling. Material containing sulfides could have a negative impact mostly on gold recoveries; however, recent test work has demonstrated that gold extraction will continue at a slower rate within a five-year leaching cycle. The QP is not aware of any other processing factors or deleterious elements that could have a significant impact on the economic extraction.

14. MINERAL RESOURCE ESTIMATES

14.1 Overview

In this Report, the term “in situ” refers to unmined material in its original state. The term “stockpile” refers to material that was mined from the open pit, subsequently stockpiled, and requires re-handling prior to processing.

This section describes the Mineral Resource estimation methods and results for Rochester. The Mineral Resource estimates for Rochester were completed in five parts:

1. Rochester Mine in situ Mineral Resource (amenable to open pit mining methods), updated December 31, 2016. This includes the Limerick resource model completed December 31, 2014;
2. North and West stockpile Mineral Resource estimate completed December 31, 2013, and depleted for 2014-2016;
3. South and Charlie stockpile Mineral Resource estimate completed December 31, 2013, and depleted for 2014-2016;
4. Nevada Packard Mineral Resource (amenable to open pit mining methods), updated December 31, 2016; and
5. Nevada Packard stockpile Mineral Resource estimate completed December 31, 2015.

The Rochester Mineral Resources were estimated on the specific dates described above, and previously reported in the Technical Report dated February 18, 2015. Mineral Resources are effective December 31, 2016 and reported February 8, 2017.

Figure 14.1 shows the general location of the Rochester model areas, excluding Nevada Packard, which is located approximately 1.5 miles southwest of the main Rochester pit.

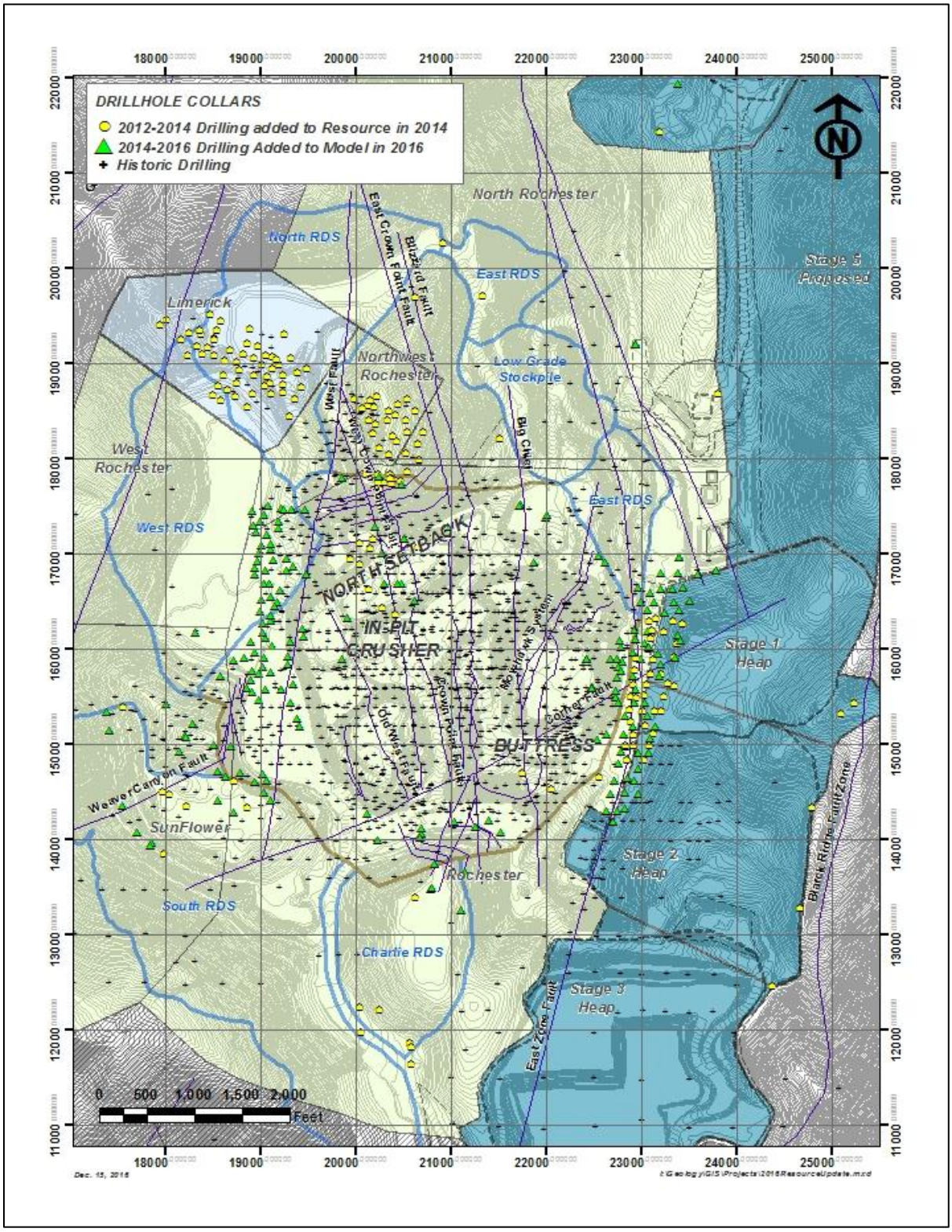

Figure 14.1. Rochester Model Areas (Coeur, 2016)

14.2 Rochester In Situ and Limerick

14.2.1 Block Model Framework

The Rochester and Limerick models share a common framework, as shown in Table 14.1. No rotation is applied to the block models.

Table 14.1. Rochester Deposit – Model Framework (Coeur, 2016)

	Y Dimension	X Dimension	Z Dimension
Location Min.	10800	17,000	5,150
Location Max.	20,800	25,750	7,275
Block	50 ft.	50 ft.	25 ft.
Y	Northing	(Rows)	200
X	Easting	(Columns)	175
Z	Elevation	(Benches)	85

14.2.2 Resource Model Database

The 2016 Rochester resource model incorporates data collected from RC drilling, and to a lesser extent, diamond core drilling, collected between 1980 and November 1, 2016. All data are stored in an acQuire® SQL Server database.

A total of 1,903 drill holes have been included in the resource model area. Rotary drilling completed by the previous property owner, ASARCO, was excluded from the resource model in 2014. Rochester blasthole data were also excluded from the resource model, starting in 2014. Both datasets were found to be of insufficient quality for resource reporting.

The effective date of this model is November 1, 2016.

The 2014 resource model for Limerick incorporated drill hole data from drill campaigns conducted between 1987 and 2014. A total of 79 drill holes were included in the Limerick model. This model was not updated in 2016 and has not been depleted since it was created.

Following is a summary of the drill campaigns included in the Limerick resource model:

- 13 drill holes completed prior to 1987;
- 3 completed April 2011;
- 3 completed January 2012;
- 36 completed August – December 2013; and

- 16 completed January – April 2014.

Drill hole collars were compared against original historical surface topography and current topography, since many were collared on stockpile material being actively mined. All were found to be in agreement with the corresponding historic topography.

The effective date of the Limerick model is July 1, 2014.

14.2.3 Geologic Model

Geologic modeling of the Rochester deposit incorporates in-pit geologic mapping, RC drill log interpretation and historic surface mapping. A combination of geologic feature wireframes and solids were updated in 2016 on 50-ft. cross-sections. Geologic features created include:

- High angle north-south oriented structures;
- Low angle west dipping structures;
- Rochester-Weaver Formation contact; and
- Upper Weaver lithologic units.

The 2016 modeling incorporates additional updates from 2015-2016 surface mapping performed in and around the Rochester pit area and mapping of newly exposed structures in the South and West highwalls. It also includes an updated interpretation of the Weaver-Rochester Contact from drilling completed in the East Rochester area.

Geologic modeling domains were created using updated structural mapping. Domains are based on major offsets or lithologic boundaries within the deposit. The final domains used in the Rochester model are shown in Figure 14.2.

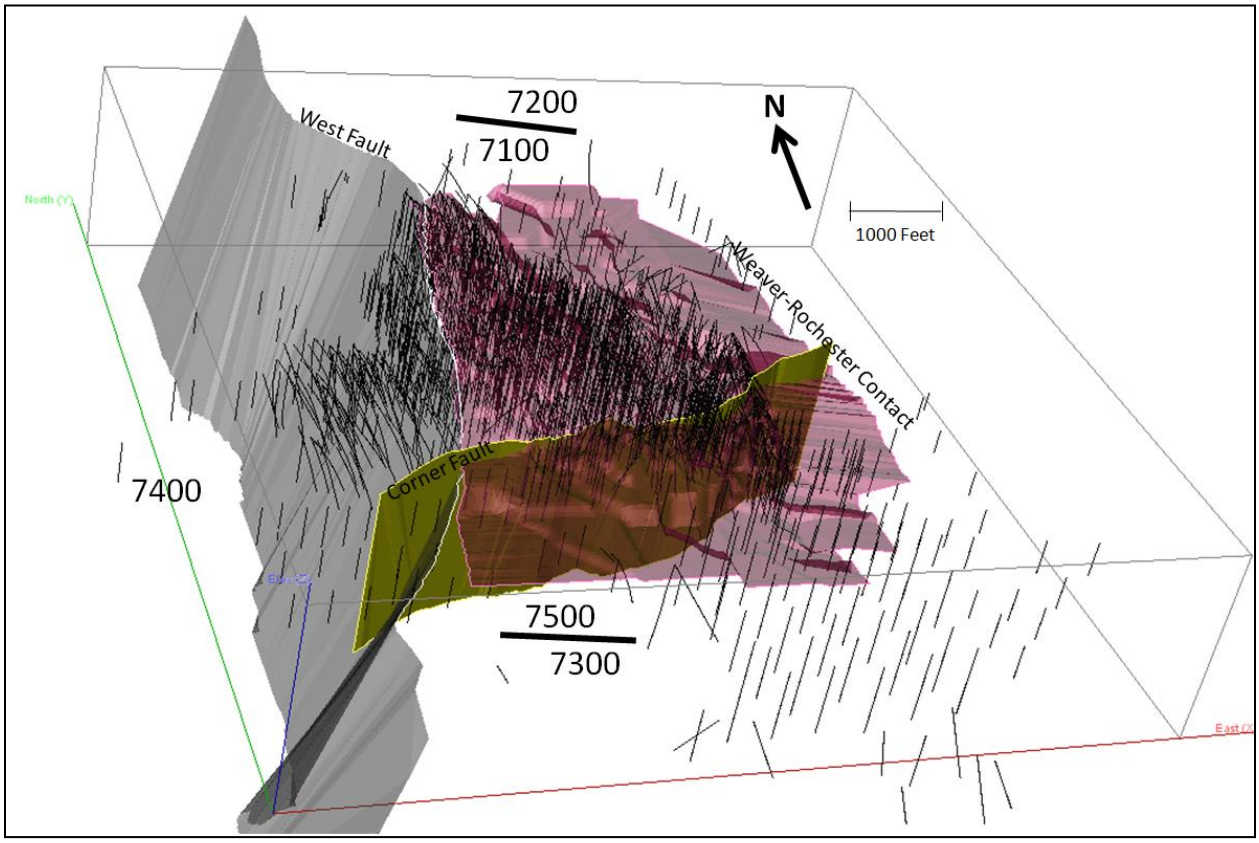

Figure 14.2. 3D Oblique View of the Main Rochester Ore Body Domains (Coeur, 2016)

The Weaver-Rochester Formation contact is used as a soft boundary between domains 7100 and 7200 on the east side of the West fault, and between the 7300 and 7500 domains on the south side of the Corner Fault. Quartz stockwork and veining occurs along the stratigraphic contact typically within the Rochester Formation (7200 and 7500 domains), and to a much lesser extent within the Weaver Formation (7100 and 7300 domains). The relationship between quartz stockwork and veining (S&V) and silver and gold mineralization is not completely understood at this time – more work is required to fully define the mineralization relationships. Table 14.2 outlines boundary conditions applied in the resource estimate. Figure 14.3 shows the occurrence of quartz stockwork and veins as logged from RC chip samples, with regards to the Weaver-Rochester Formation contact and major structures.

Table 14.2. Boundary Conditions Used in Rochester Resource Estimation (Coeur, 2016)

Gold

Silver \ Gold	7100	7200	7300	7400	7500
7100		S	S	H	
7200	S		H	S	H
7300	S	S		H	S
7400	S	S	S		H
7500		S	S		

S = Soft Boundary
H = Hard Boundary
No Domain Contact

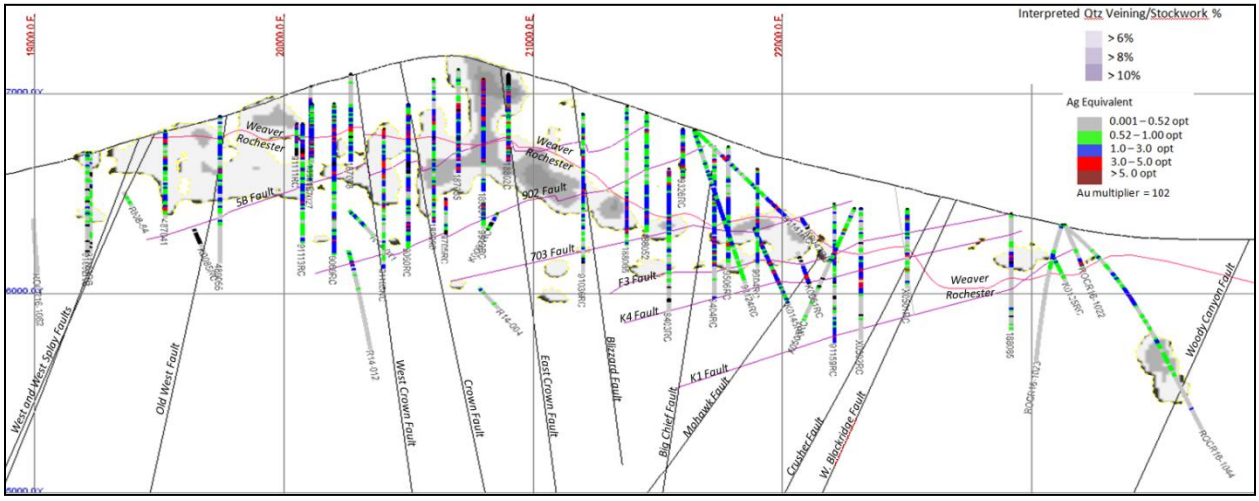

Figure 14.3. Cross-section 16400N – Major Geologic Features, Main Rochester Ore Body (Coeur, 2016)

The West fault was chosen as a domain boundary because of displacement. The west side, or hangingwall side, has been uplifted relative to the east side of the fault. The Limerick (6000 zone) and Sunflower zone (7400) are both contained within this 7400 domain. A sub-zone was created for the Limerick drilling, based on the slight rotation of the area and distance from the Sunflower zone. The 7400 and 6000 boundaries are treated as hard domain boundaries during grade interpolation.

The 7300 and 7500 domains are defined by the Corner fault, which cuts across the deposit at approximately N65E. Currently, the Corner fault is mapped as cutting across the main north-south structures; however, this relationship is not seen in the pit walls or on the surface. As more exposures are created by mining and further analysis is completed on the drill hole data, the relationship is subject to change, and this domain should be re-interpreted.

Domains were analyzed with contact plots using 20 ft. composite data. Contact analysis between the 7100 and 7200 domains show that grades are consistent across the contact, except where minimum data pairs are available. Gold distribution around the contact is more influenced by outlier values than silver. Examples for silver and gold domain plots are shown in Figure 14.4.

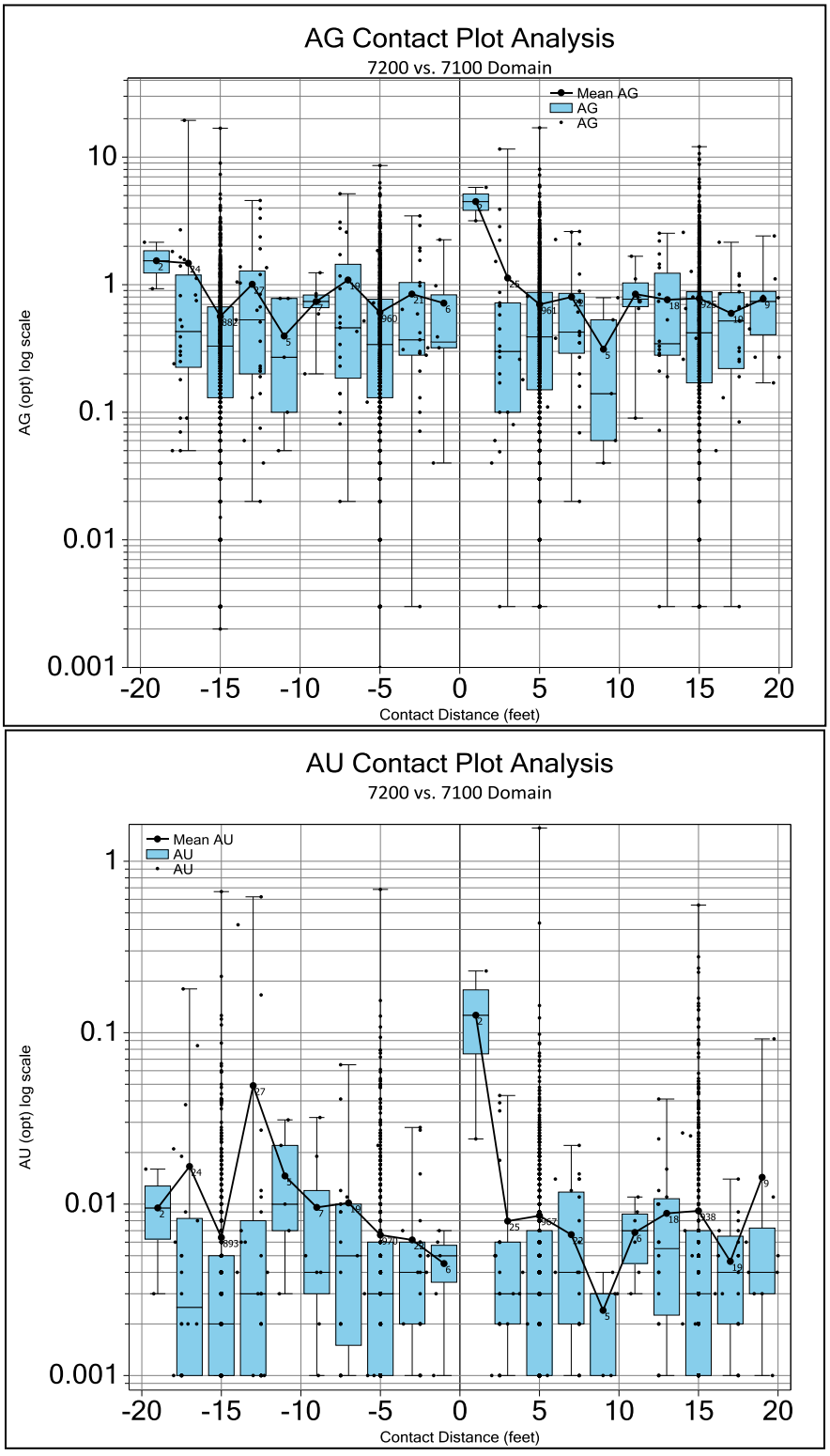

Figure 14.4. Example of Contact Plot Analysis for 7100-7200 Domains (Coeur, 2016)

Contact analysis between the 7200 and 7500 domains and the 7100 and 7500 domains reflects the unknown relationship of the Corner fault to cross-cutting structures. Current interpretations could be influenced by the decreased amount of drilling south of the deposit. General statistics for each domain show distinctly unique mean and coefficient of variance (COV) values for silver, and to a lesser extent, gold.

Geologic modeling of Limerick (6000 domain) (Figure 14.5) incorporates RC drill logs and available surface mapping. A combination of geologic feature wireframes and solids were created on 50 ft. cross-sections, using Gemcom software. Geologic features created include:

- A low angle structure of N50W/East dipping at approximately 50°. This appears to be the major control on mineralization;
- Low angle structures dipping 30-50° to the west that host some mineralization away from the main N50W/East dipping structure;
- Ash tuff units in the Rochester Formation. These ash tuffs appear to be more resistant to mineralization;
- Quartz mineralization hosted in veins and quartz stockwork around the main N50W/East dipping structure; and
- West fault projection from the Rochester pit (preliminary Rochester geologic model May, 2014). The west fault bounds the Limerick zone on the east side.

Figure 14.1 includes the general location of Limerick, while Figure 14.5 shows a cross-section of the major geologic features in the Limerick deposit.

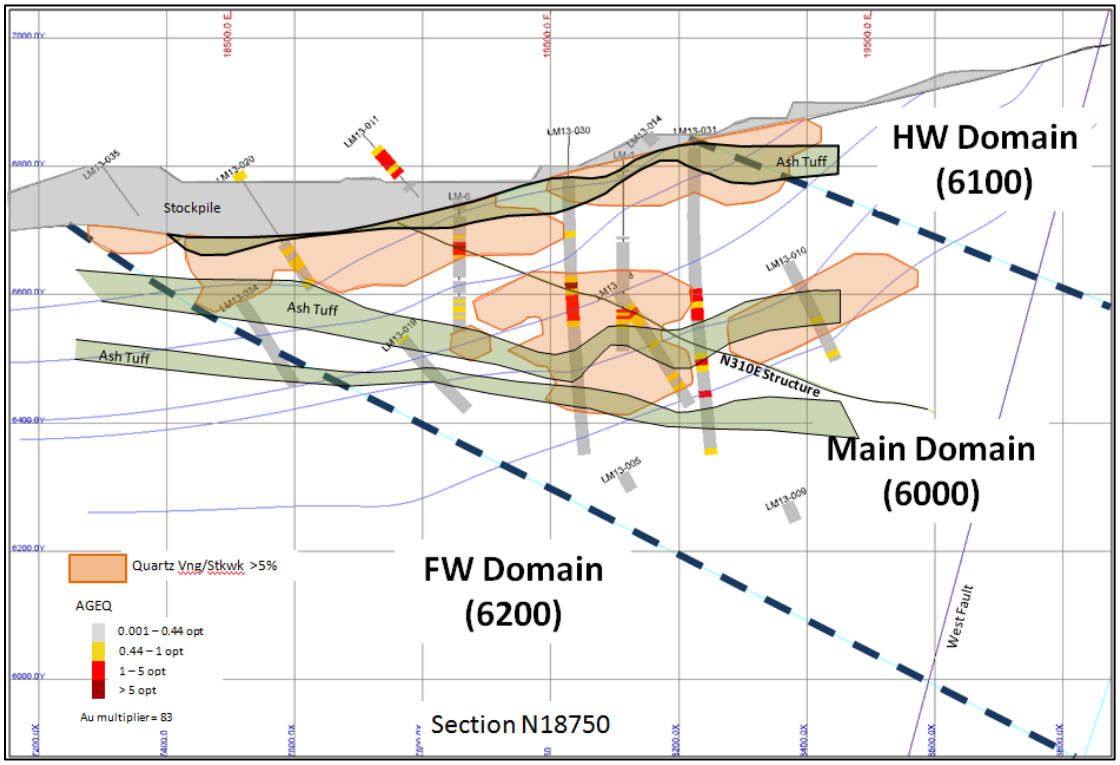

Figure 14.5. Geologic Cross-section – Limerick (Coeur, 2014)

Limerick domains were created based on the geology from drill holes and mapping. The main domain (6000) is oriented along the strike of the N50W East dipping structure and extends approximately 300 ft. above and below the structure. The distance from the N50W/East dipping structure was determined by the extent of quartz veining and stockworking logged as >5%. A probability model was created to define the quartz mineralization boundaries. Domains and quartz zones are shown in Figure 14.5.

Contact plot analysis was completed on the domained data. Analysis of the plots indicates that the sub-domain boundaries should be treated as soft boundaries.

Gold and silver mineralization do not appear to be distributed in the same manner. Gold tends to cluster around the N50W/East dipping structure, with some migration along the low angle structures. Silver distribution indicates potential supergene enrichment along the low angle structures, away from the N50W/East dipping structure.

14.2.4 Exploratory Data Analysis (EDA)

A review of the drill hole pierce points for the main Rochester deposit, through the horizontal 6,460 ft. elevation plane, and along an east dipping 10° plane, along the

Weaver Rochester contact, shows that 50% of the drill sample spacing is less than 140 ft. An example of the sample spacing is shown in Figure 14.6.

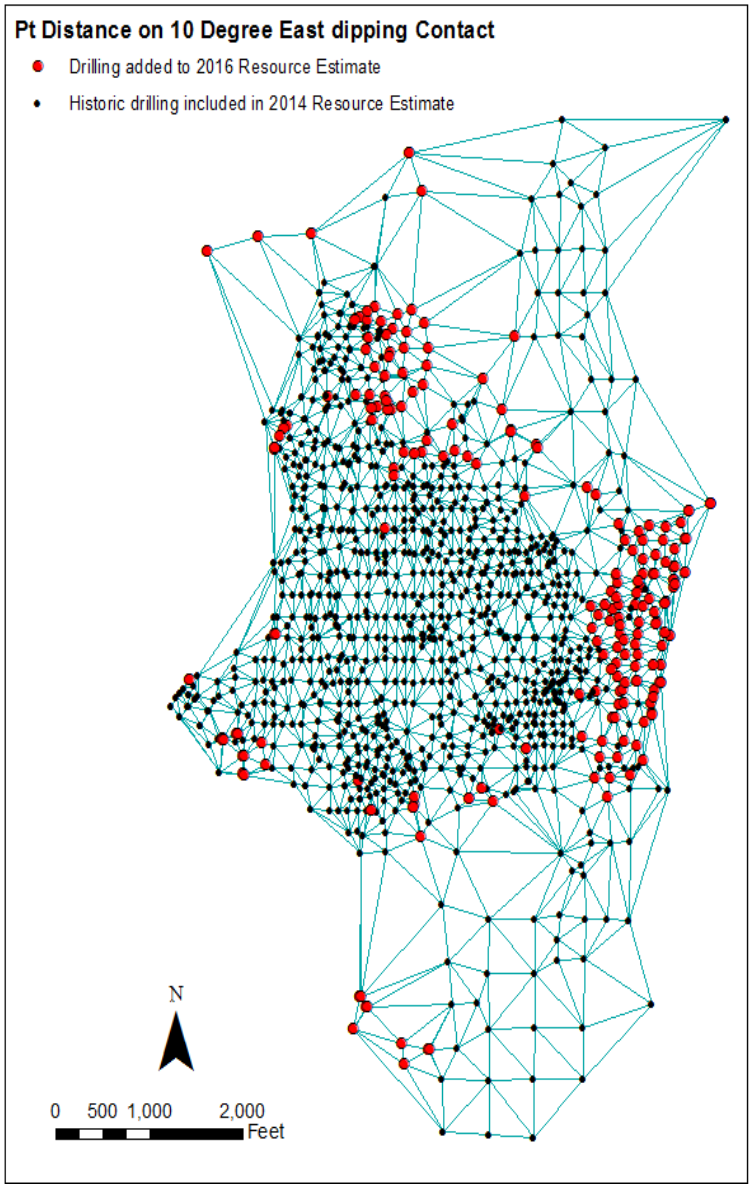

Figure 14.6. Sample Spacing on Weaver-Rochester Contact (Coeur, 2016)

Raw and composited silver assays have a lognormal distribution within each of the five geologic domains. Table 14.3 provides a comparison of the raw, capped, and composited capped assays used in resource estimation for Rochester.

Table 14.3. Rochester Resource Data Statistics

Element	Domain	Min	Max	Mean	Variance	StDev	CV	Skewness	Kurtosis	GeomMean	25%	Median	75%
AG	7100	0.001	47.68	0.619	0.94	0.97	1.57	9.05	233.1	0.303	0.15	0.34	0.72
Ag Capped	7100	0.001	20.52	0.618	0.88	0.937	1.52	6.16	69.76	0.303	0.15	0.34	0.72
Ag Capped & Composited	7100	0.001	15.25	0.528	0.53	0.731	1.38	4.59	39.93	0.252	0.12	0.3	0.645
AG	7200	0.001	67.91	0.704	1.68	1.297	1.84	13.9	455.4	0.353	0.18	0.39	0.78
Ag Capped	7200	0.001	28.62	0.701	1.48	1.216	1.73	8.63	125.9	0.353	0.18	0.39	0.78
Ag Capped & Composited	7200	0.001	19.62	0.596	0.86	0.928	1.56	6.6	76.07	0.29	0.135	0.34	0.705
AG	7300	0.001	39.13	0.398	0.83	0.911	2.29	14.26	412.9	0.159	0.08	0.19	0.41
Ag Capped	7300	0.001	14.2	0.394	0.67	0.821	2.08	8.2	96.83	0.159	0.08	0.19	0.41
Ag Capped & Composited	7300	0.001	11.68	0.32	0.33	0.577	1.81	6.77	72.4	0.141	0.066	0.16	0.355
AG	7400	0.001	11.06	0.314	0.21	0.456	1.45	7.31	109.9	0.154	0.08	0.18	0.395
Ag Capped	7400	0.001	6.95	0.313	0.19	0.434	1.39	5.42	53.13	0.154	0.08	0.18	0.395
Ag Capped & Composited	7400	0.001	5.21	0.245	0.11	0.327	1.34	4.45	34.65	0.122	0.06	0.14	0.305
AG	7500	0.001	74.9	0.313	1.13	1.064	3.4	42.73	2788	0.101	0.04	0.13	0.33
Ag Capped	7500	0.001	10.94	0.302	0.41	0.638	2.11	8.57	111.1	0.101	0.04	0.13	0.33
Ag Capped & Composited	7500	0.001	10.94	0.242	0.24	0.491	2.02	8.4	120.5	0.083	0.03	0.095	0.265
AU	7100	0.001	4	0.005	0	0.026	5.29	110	16039	0.003	0.001	0.002	0.004
AU Capped	7100	0.001	0.354	0.005	0	0.012	2.58	15.04	323.7	0.003	0.001	0.002	0.004
AU Capped & Composited	7100	0.001	0.233	0.005	0	0.009	2.05	10.51	161.5	0.003	0.001	0.002	0.004
AU	7200	0.001	1.85	0.005	0	0.019	3.86	55.89	4946	0.002	0.001	0.002	0.004
AU Capped	7200	0.001	0.289	0.005	0	0.012	2.47	12.74	239	0.002	0.001	0.002	0.004
AU Capped & Composited	7200	0.001	0.171	0.005	0	0.009	1.97	8.87	115.6	0.003	0.001	0.002	0.004
AU	7300	0.001	2.58	0.006	0	0.055	8.58	34.62	1386	0.002	0.001	0.002	0.004
AU Capped	7300	0.001	0.304	0.005	0	0.018	3.44	12.5	185.4	0.002	0.001	0.002	0.004
AU Capped & Composited	7300	0.001	0.295	0.005	0	0.013	2.77	12	189.4	0.002	0.001	0.002	0.004

Element	Domain	Min	Max	Mean	Variance	StDev	CV	Skewness	Kurtosis	GeomMean	25%	Median	75%
AU	7400	0.001	0.432	0.003	0	0.009	3.24	23.77	774.5	0.002	0.001	0.002	0.003
AU Capped	7400	0.001	0.151	0.003	0	0.007	2.49	14.89	278.5	0.002	0.001	0.002	0.003
AU Capped & Composited	7400	0.001	0.101	0.003	0	0.005	1.99	11.06	153.3	0.002	0.001	0.002	0.002
AU	7500	0.001	2.443	0.005	0	0.039	7.66	38.49	1975	0.002	0.001	0.001	0.003
AU Capped	7500	0.001	0.208	0.004	0	0.014	3.28	10.43	129.8	0.002	0.001	0.001	0.003
AU Capped & Composited	7500	0.001	0.208	0.004	0	0.01	2.81	10.6	149.9	0.002	0.001	0.001	0.002

Figure 14.7 shows an example distribution for silver and gold assays in the 7100 domain for the raw dataset, composited values and final OK block model results.

Gold has a positively skewed distribution with 75% of the gold values <0.004 opt in the 7100, 7200, and 7300 domains. The 7400 and 7500 domains have 75% of the gold values <0.003 opt. The metal distribution shows that gold and silver are not well correlated spatially, and gold does not have a spatially continuous distribution. Parameterization of each domain and metal model are completed separately. Analysis of the 7400 domain does not include drilling in the Limerick area.

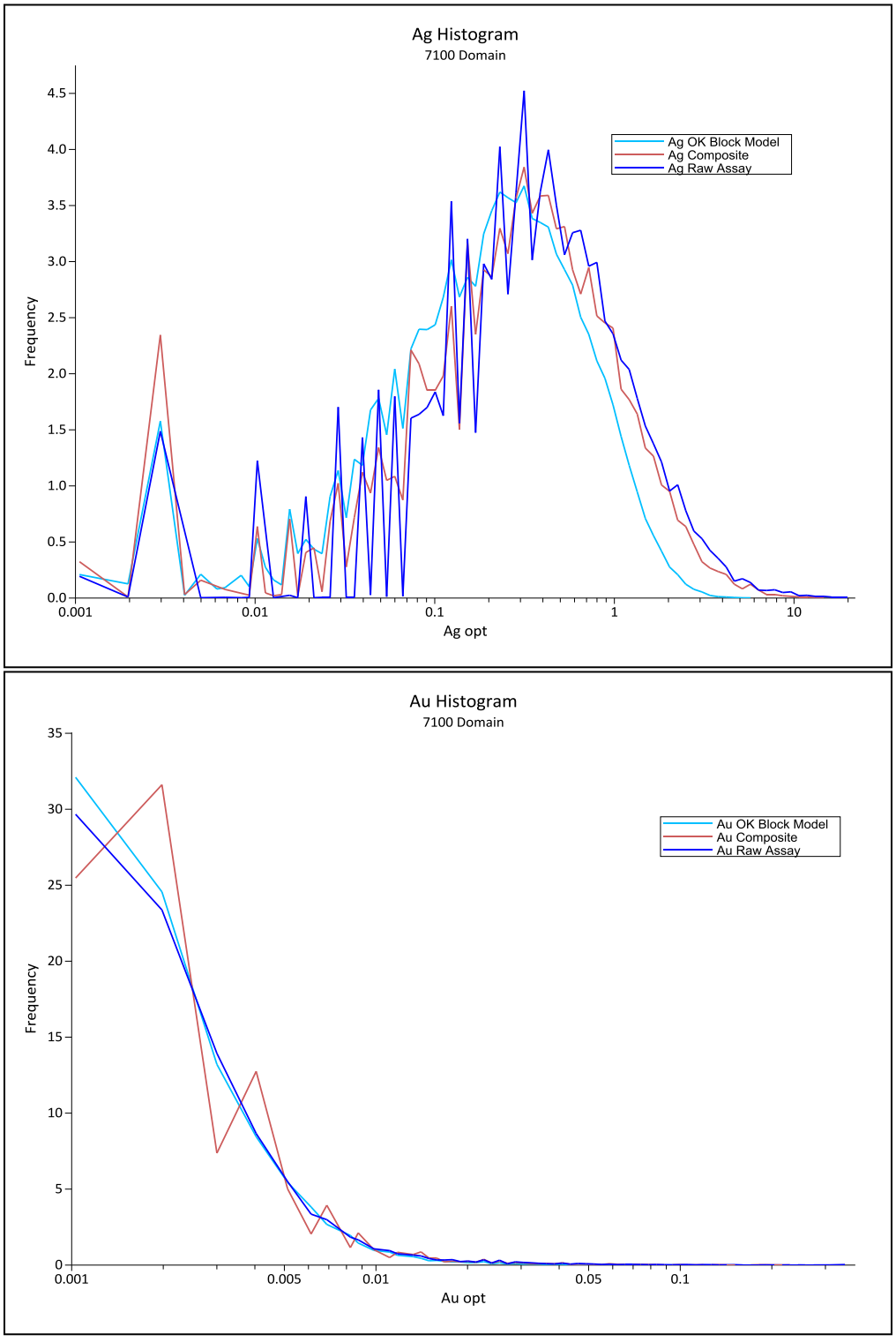

Figure 14.7. Example of Silver and Gold Distribution for the 7100 Domain (Coeur, 2016)

Review of the drill hole pierce points through the 6,600 ft. elevation at Limerick, shows the average drill hole spacing is 163 ft. Figure 14.8 and Figure 14.9 provide general drill hole spacing information.

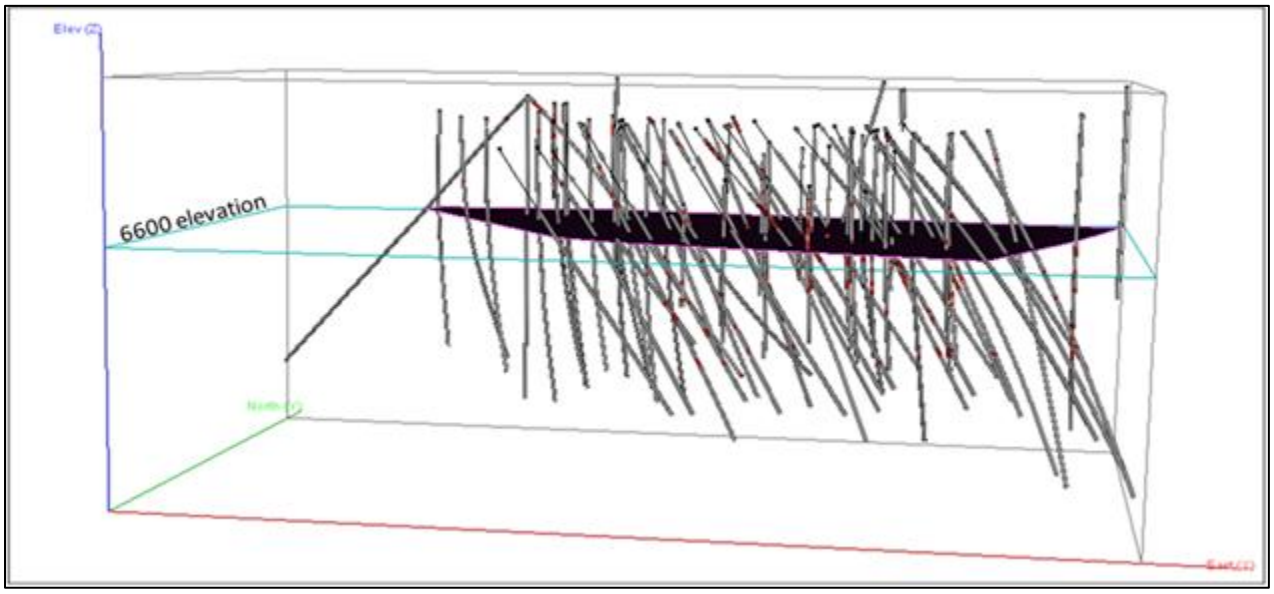

Figure 14.8. Oblique View of the Limerick Drill Holes with 6,600 ft. Elevation Plane Shown (Not to Scale) (Coeur, 2015)

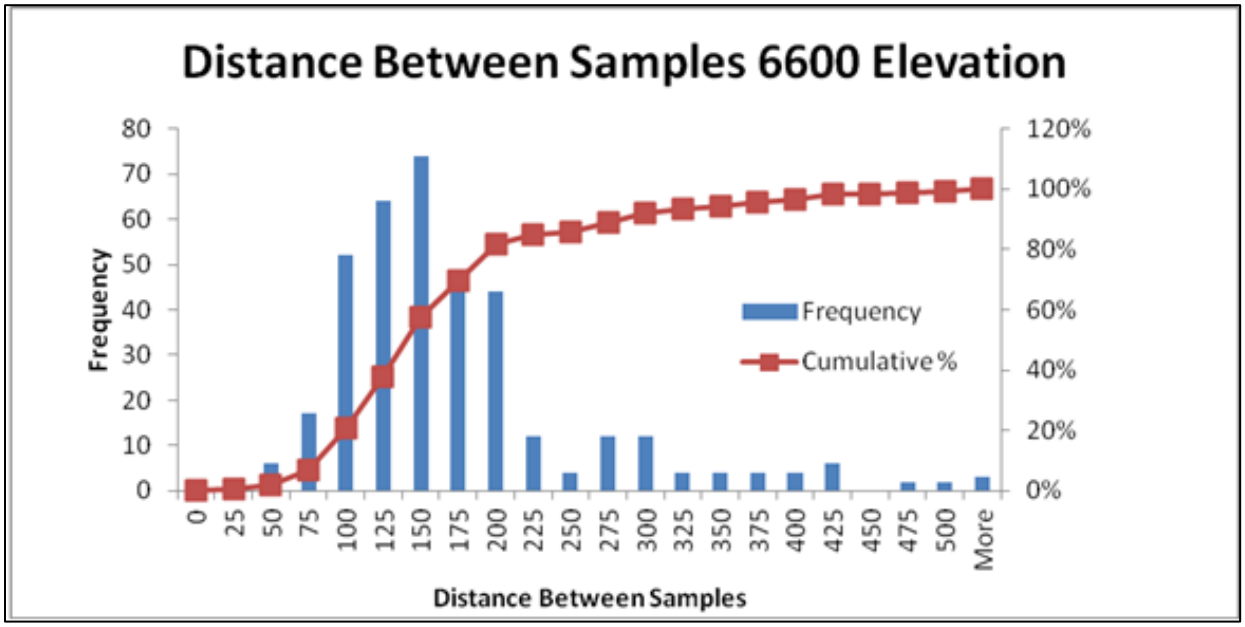

Figure 14.9. Cumulative Frequency Plot of Limerick Drill Hole Spacing 6,600 ft. Elevation (Coeur, 2014)

Sample statistics for silver and gold were calculated and compared for Limerick based on the following scenarios:

- Domain (including subdomains in the 6000 domain);
- Raw assays;
- Capped assays;
- Raw composites; and
- Capped composites.

Raw and composited silver assays in the 6000 domain have a lognormal distribution, with 31% of the data near detection limit. The 6100 and 6200 domains indicate a difference in the distribution between gold and silver. Silver becomes somewhat negatively skewed and the distribution curve is much flatter. Gold values are positively skewed.

14.2.5 Material Density

A tonnage factor of 1.5424 tons per cubic yard was utilized for Rochester and Limerick in situ material. This tonnage factor has been confirmed by mining operations and third party studies undertaken in 1992 and 2002. A new program of collecting and testing grab samples from unique lithology and alteration types was started in 2016. The program will continue until a statistically viable sample population for each lithology type is available.

14.2.6 Grade Capping/Outlier Restrictions

To limit the over-extrapolation of high grade samples within the main Rochester deposit, population statistics for raw samples and composites were examined using histograms and population percentiles, where breaks between percentiles were >15%. Results for each methodology were reviewed for their effect on the COV and metal-at-risk. The top cut values from the population percentile analysis were chosen for capping. Overall, metal-at-risk from top cutting is considered to be conservative: 1% of silver ounces and 11% of gold ounces are affected. Results of each top cutting scenario are shown in and Table 14.4 for silver and gold. Examples of histograms for the 7100 domain are shown in Figure 14.10.

Table 14.4. Silver and Gold Grade Cap Values (Coeur, 2016)

Domain	Cap	Samples Capped	Percentile	% Capped	% Metal at Risk	Lost CV%	Total # Samples	Mean	Total Ounces	Variance	CV	Total Oz at Risk
Silver												
7100	20.52	2	99.99%	0.01%	0.16%	3.20%	32,477	0.619	20087	0.88	1.52	73.08
7200	28.62	2	99.99%	0.01%	0.32%	5.90%	20,273	0.702	14235	1.5	1.74	102.9
7300	14.2	3	99.97%	0.03%	0.82%	9.20%	9,533	0.394	3760	0.67	2.08	73.6
7400	6.95	3	99.96%	0.03%	0.37%	4.40%	8,999	0.313	2813	0.19	1.39	31.26
7500	10.94	6	99.93%	0.10%	3.50%	38%	8,816	0.302	2663	0.41	2.11	162.8
Gold												
7100	0.354	7	99.97%	0.02%	3.30%	51%	32,477	0.005	157.3	0.000	2.58	8.496
7200	0.289	6	99.97%	0.03%	2.40%	35%	20,273	0.005	95.04	0.000	2.44	4.043
7300	0.304	15	99.84%	0.20%	20%	60%	9,533	0.005	48.92	0.000	3.44	17.12
7400	0.151	9	99.90%	0.10%	3%	23%	8,999	0.003	25.23	0.000	2.49	2.293
7500	0.208	16	99.82%	0.20%	18%	57%	8,816	0.004	37.14	0.000	3.28	11.44

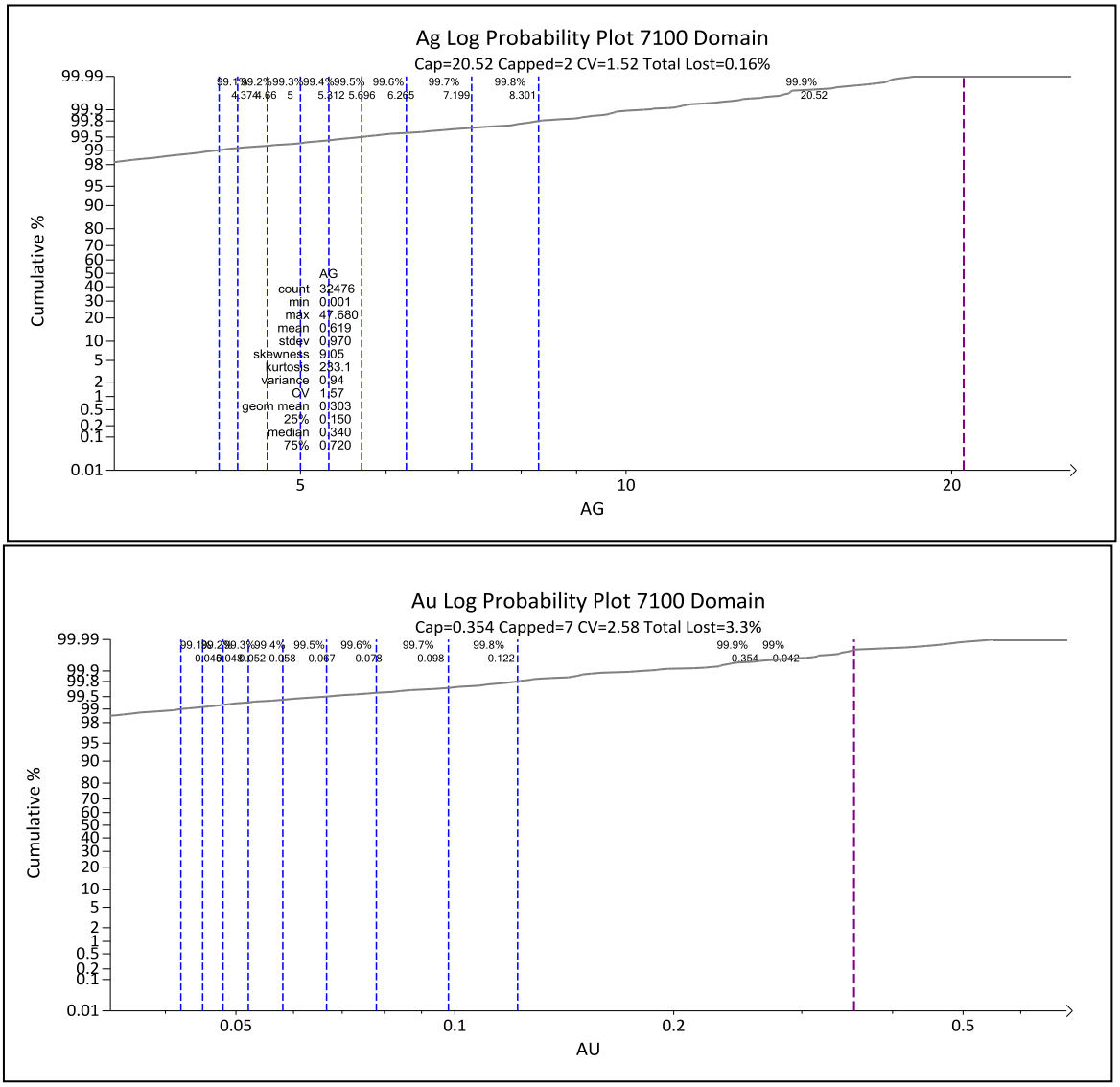

Figure 14.10. Example Capping Log Probability Plots for Silver and Gold (Coeur, 2016)

At Limerick, population statistics for raw samples and composites were examined utilizing the same methodology as described for the Rochester in situ deposit. Capping was applied to the sample assays using the review of the population percentiles (decay method), and then the assays were composited. Capping was completed prior to compositing to limit the smoothing effect of capping. Capping had the desired effect of lowering the COV for gold and silver in each domain. Final capping values chosen for the 6000 and 6200 domains are in bold in Table 14.5. Capping was not applied to the 6100 domain, based on the overall low values of the assays in this domain.

Table 14.5. Limerick Sample Capping Comparison (Coeur, 2015)

Sample Assays					
Metal	Domain	Decay Method		Probability Plot	
		Value	# Assays	Value	# Assays
Ag	6200	**0.6**	1	0.613	1
Ag	6100	0.17	3	0.151	3
Ag	6000	**2.001**	8	2.02	8
Au	6200	**0.007**	5	Not Capped	0
Au	6100	Not Capped	0	Not Capped	0
Au	6000	**0.064**	10	0.059	11

14.2.7 Composites

Sample lengths for 80,083 samples from the five primary domains of the Rochester deposit, excluding Limerick, were reviewed. Ninety-four percent of the Rochester in situ material samples are 10 ft. samples. Four percent of the samples were taken in 5 ft. increments. The remaining 2% of miscellaneous sample lengths are attributed to diamond drill core samples of various lengths. Samples were composited to 20 ft. lengths for the resource estimate in 2016. Prior to 2014, resource estimates used bench composites of 25 ft. The change to 20 ft. composites was made to honor the drill hole dataset, minimize sample splitting, and remove additional grade smoothing that occurs with the longer composite lengths.

The Limerick model utilizes 25 ft. composites based on pre-defined bench elevations for the Rochester deposit. The original assay lengths are as follows:

- 5 ft. – 357 samples;
- 10 ft. – 3,967 samples;
- 15 ft. – 1 sample; and
- 20 ft. – 1 sample.

Unsampled intervals were assigned a value representing ‘no sample taken’ and treated as missing during interpretation. Samples that were taken, but the assay value was not assigned, were assigned ‘0’ as the grade. Unsampled intervals and missing grades represent <1% of the overall silver and gold sample populations.

14.2.8 Variography

Variography for Rochester in situ was completed on each domain for gold and silver, using the 20 ft. composites created from capped assays. The search was oriented along

the Weaver-Rochester contact (-12^0 east dipping) for silver, for domains 7100, 7200, 7300, and 7500. The search for the 7400 domain was oriented along the low angle structural orientation (-40^0 dipping east with a dip direction of 325^0). A horizontal orientation was also tested with the silver composite results. Historically, variography was oriented along the low angle structures in models prior to 2014. The change to utilizing the Weaver-Rochester contact for silver domains was based on examination of the gold and silver distribution and sample density. Better variography results were returned for silver when the variograms were oriented along the major host contact. The final gold variograms were oriented along the low angle structure trends. Variogram parameters used for block model interpolation are shown in Table 14.6 and Table 14.7.

Table 14.6. Variogram Search Eclipse Parameters for Silver by Domain (Coeur, 2016)

Domain Metal	7100 Ag	7200 Ag	7300 Ag	7400 Ag	7500 Ag
# Structures Modeled	1	2	2	1	2
Variogram Model	Exponential	Spherical	Spherical	Exponential	Spherical
Variogram Type	Normalized	Normalized	Normalized	Normalized	Normalized
Principal Azimuth	243	225	154	55	154
Principal Dip	11	8	-5	0	-6
Intermediate Azimuth	25	307	54		74
Range1	208	182	200	173	139
Range2	109	169	104	105	108
Range3	208	182	132	130	130
Search type	Octant	Octant	Octant	Octant	Octant
Min-Max Samples per Octant	1-3	1-3	1-3	1-3	1-3
CO	0.18	0.15	0.1	0.12	0.11
Sill	0.48	0.47	0.46	0.48	0.41

Table 14.7. Variogram Search Ellipse Parameters for Gold by Domain (Coeur, 2016)

Domain Metal	7100 Au	7200 Au	7300 Au	7400 Au	7500 Au
# Structures Modeled	1	1	1	2	1
Variogram Model	Spherical	Spherical	Spherical	Spherical	Shperical
Variogram Type	Normalized	Normalized	Normalized	Normalized	Normalized
Principal Azimuth	325	134	77	84	112
Principal Dip	-40	39	17	22	35
Intermediate Azm	297	235	210	137	263
Range1	114	162	124	105	113
Range2	114	76	117	105	113
Range3	93	162	124	99	91
Search type	Octant	Octant	Octant	Octant	Octant
Min-Max Samples per Octant	1-3	1-3	1-3	1-3	1-3

Domain Metal	7100 Au	7200 Au	7300 Au	7400 Au	7500 Au
CO	0.00008	0.00002	0.00004	0.000008	0.00003
Sill	0.00013	0.00007	0.0002	0.00003	0.0002

Limerick variograms were calculated for each domain using the 25 ft. composites. The major domains 6000, 6100, and 6200 are treated as hard boundaries, while the sub-domains within the 6000 domain are treated as soft boundaries.

Within the 6000 domain, high grade shells were created using indicator probability methodology. Indicator values were assigned to the composites based on a defined grade cut-off for gold and silver. Only one grade shell differentiating high grade from low grade was created. The high grade indicators for gold and silver were created by assigning a value of “1” to composites greater than 0.90 opt for silver, and 0.008 opt for gold. Utilizing variogram parameters shown in Table 14.8, the indicator probability values were then interpolated into each model block within the 6000 domain indicator probability threshold of 0.4 for the silver indicator, which was used to define the high grade sub-domain. The probability values were chosen based on the continuity of the grade shell and comparison with the drill hole data in 3D and 2D sections. A new model code was then assigned to the blocks within these grade envelopes. Non-contiguous grade envelopes were eliminated manually.

A hard boundary was applied to interpolation of composites within the upper grade envelope, while blocks within the low grade envelope were estimated using composites from both envelopes (soft boundary condition).

Table 14.8. High Grade Sub-Domain Variography Search Ellipse Parameters (Coeur, 2014)

Profile Name	Ag AG6020SD 6000 sub-domain	Au AU6020SD 6000 sub-domain
Anisotropy	ADA	ADA
Search Anisotropy		
Principal Azimuth	135	78
Principal Dip	0	0
Intermediate Azimuth	--	--
Component Rotation		
Principal Azimuth	135	78
Principal Dip	0	0
Intermediate Azimuth	225	168
CO	0.024	0.047
Total Sill	0.188	0.252
AnisotropyX	169	123
AnisotropyY	169	98
AnisotropyZ	94	123

Variography parameters for each Limerick domain are listed in Table 14.9. Variography results for gold in the 6100 domain were inconclusive, primarily due to the limited amount of data available (28 composites). The variogram parameters calculated for the silver were applied to gold for 6100.

Table 14.9. Limerick Domain Variography Search Ellipse Parameters (Coeur, 2014)

Metal Domain	AG 6000	AU 6000	AG 6100	AG 6200	AU 6200
Descriptions	Ag Ore Zone 6000A - All Comps	Au Ore Zone 6000 - All Comps	Ag HW Zone 6100 - All	FW Zone 6200 - ag all data	Au 6200 All data
	AG6000A	AU6000	AG6100	AG6200	AU6200
Anisotropy	ADA	ADA	ADA	ADA	ADA
Principal Azimuth	90	76	74	15	22
Principal Dip	0	0	0	0	0
Intermediate Azimuth	180	166	164	105	112
CO	0.0037	0	0.009	0.0007	0
Total Sill	0.038	0.000014	0.07	0.043	0.000013
Anisotropy X	156	160	87	172	215
Anisotropy Y	129	128	87	119	117
Anisotropy Z	152	160	87	172	97

Variograms were created using the general strike and dip of the low angle structures to help guide the variography in the 6000 domain. Variograms were also generated using the orientation of the N50W/East dipping structure. Search ellipses for each orientation were somewhat spherical. Search ellipses generated in the 6200 domain are more influenced by the low angle structures.

14.2.9 Estimation/Interpolation Methods

A major change was implemented in the Rochester in situ interpolation methods starting in 2014. Between 2000 and 2014, probability assisted constrained kriging (PACK) (Tanaka [SRK], 2000; Pan, 1994) had been used as the modeling method for Rochester. PACK is a "probabilistic" approach used to mimic structurally complex trends important to ore grade mineralization. Review of the method and results after removal of historic ASARCO rotary drilling results and blasthole data showed the PACK methodology was causing several problems, including:

- Creation of metal;
- Creation of a skewed distribution in interpolated grades when a non-skewed assay population was used;
- Over estimation of grade and underestimation of tons; and
- PACK, as applied, allowed samples close to a block to be ignored, while distant, potentially unrelated samples were used for estimation.

Based on the review of initial PACK models interpolated with the updated dataset, further tests were conducted to decide on a new modeling methodology.

OK interpolation was chosen for estimating the resource models completed between 2014 and 2016 using one estimation pass. Blocks were interpolated using an octant search to minimize negative kriging weights. Octants were estimated with one to three samples each. Total samples used per block is 24 and a minimum of two samples is required. Blocks are estimated using one or more drill holes. A 5 x 5 x 2 (X,Y,Z) discretization was applied. Results of the model were reconciled against available blasthole grades. The OK model was found to preserve the original dataset distribution for all domains. Results from the OK model also reconciled well with ore control data.

AMEC E&C Services, Inc. created a sulfide mineralization model in 2010 using MineSight®, a commercial modeling and mine planning software package. The model utilized visual pyrite estimates from RC chip logging that was then converted to an estimated percent sulfur. A percent sulfur model was created using the same probability PACK methodology as the silver and gold resource model utilized at that time. This

model of the pyrite percent values was imported into Geovia® GEMS and used in the resource model until 2014.

In 2016, Total Sulfur LECO testing was completed on available pulp samples at SVL Analytical from exploration RC drill samples taken between 2009 and 2016 in the Rochester pit area. These data were combined with declustered ore control LECO results prepared by the Rochester site laboratory. An indicator model was created with this dataset using a threshold value of 0.4% Total Sulfur. The distribution of this compiled percent Total Sulfur dataset is limited to the west and east sides of the Rochester pit, with minimal coverage in the center. Utilizing the indicator model for 0.4% Total Sulfur, where probability is ≥50% and the geologic sulfide logs, a generalized surface for the PAG material, was hand contoured on 50 ft. sections across the pit. It is assumed at this time that material below this boundary will be PAG. As additional drilling and LECO assays are completed, the sulfide model should be refined.

The Mineral Resource estimate for Limerick was performed using OK. Estimates were also undertaken using Inverse Distance Cubed (ID3) and nearest neighbor (NN) interpolation methods for comparison within each domain. The models were validated by comparing block model statistics to the sample assay and composite statistics.

14.2.10 Block Model Validation

The 2016 Rochester Mineral Resource estimate validation included:

- Validation against available blasthole data;
- Swath plots generated for the OK model, an ID2 model, mean sample grade per block NN model;
- Review of statistical grade distributions between raw, composited and OK model; and
- A visual check of block grades against drill holes was conducted on 50 ft. sections throughout the deposit.

Available blastholes within the Rochester pit totaled 347,118. The mean grade of blastholes intersecting each model block was taken and compared to the OK interpolated model and the average grade of intersecting exploration drill hole samples. Comparison of the mean blasthole grade, exploration mean grade and the OK model grade was generated for 5,709 blocks for gold and 6,369 blocks for silver. The difference between silver ounces was 1%, and gold ounces 5%, where the blastholes predicted higher silver ounces and gold ounces than the resource model. An example of the results of the analysis using an X (Northing) direction swath plot for silver and gold is shown in Figure 14.11.

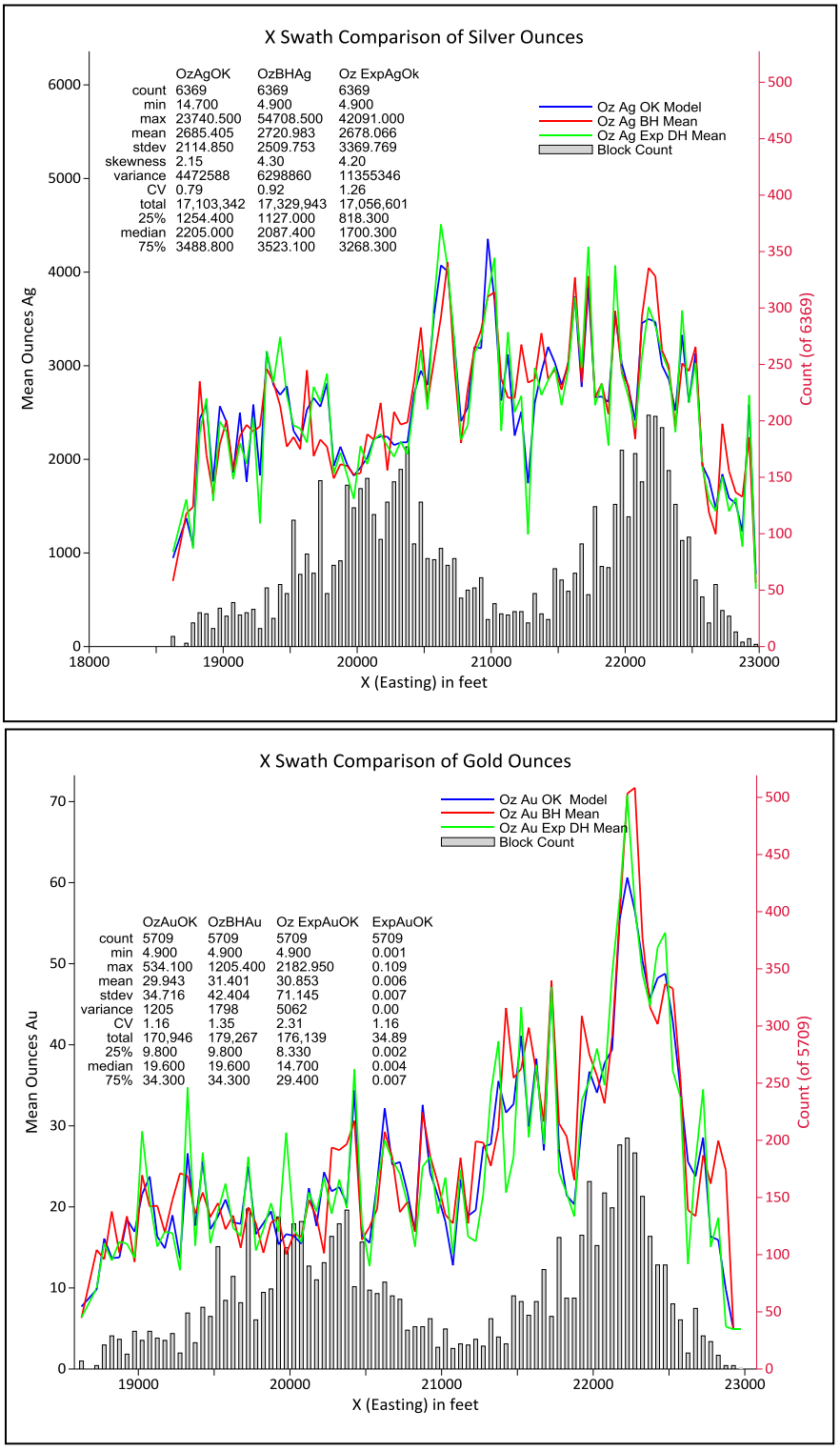

Figure 14.11. Swath Plot Example – Blasthole Predicted vs. OK Model Predicted vs. Exploration Drill Hole Sample Intersection calculated Silver and Gold Ounces (Coeur, 2016)

Swath plots were also generated comparing the OK interpolated model against block NN composite, mean composite value, and an ID2 model. Overall, the models compared well. OK interpolation provides a smoothing effect on the high and low peaks. Figure 14.12 shows gold and silver swath plot comparisons for the X (Northing) direction.

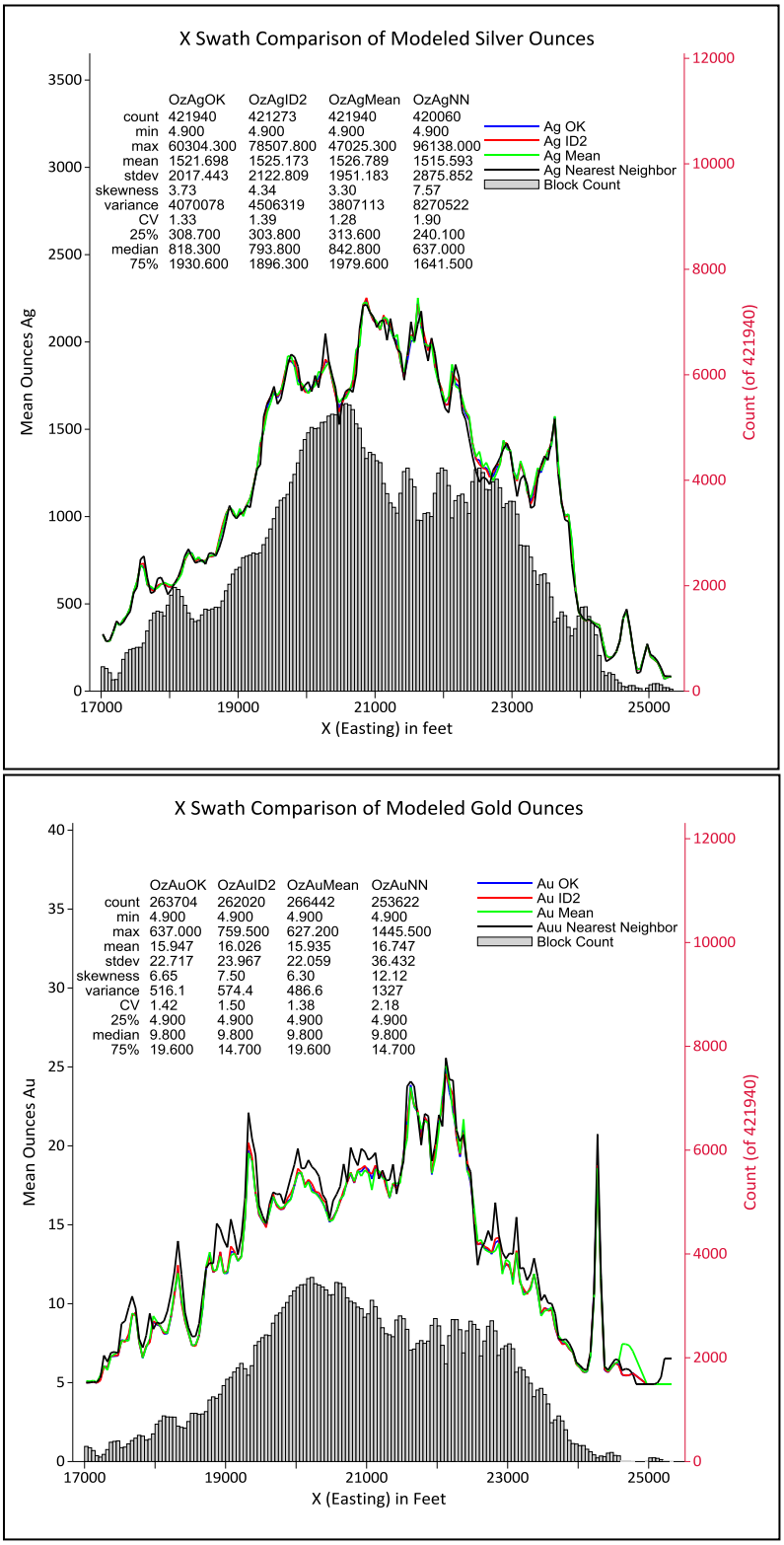

Figure 14.12. Swath Plot Examples (Coeur, 2016)

Histogram plots of the log distributed silver grades shows a slight shift to lower median grades for all domains, with the most notable in the 7100 and 7500 domains. The overall distribution trend for interpolated grades for each domain shows a slight smoothing, while still exhibiting the distribution of the original dataset. Histogram plots for gold indicate higher grades are slightly biased during compositing, while being smoothed during block estimation.

Visual inspection of the OK resource interpolation was conducted on 50 ft. sections through the pit. Example cross-sections are shown in Figure 14.13 and Figure 14.14. The OK estimation appears reasonable and consistent with drilling results and geologic structures. The smoothing of isolated high and low grades can be seen in Figure 14.3.

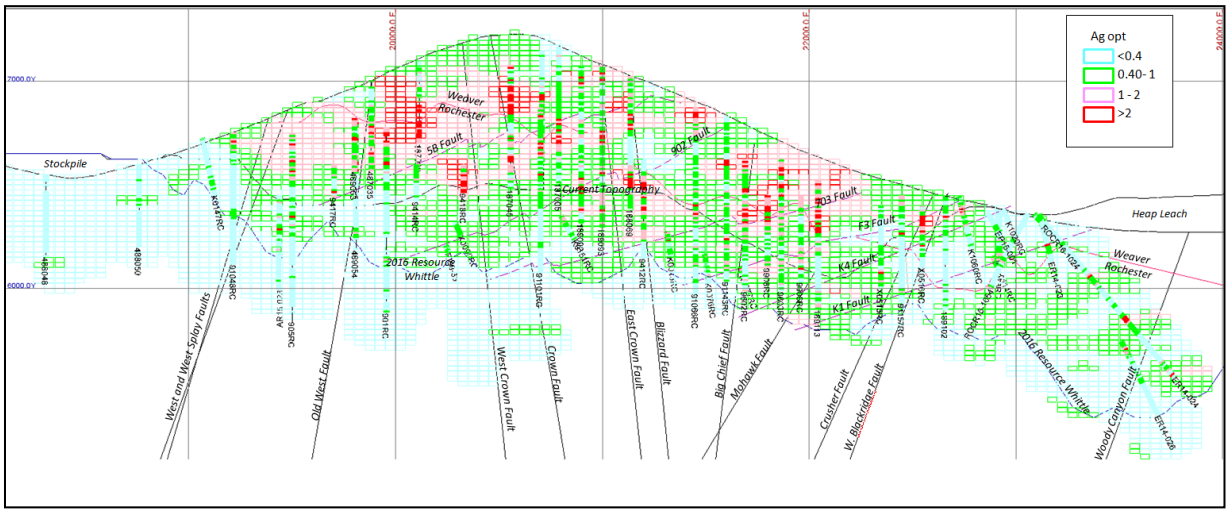

Figure 14.13. Cross-section through Rochester In Situ showing Silver Values (162000N looking North) (Coeur, 2016)

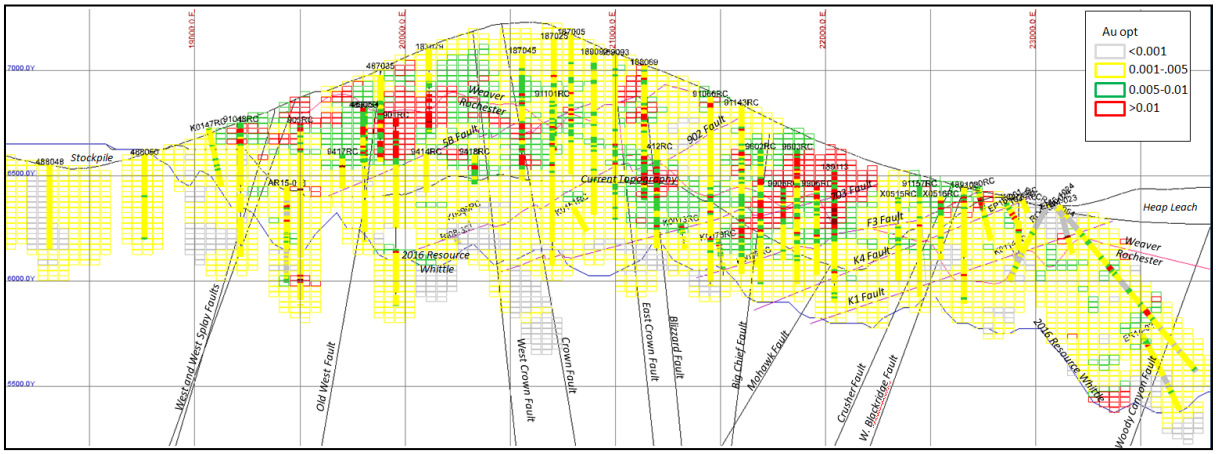

Figure 14.14. Cross-section through Rochester In Situ showing Gold Values (162000N looking North) (Coeur, 2016)

The Limerick model was validated by comparing block model statistics to the sample assay and composite statistics. All three methods compare well for silver grade interpolation. This is not the case for gold: higher gold grades appear to over-influence the inverse distance estimation, while the OK method has a greater smoothing effect, minimizing the influence of the higher gold grades.

Vertical cross-sections were used to visually compare 25 ft. drill hole composites to the OK block model. The estimated block model grades highlight geologic structures, as expected, and reflect drill hole composites locally, as seen in Figure 14.15.

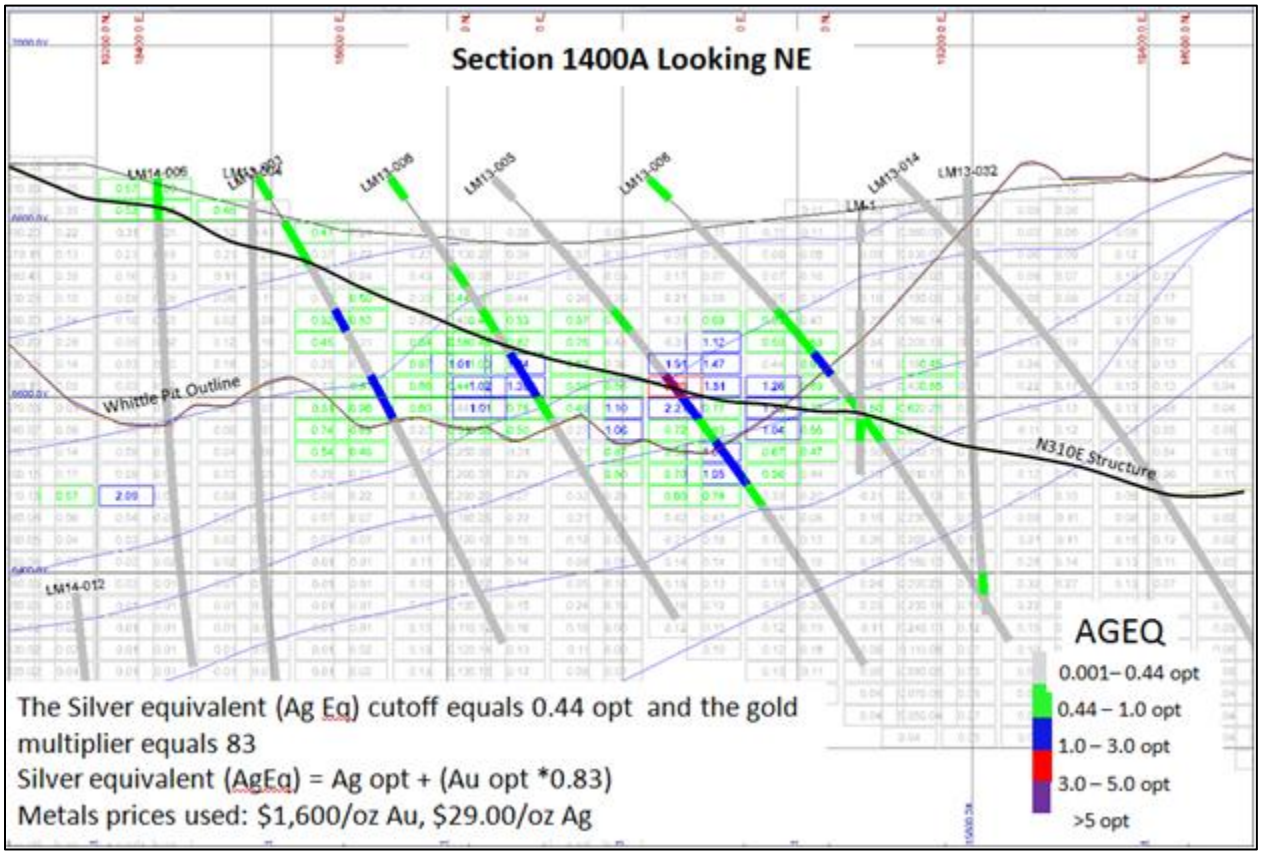

Figure 14.15. Block Grades vs. Drill Hole Composites – Limerick (Coeur, 2014)

14.2.11 Classification of Mineral Resources

The Rochester and Limerick Mineral Resource estimates have been combined for purposes of this Report, since Limerick is contiguous to the Rochester open pit; however, the resource classification for each resource model is done separately and utilize different parameters. Mineral Resources for the Rochester deposit are classified as Measured, Indicated, and Inferred in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum 2014 Definition Standards (2014 CIM Definition

Standards). Classification parameters are based on anisotropic distance of block to nearest composite, number of samples used for the block estimate, and number of drill holes used in the block estimate with regards to the primary metal, silver.

Values chosen for classification, shown in Table 14.10, were based on analysis of histogram plots and review of previously constructed resource models. The final classification was reviewed in cross-section for consistency, and a cross-section showing the classification is shown in Figure 14.16. All Measured and Indicated blocks below the 2015 groundwater surface were reduced in classification to Inferred until further work can be completed to confirm the RC drill results.

Table 14.10. Rochester Resource Classification Parameters (Coeur, 2016)

	Measured	Indicated	Inferred
Distance to Nearest Sample	≤95 ft.	≤135 ft.	≤ 300 ft.
Number of Samples	≥8	≥5	≥1
Number of Drill Holes	≥5	≥3	≥1

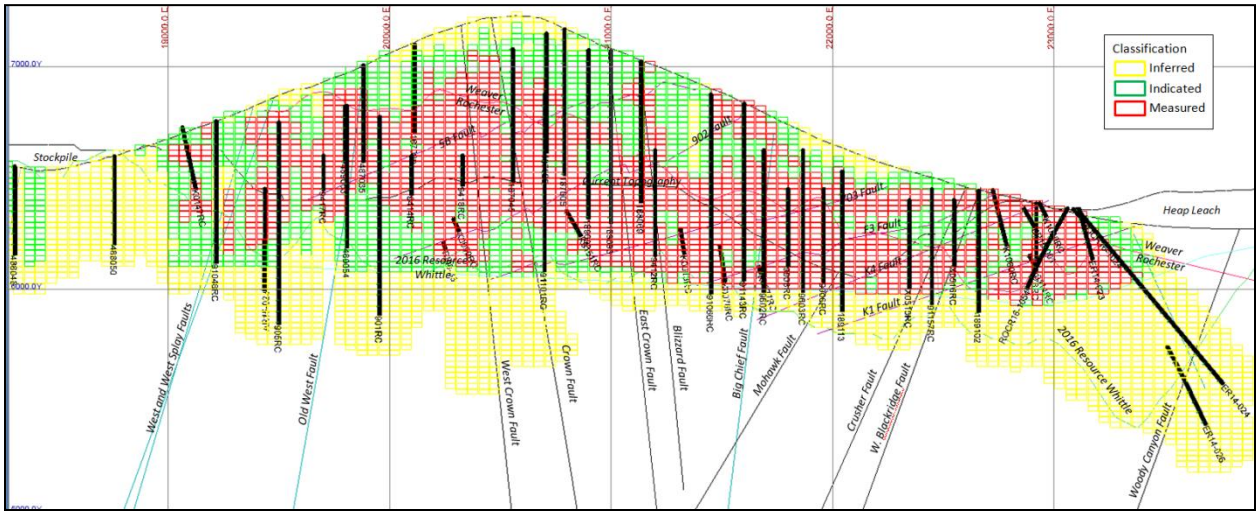

Figure 14.16. Resource Classification of In Situ Material (Section 16200N looking North) (Coeur, 2016)

Mineral Resources for Limerick are also classified using the 2014 CIM Definition Standards. Classification parameters are based on distance of block to the nearest composite and number of composites used for block estimation.

Distance to nearest sample values was plotted in a histogram. The 33% and 66% distance values were used to determine Measured and Indicated blocks. The same methodology was used to analyze the number of samples used per block estimation.

The variograms were also reviewed and 2/3rd of the range distance was considered in the final parameters chosen. Final parameters chosen are listed in Table 14.11.

Table 14.11. Resource Classification Parameters (Coeur, 2014)

Limerick Classification	Measured	Indicated	Inferred
Distance to Nearest Sample	≤75 ft.	≤140 ft.	≤420 ft.
Number Samples	≥5	≥4	≥1

14.3 Nevada Packard In Situ

14.3.1 Block Model Framework

The Nevada Packard Resource area includes a stockpile material model, completed in 2015 and the in situ resource model, updated May 12, 2016. The block model framework was expanded in 2016 to take into account additional step-out drilling completed between 2011 and 2015. Table 14.12 includes the parameters of the Nevada Packard Mineral Resource model.

Table 14.12. Nevada Packard – Resource Model Framework (Coeur, 2016)

	Y Dimension	X Dimension	Z Dimension
Location Min.	3,000	11,900	4500
Location Max.	11,750	25,150	7100
Block	50 ft.	50 ft.	25 ft.
Y	Northing	(Rows)	175
X	Easting	(Columns)	265
Z	Elevation	(Benches)	104

14.3.2 Resource Model Database

The Nevada Packard in situ dataset includes RC and DDH sampling completed by NPJV/Warf in the late 1980s; and Coeur Rochester from 1990 to December 31, 2015. All data are stored in an acQuire® SQL Server database.

A total of 668 drill holes were included in the Nevada Packard Resource pit area. Blasthole sampling included in previous estimates has been removed from the resource dataset due to change of support issues including sample quality, sample length and on-site lab analysis.

Drill hole collars were compared against topographic surfaces appropriate for the date the drilling was completed. All were found to be in agreement.

The effective date of this model is May 12, 2016.

14.3.3 Geologic Model

Geologic modeling, updated in 2016 for Nevada Packard, incorporates historic pre-mine surface mapping, 2015 pit mapping and drill log interpretation. Geologic wireframe features created include:

- Low angle west dipping structures;
- High angle structures cross-cutting the low angle structures; and
- Bounding high angle West Fault and West Blackridge Faults that appear to connect up through the Rochester pit area.

Previous domains were replaced with structurally controlled domains dictated by low angle faulting. The domains used for 2016 are shown in Figure 14.17.

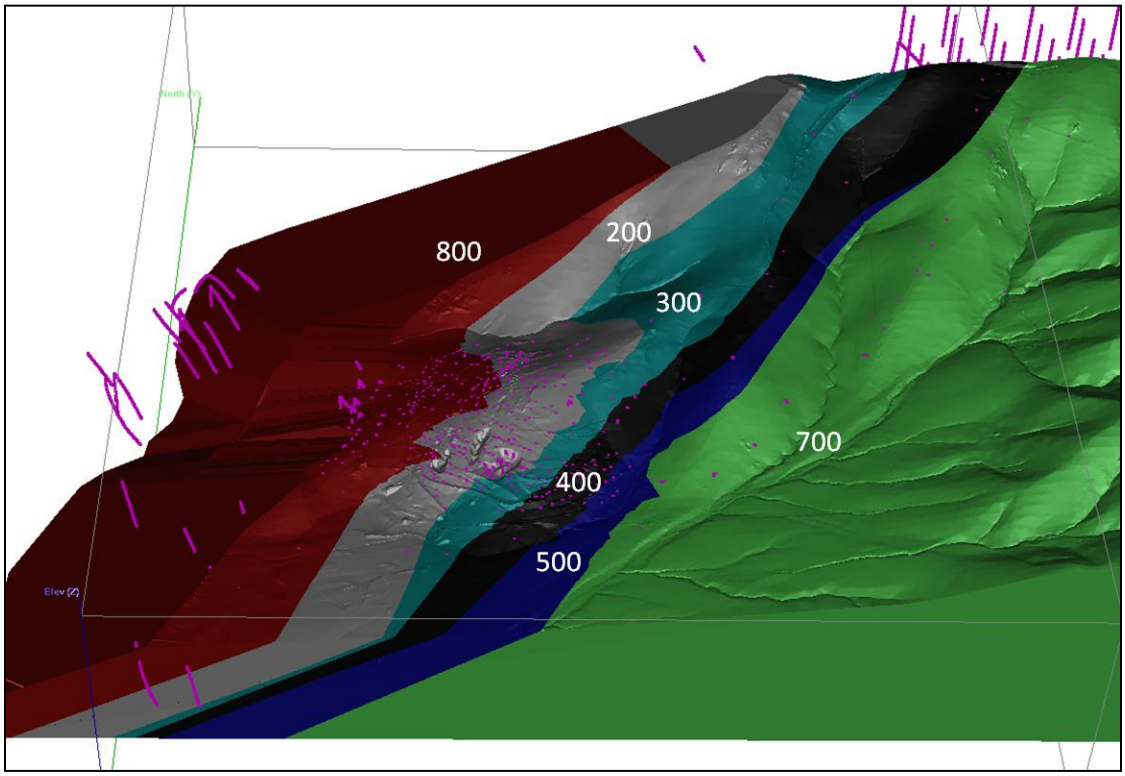

Figure 14.17. Oblique 3D View of Nevada Packard Geologic Domains (Coeur Rochester, 2016)

Domains are created from each of the major low angle structures mapped through the Nevada Packard pit. Mineralized zones are shallow, near surface and appear to be controlled by the low angle fault zones. Figure 14.18 is a general surface map showing fault traces and location of stockpiles/backfill. Figure 14.19 shows the relationship between low angle faults and mineralization in the Nevada Packard deposit.

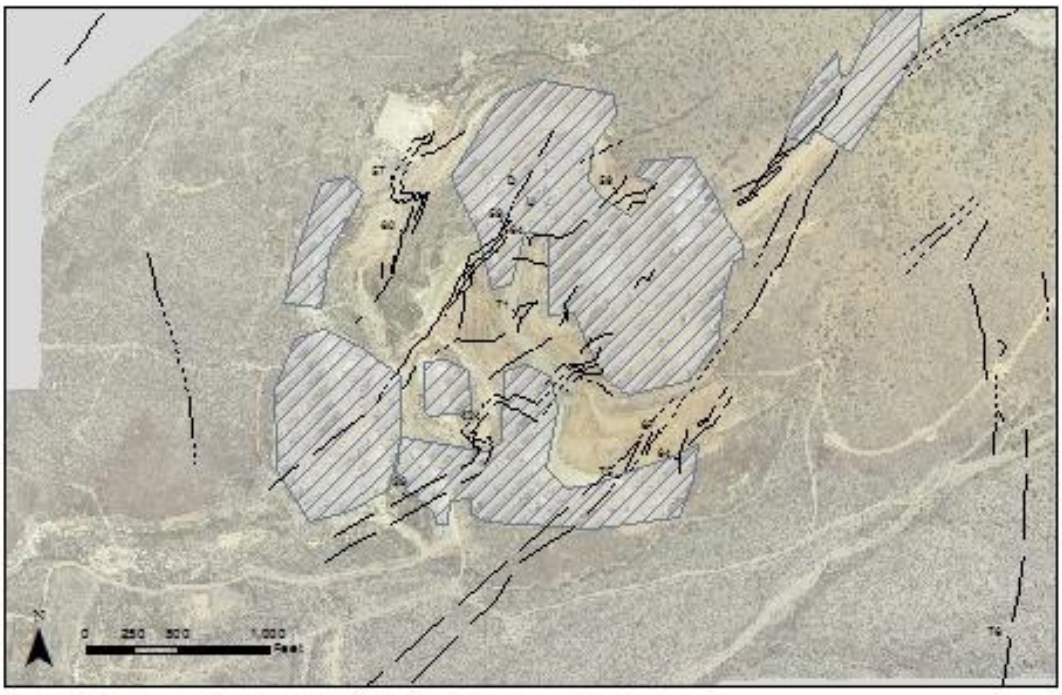

Figure 14.18. General Surface Map Showing Mapped Faults and General Stockpile/Backfill (shown as grey hatching) Locations (Coeur Rochester, 2016)

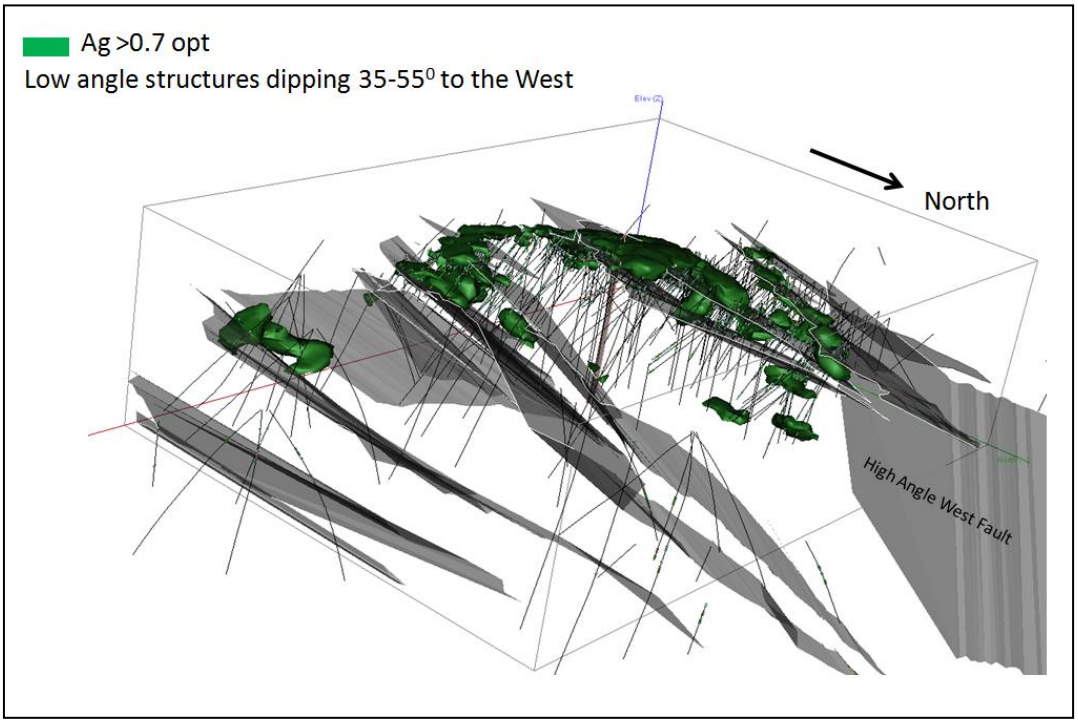

Figure 14.19. Oblique View of Silver Distribution vs. Faults at Nevada Packard (Coeur Rochester, 2016)

All domains are treated as hard boundaries, except for the following, which were determined to be soft boundaries from contact plot analyses:

- Ag: 800-200 Domains
- Ag: 300-400 Domains
- Ag: 400-500 Domain

Examples of two contact analysis plots are shown in Figure 14.20.

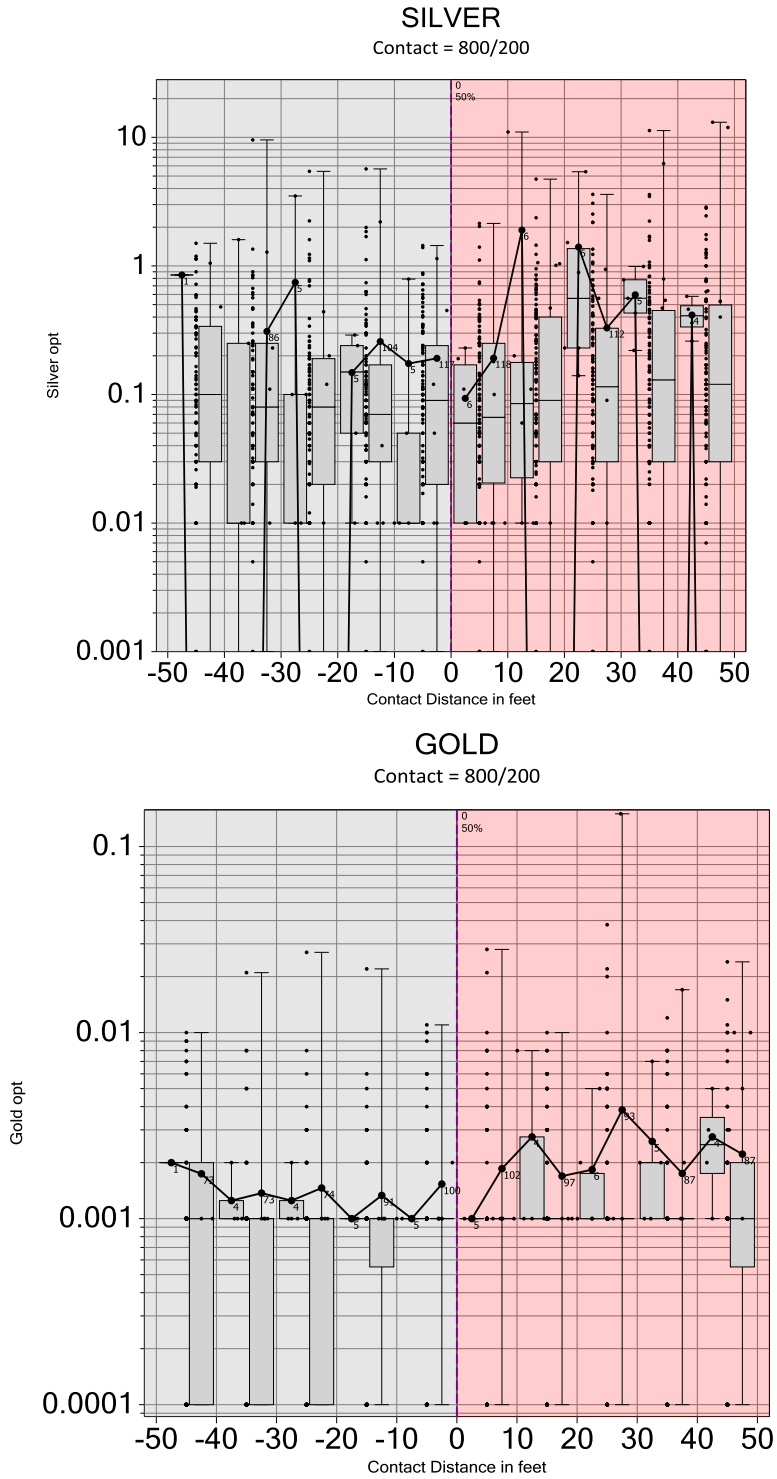

Figure 14.20. Contact Analysis for Gold and Silver between the 800-200 and 400-500 Domains (Coeur Rochester, 2016)

14.3.4 Exploratory Data Analysis (EDA)

Sample spacing was calculated on the hangingwall of each domain along strike and dip for each; it is highly variable as is the number of samples per domain, as shown in Figure 14.21. Fifty percent of the samples are less than 125-375 ft. apart, depending on the domain.

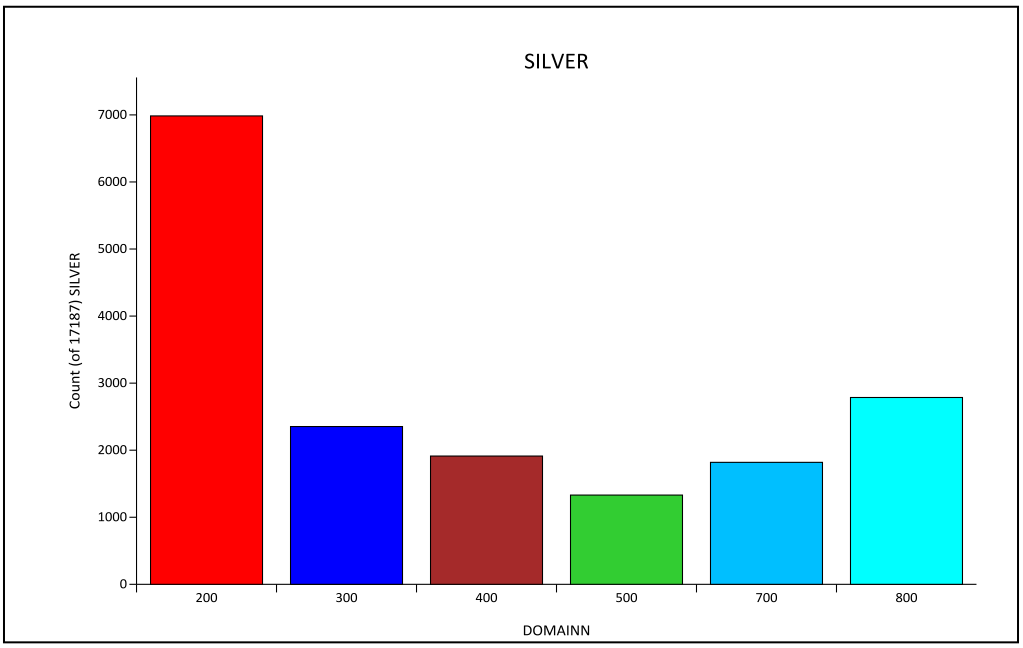

Figure 14.21. Distribution of Silver Samples Per Domain (Coeur Rochester, 2016)

Raw and composited silver assays have a lognormal distribution within each geologic domain. There is a slight bimodal distribution between 0.01 and 0.04 opt for silver grades that can be attributed to multiple assay methods, with different detection limits used over time with Nevada Packard sample assaying. Gold distribution is negatively skewed overall, with a random distribution between 0.002-0.01 opt. Values below 0.001 opt Au are also affected by multiple assay method types, detection limits per method, and how these limits were recorded over time. Figure 14.22 is an example of the raw silver and gold grade distributions for the 200 domain. Table 14.13 provides a comparison of the raw, capped, and composited capped assays used in resource estimation for Nevada Packard.

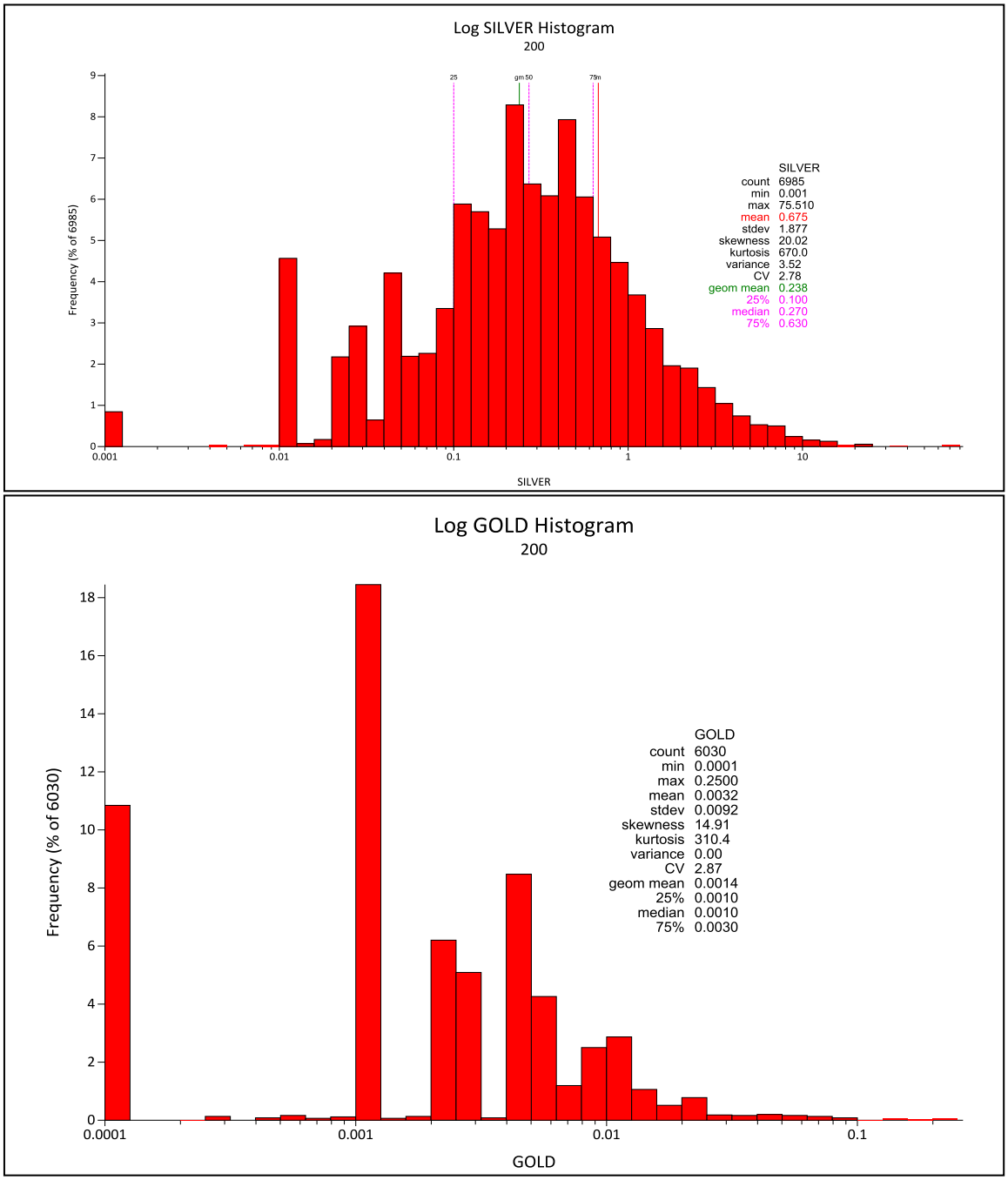

Figure 14.22. Example Gold (opt) and Silver (opt) Histograms for the 200 Domain (Coeur Rochester, 2016)

Table 14.13. Nevada Packard Resource Data Statistics (Coeur, 2016)

Element	Domain	Min	Max	Mean	Variance	StDev	CV	Skewness	Kurtosis	Geom Mean	25%	Median	75%
AG	200	0.001	75.51	0.675	3.52	1.877	2.78	20.02	670	0.238	0.1	0.27	0.63
Ag Capped	200	0.001	21.92	0.684	2.13	1.459	2.13	7.13	73.33	0.257	0.11	0.28	0.65
Ag Capped & Composited	200	0.001	18.21	0.597	1.16	1.078	1.81	5.71	50.36	0.246	0.106	0.271	0.61
AG	300	0.001	7.4	0.211	0.14	0.368	1.74	6.92	88.85	0.088	0.03	0.1	0.24
Ag Capped	300	0.001	2.8	0.203	0.1	0.316	1.55	3.98	22.48	0.087	0.03	0.096	0.239
Ag Capped & Composited	300	0.001	2.69	0.19	0.07	0.27	1.42	3.43	16.5	0.087	0.038	0.095	0.22
AG	400	0.001	13.7	0.299	0.43	0.653	2.18	9.4	138.5	0.102	0.03	0.13	0.34
Ag Capped	400	0.001	5.68	0.297	0.31	0.554	1.86	5.45	40.56	0.103	0.03	0.13	0.34
Ag Capped & Composited	400	0.001	5.47	0.28	0.26	0.513	1.83	5.29	37.97	0.105	0.035	0.116	0.312
AG	500	0.001	52.28	0.455	3.28	1.812	3.98	19.93	524.1	0.122	0.038	0.11	0.33
Ag Capped	500	0.001	8.83	0.416	0.89	0.945	2.27	5.42	36.98	0.125	0.04	0.12	0.36
Ag Capped & Composited	500	0.001	7.075	0.386	0.67	0.819	2.12	4.81	28.48	0.123	0.04	0.118	0.325
AG	700	0.001	11.1	0.097	0.15	0.39	4.01	17.71	415.2	0.032	0.02	0.04	0.07
Ag Capped	700	0.001	6.04	0.095	0.11	0.325	3.42	12.64	199.3	0.033	0.02	0.04	0.07
Ag Capped & Composited	700	0.001	5.83	0.094	0.09	0.302	3.2	12.1	187	0.035	0.02	0.035	0.075
AG	800	0.001	16.98	0.233	0.36	0.599	2.58	12.18	259.8	0.075	0.03	0.07	0.2
Ag Capped	800	0.001	9.55	0.259	0.33	0.578	2.23	7.63	89.76	0.088	0.03	0.09	0.24
Ag Capped & Composited	800	0.001	5.56	0.226	0.2	0.446	1.97	5.5	42.57	0.084	0.034	0.079	0.21
AU	200	0.0001	0.25	0.0032	0	0.0092	2.87	14.91	310.4	0.0014	0.001	0.001	0.003
AU Capped	200	0	0.084	0.003	0	0.007	2.09	7.49	72.64	0.002	0.001	0.001	0.003
AU Capped & Composited	200	0	0.102	0.003	0	0.006	2.03	7.78	82.96	0.001	0.001	0.001	0.003

Element	Domain	Min	Max	Mean	Variance	StDev	CV	Skewness	Kurtosis	Geom Mean	25%	Median	75%
AU	300	0.0001	0.126	0.0018	0	0.005	2.85	14.46	291.4	0.0007	0.0001	0.001	0.001
AU Capped	300	0	0.035	0.002	0	0.003	2.04	6.26	48.45	0.001	0	0.001	0.001
AU Capped & Composited	300	0	0.028	0.002	0	0.003	1.63	5.16	35.6	0.001	0.001	0.001	0.001
AU	400	0.0001	0.27	0.002	0	0.0097	4.81	18.59	431.1	0.0007	0.0001	0.001	0.001
AU Capped	400	0	0.015	0.001	0	0.002	1.57	4.19	19.32	0.001	0.001	0.001	0.001
AU Capped & Composited	400	0	0.105	0.002	0	0.006	3.16	11.36	157.5	0.001	0.001	0.001	0.001
AU	500	0.0001	0.048	0.0017	0	0.003	1.75	6.66	68.67	0.0008	0.001	0.001	0.001
AU Capped	500	0	0.022	0.002	0	0.003	1.46	4.32	24.09	0.001	0.001	0.001	0.002
AU Capped & Composited	500	0	0.048	0.002	0	0.003	1.71	7.84	96.73	0.001	0.001	0.001	0.002
AU	700	0.0001	0.014	0.0006	0	0.0009	1.5	7.52	90.28	0.0003	0.0001	0.0001	0.001
AU Capped	700	0	0.011	0.001	0	0.001	1.43	6.58	69.99	0	0	0	0.001
AU Capped & Composited	700	0	0.008	0.001	0	0.001	1.3	4.57	34.98	0	0	0	0.001
AU	800	0.0001	0.044	0.0014	0	0.0032	2.27	7.12	66.54	0.0005	0.0001	0.001	0.001
AU Capped	800	0	0.036	0.002	0	0.003	1.97	6.01	45.27	0.001	0.001	0.001	0.001
AU Capped & Composited	800	0	0.037	0.001	0	0.003	1.99	5.8	45.21	0.001	0	0.001	0.001

14.3.5 Material Density

A tonnage factor of 1.5424 tons per cubic yard was utilized for the Nevada Packard in situ material. This tonnage factor has been confirmed by mining operations and third party studies conducted in 1992 and 2002. A new program of collecting and testing grab samples has been implemented in 2016. Results of this work, to be continued through 2017, will be available for use in the next resource estimate.

14.3.6 Grade Capping/Outlier Restrictions

Population statistics for the raw and composited samples were reviewed for the purposes of grade capping. To limit the over-smoothing of grades, final capping was completed on the raw assays prior to compositing. Histograms and log probability plots were reviewed as well as the distribution of the high grade samples in 3D. It was found that only minor capping was required. High grade samples are limited to a few zones associated with structural controls. Capping was done to minimize the effect of the highest grade samples only. Capping values and the associated statistics are listed in Table 14.14 and Table 14.15 for silver and gold, respectively.

Table 14.14. Nevada Packard – Capping Statistics for Silver (Coeur, 2016)

Domain	Original Max Value	Cap	# Samples Capped	Percentile	Capped%	Total Metal at Risk%	Metal at Risk CV%	Capped Mean	Total Capped Ounces	Change in Variance	Capped CV	Uncapped CV
800	16.98	6.024	3	99.90%	0.10%	2.40%	15%	0.227	632	0.25	2.18	2.58
200	75.51	18.899	7	99.90%	0.10%	2.90%	24%	0.655	4576	1.91	2.11	2.78
300	7.4	2.781	8	100%	0%	2%	11%	0.207	487.7	0.1	1.55	1.74
400	13.7	8.392	2	100%	0%	1%	7%	0.296	566.3	0.36	2.02	2.18
500	52.28	8.917	4	99.70%	0.30%	11%	43%	0.406	541	0.86	2.29	3.98
700	11.1	5.868	2	99.90%	0.10%	3.10%	15%	0.094	171.2	0.1	3.4	4.01

Table 14.15. Nevada Packard – Capping Statistics for Gold (Coeur, 2016)

Domain	Original Max Value	Cap	# Samples Capped	Percentile	Capped%	Lost Total %	Lost CV%	Capped Mean	Total Capped Ounces	Change in Variance	Capped CV	Uncapped CV
200	0.25	0.1497	7	99.90%	0.10%	1.70%	11%	0.0032	19.01	0	2.54	2.87
300	0.126	0.035	5	99.70%	0.30%	5.80%	29%	0.0017	3.29	0	2.04	2.85
800	0.044	0.038	3	99.90%	0.10%	0.32%	1.40%	0.0014	3.462	0	2.24	2.27
400	0.27	0.1497	2	99.90%	0.10%	3.60%	15%	0.0019	3.214	0	4.1	4.81
500	0.048	0.048	0	100%	0%	0%	0%	0.0017	2.127	0	1.75	1.75
700	0.014	0.014	0	100%	0%	0%	0%	0.0006	1.022	0	1.5	1.5

14.3.7 Composites

Sample lengths for 17,339 samples from the Nevada Packard and surrounding area were reviewed: 93% of the samples are 10 ft. in length and 4% are 5 ft. in length. Figure 14.23 shows the distribution of the remaining 3% of the sample lengths.

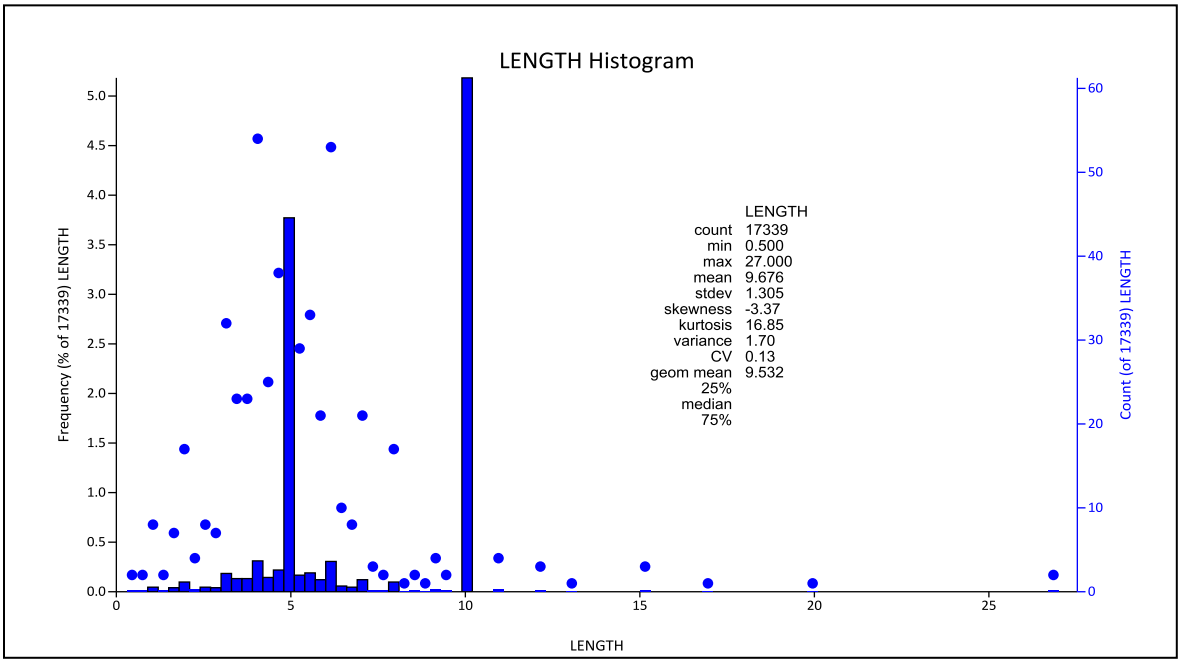

Figure 14.23. Sample Length Distribution for 3% of the Nevada Packard Dataset (not 5 or 10 ft. in length) (Coeur Rochester, 2016)

The Nevada Packard model utilizes 20 ft. composites created from capped sample data. The composites are created from the top of the drill hole to minimize splitting of assay intervals. Previous models were created using 25 ft. bench composites to fit blasthole sample lengths. Since blastholes have been removed from the model, the composite length has been changed to avoid grade splitting and over-smoothing of grades.

14.3.8 Variography

Variography for the Nevada Packard in situ was completed on each domain for gold and silver using the 20 ft. composites. All variography was completed using Gemcom software. Downhole variography was completed to determine approximate nugget values for both gold and silver prior to final variogram models.

The variogram definition was set to the orientation of the low angle structures based on review of the assays and structural data. A horizontal orientation was also tested but provided poor search ellipse parameters. Orientation of the lithologic host is not well

defined in the available data, so strike and dip of the lithologic host was not tested. Initial variograms showed the data to be very erratic; a pairwise relative transformation was applied to more easily identify the spatial continuity within each domain. Variogram parameters used for block model interpolation are shown in Table 14.16 and Table 14.17.

Table 14.16. Nevada Packard – Variogram and Search Ellipse Parameters for Silver by Domain (Coeur, 2016)

Domain	200	300	400	500	700	800
Metal	Ag	Ag	Ag	Ag	Ag	Ag
# Structures modeled	2	2	3	2	2	
Variogram Model	Spherical	Spherical	Spherical	Spherical	Spherical	Spherical
Variogram Type	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative
Principal Azimuth	57	322	205	332	332	27
Principal Dip	17	-20	9	-18	-18	-24
Intermediate Azm	140	240	116	249	249	239
Range1	146	134	205	159	159	157
Range2	104	79	120	159	159	157
Range3	108	134	159	159	159	145
Search Ellipse Type	Ellipsoidal	Ellipsoidal	Octant	Ellipsoidal	Ellipsoidal	Octant
Min-Max Samples per Octant			2-4			2-4
CO	0.284	0.017	0.032	0.265	0.265	0.05
Sill	0.685	0.0343	0.086	0.589	0.589	0.129

Table 14.17. Nevada Packard – Variogram and Search Ellipse Parameters for Gold by Domain (Coeur, 2016)

Domain	200	300	400	500	700	800
Metal	Au	Au	Au	Au	Au	Au
# Structures modeled	1	2	1	1	2	1
Variogram Model	Spherical	Spherical	Spherical	Spherical	Spherical	Spherical
Variogram Type	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative	Pairwise Relative
Principal Azimuth	344	92	309	36	297	297
Principal Dip	-14	24	-23	9	-24	-24
Intermediate Azm	262	151	188	85	230	230
Range1	140	120	95	149	184	184
Range2	120	103	95	149	105	105
Range3	108	79	72	68	129	129
Search Ellipse Type	Ellipsoidal				Ellipsoidal	Ellipsoidal
Min-Max Samples per Octant						
CO	0.000009	0.01	0.189	0.116	0.453	0.453
Sill	0.000026	0.034	0.812	0.438	0.852	0.852

14.3.9 Estimation/Interpolation Methods

The Nevada Packard in situ deposit was estimated by OK interpolation with one estimation pass. The resource model was estimated to original topography and then clipped to current topographic surfaces. A maximum of three samples per drill hole were utilized and a minimum of 1 drill hole could be used to interpolate a block. Block interpolation required a minimum of two samples and a maximum of 24. Octant searches

were applied to the silver interpolation for domains 400 and 800 only. Elliptical searches were used for all other domains and gold interpolation. Sample spacing within the 400 and 800 domains is more clustered with regard to the search ellipses used for these domains, causing a higher number of negative kriging weights to be created during interpolation with a simple elliptical search; thus, an octant search was used for 400 and 800 domains.

14.3.10 Block Model Validation

The 2016 Nevada Packard Mineral Resource estimate validation included:

- Validation against ore control sample data and exploration data;
- Swath plots generated for the OK model, an ID2 model, mean grade model and the composite sample variance;
- Review of grade distributions between raw data, composites, and OK model; and
- A visual check of block grades against drill holes conducted on 50 ft. sections throughout the deposit.

All historic blasthole drilling (totaling 35,004 holes) for the Nevada Packard pit is available for model reconciliation. The mean grade of blastholes within each block was calculated and compared to the OK interpolated model. This was also compared against the average grade of the exploration drill hole grade(s) that pass through each block. Unconstrained examples of the associated swath plot for elevation for silver and gold are shown in Figure 14.24 and Figure 14.25, respectively. Plots indicate blastholes, exploration drilling and the model have the same overall trends, while local variation exists in each dataset. While the silver estimates track well, the gap between blasthole grade and ounces vs. exploration grade and kriged grade and ounces, appears much larger. However, given the range of grades 0.001-0.007 opt Au, the difference could be attributed to several factors, including differences in analytical methods, instrument calibration or sampling method.

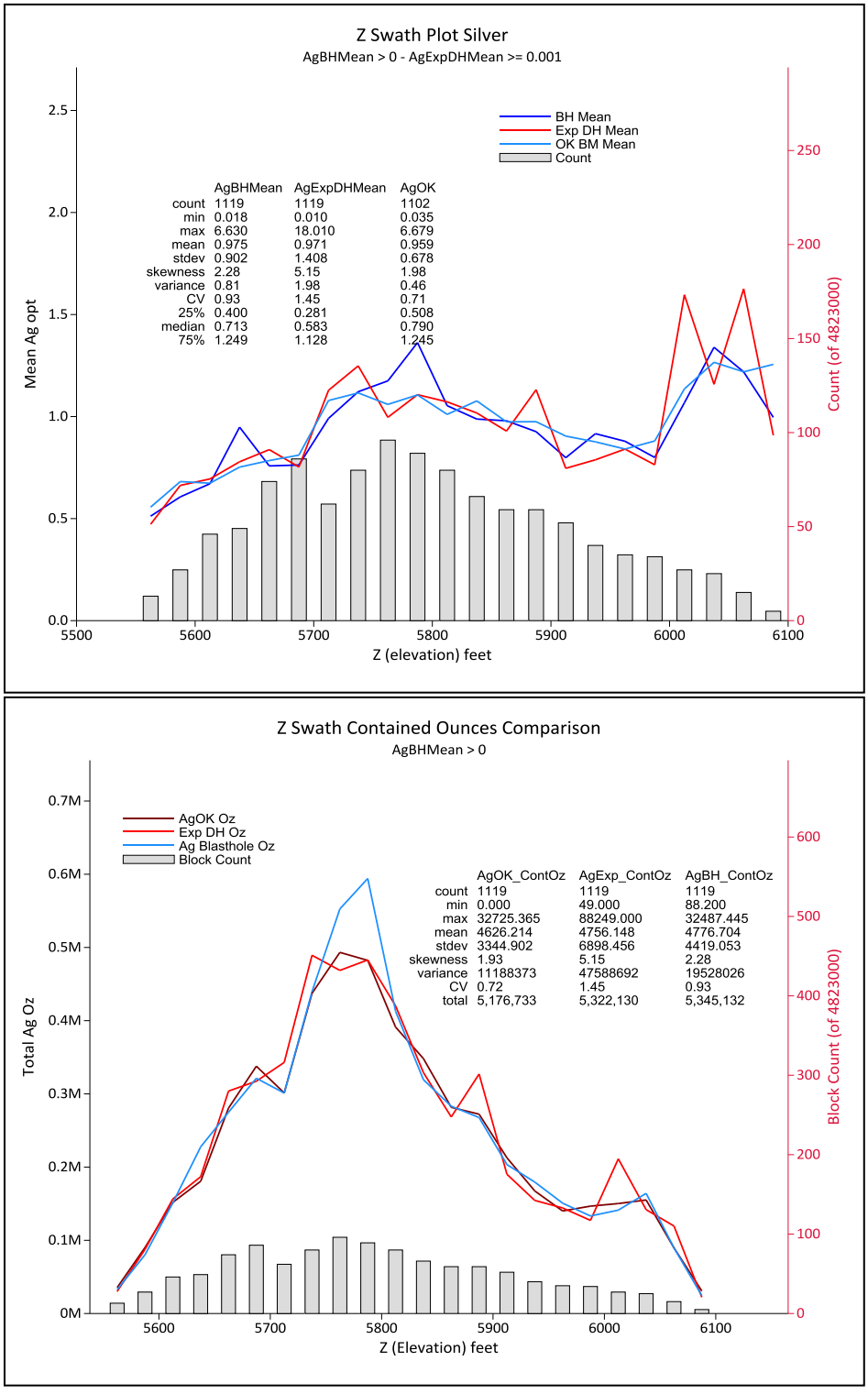

Figure 14.24. Example Elevation Silver Swath Plots comparing Blasthole Mean Grade, Exploration Sample Mean Grade and OK Interpolation, Unconstrained (Coeur Rochester, 2016)

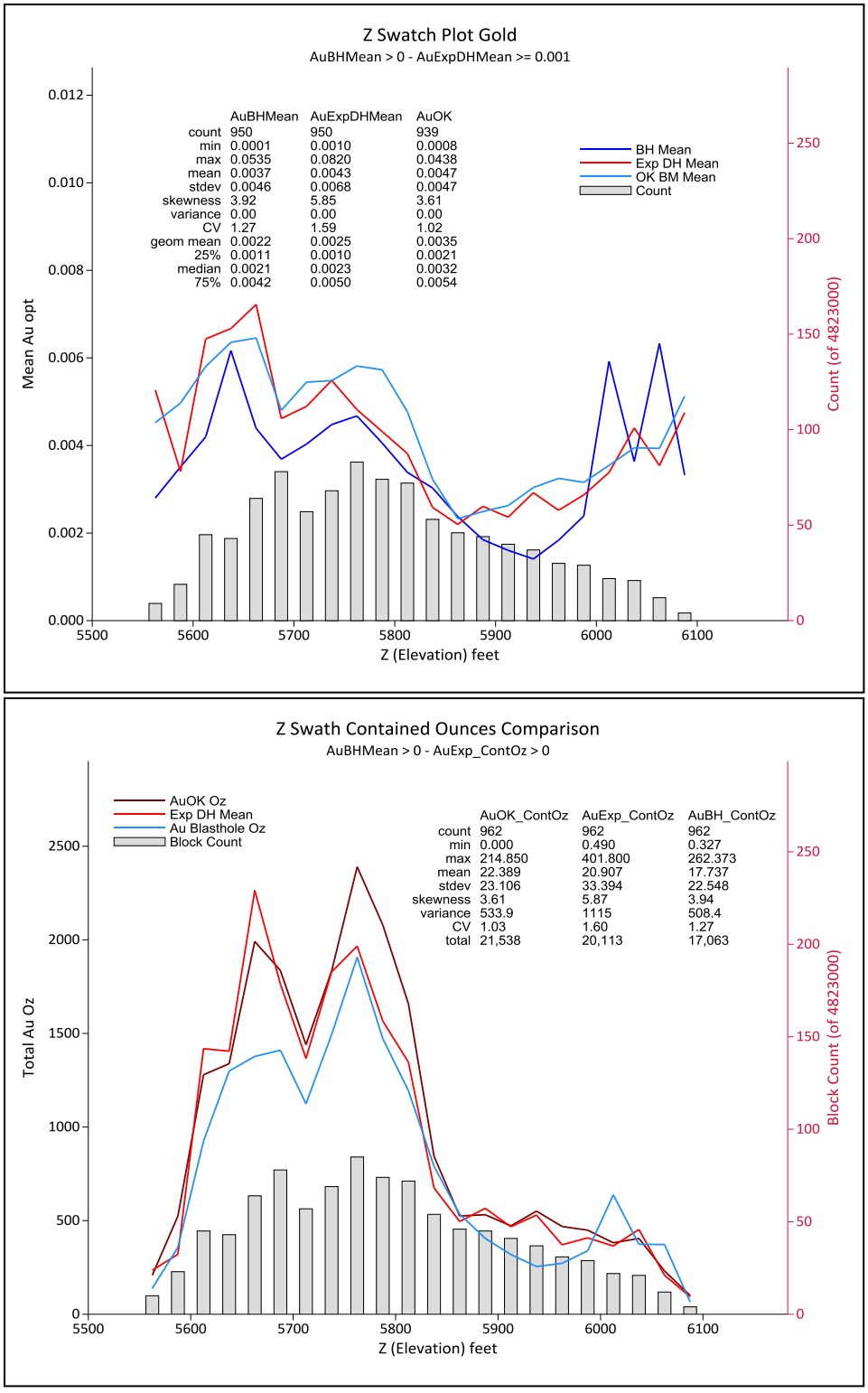

Figure 14.25. Example Elevation Gold Swath Plots comparing Blasthole Mean Grade, Exploration Sample Mean Grade and OK Interpolation, Unconstrained (Coeur Rochester, 2016)

Unconstrained swath plots were also generated comparing the OK interpolated model against mean grade of the interpolating samples per block and an ID2 model. Results shown in Figure 14.26 indicate the models compared well.

Histogram plots of the OK block grade, raw grade, and composited grade values show a shift to lower median grades for all domains with regard to silver and a definite smoothing of the peaks. Gold histogram plots, comparing grades, show a shift to a lower median grade for the 200 domain only, shown in Figure 14.27. The overall distribution curve of the original dataset has been maintained.

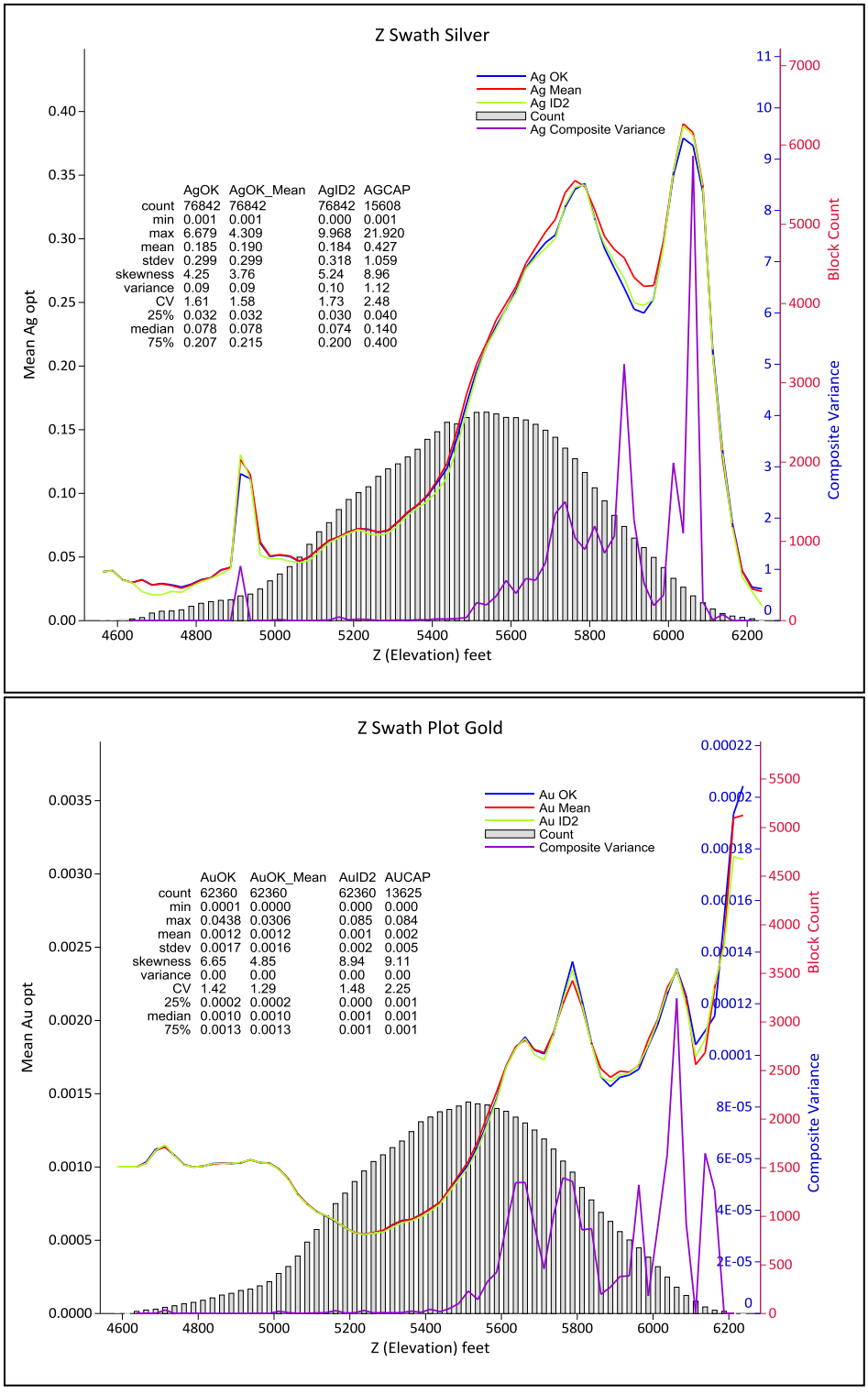

Figure 14.26. Example Elevation Swath Plots comparing Interpolation Methods, Unconstrained (Coeur Rochester, 2016)

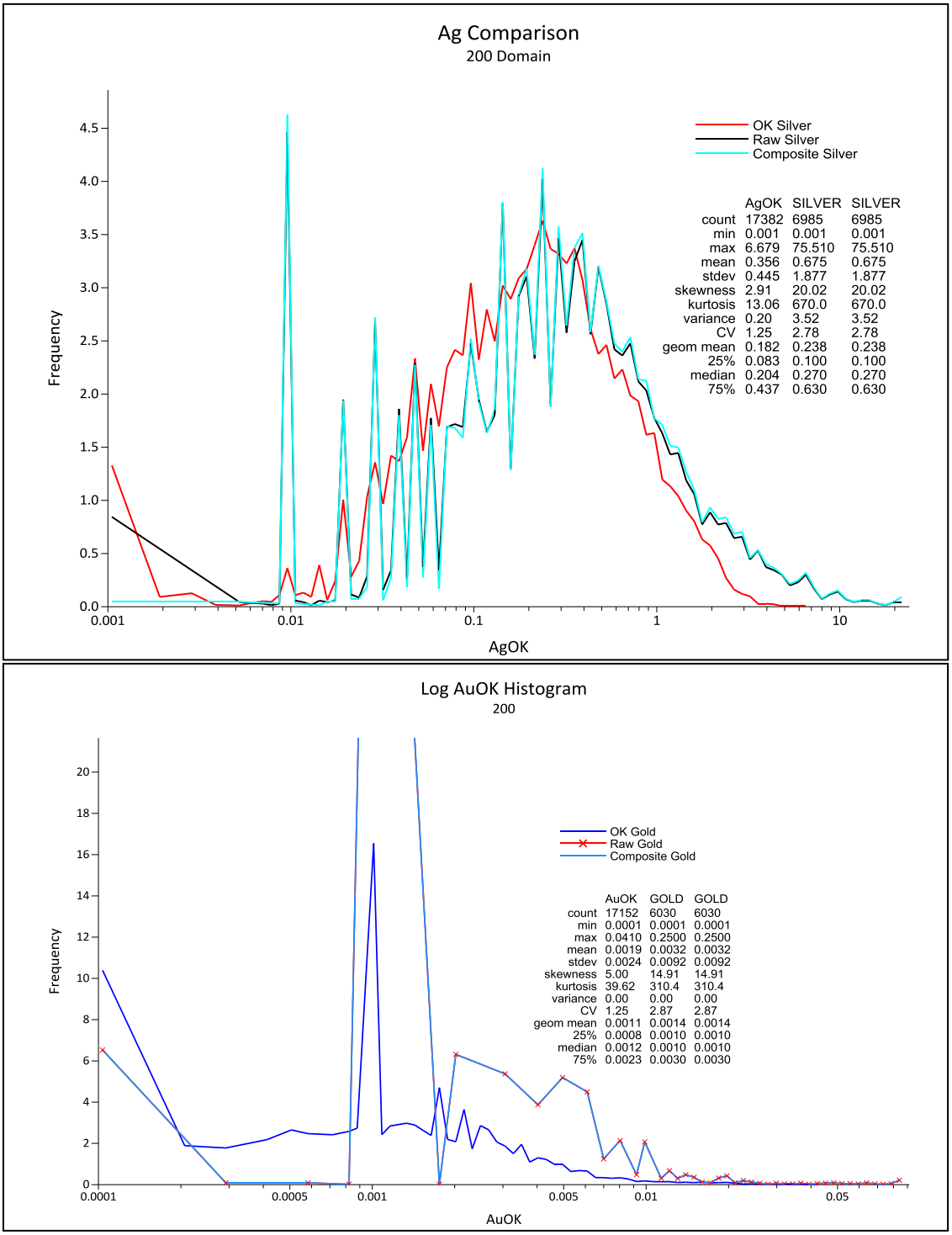

Figure 14.27. Histograms for Silver and Gold Comparing OK Grades to Raw and Composited Assay Grades (Coeur Rochester, 2016)

14.3.11 Classification of Mineral Resources

Mineral Resources at Nevada Packard are classified as Measured, Indicated, and Inferred in accordance with 2014 CIM Definition Standards. The resource was classified based on the distance of block centroid nearest the composite and the number of samples used in the block estimate and number of drill holes used.

Values chosen for classification, shown in Table 14.18, were based on analysis of histogram plots and review of previously constructed resource models. The final classification was reviewed in cross-section for consistency, and a cross-section showing the classification is shown in Figure 14.28. All Measured and Indicated blocks below the 2015 groundwater surface were reduced in classification to Inferred until further work can be completed to confirm the RC drill results.

Table 14.18. Nevada Packard In Situ Resource Classification Parameters (Coeur Rochester, 2016)

	Measured	Indicated	Inferred
Distance to Nearest Composite	≤80	≤115	≤200
Minimum Number of Drill Hole Used	≥5	≥3	≥1
Minimum Number of Samples Used	≥12	≥7	≥3

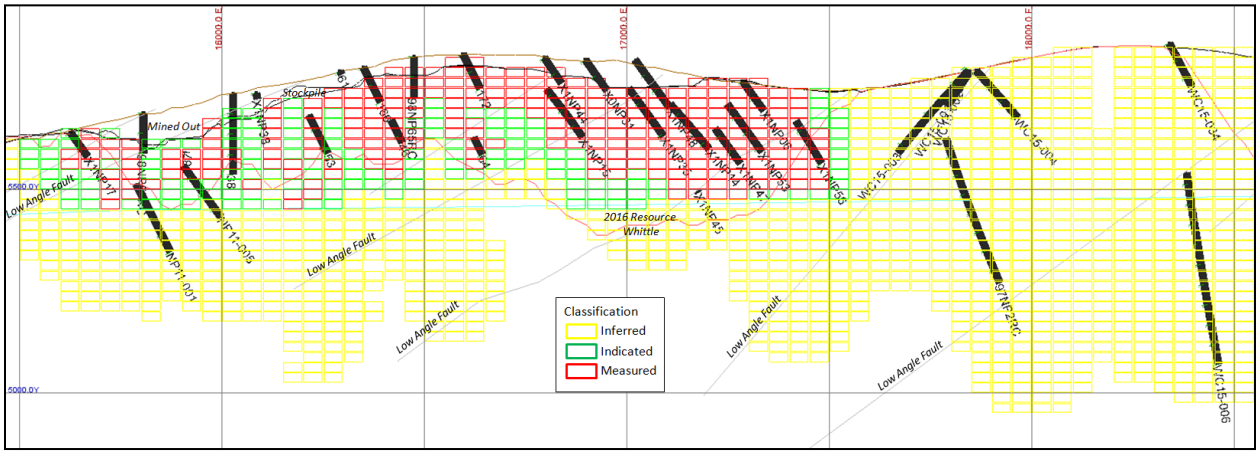

Figure 14.28. Resource Classification of Nevada Packard Material (Section 16200N looking North) (Coeur, 2016)

14.4 North and West Rochester Stockpiles

14.4.1 Block Model Framework

The Rochester North and West stockpiles share the common block model framework outlined in Section 14.2.1.

14.4.2 Resource Model Database

The North stockpile Mineral Resource estimate includes drilling from the West and Limerick stockpiles. The current Mineral Resource model utilizes 528 drill holes totaling 9,340 samples, and represents 103,700 ft. of drilling. Drill hole data used in the North stockpile Mineral Resource estimate was extracted from the acQuire® database on November 21, 2013, and includes all drilling completed and samples validated up to that date.

The stockpile drilling summary from 2011-2013 for all stockpiles is shown in Table 14.19. Drill holes utilized in the resource model were drilled using water. Dry RC drill holes were treated as twins. Statistical twin analysis completed by Gustavson Associates is discussed in detail in the *Rochester Mine Technical Report,* effective January 1, 2013. Overall, the silver assays were statistically similar for wet and dry RC drill holes. Statistical analysis of the sonic vs. wet RC samples failed the evaluation process. Gustavson determined that the drilling method biased sampling when larger rock fragments become stuck in the sonic core barrel and smaller rock fragments are pushed out, resulting in loss of sample. The dry RC holes and sonic drill holes were not utilized in the resource model. Separate resource models were completed for the West and Limerick stockpiles and the South and Charlie stockpiles. The resource models are generated using Geovia® GEMS software.

Table 14.19. Stockpile Drilling Summary (Coeur, 2013)

	RC (Wet)	Sonic	RC Twin (Dry)	RC Twin (Wet)
North and West Stockpile	528	40	43	
South and Charlie Stockpile	341			16

14.4.3 Geologic Model

Run-of-mine (ROM) waste placed in the West and Limerick stockpiles contains a combination of overburden types, as well as unconsolidated quartz feldspar, ash tuff, and rhyolite from the Weaver and/or Rochester Formation. West and Limerick stockpile materials are unconsolidated, and range in size from boulders to fine grained sand. Underlying the stockpiles are native materials consisting of silt and clay. The maximum thickness of the material in the West and Limerick stockpiles is approximately 400 ft.

14.4.4 Exploratory Data Analysis (EDA)

Review of the drill hole pierce points through the 6,625 bench shows the average drill hole spacing is 100 ft. Figure 14.29 shows a histogram of drill hole spacing.

Sample statistics were calculated for the West and Limerick stockpiles combined. When the below detection limit values are removed from the analysis, silver has a normal log distribution about the mean. Eighty percent of the sample population falls within one standard deviation of the mean, indicating a low dispersion of silver values. Gold has a skewed distribution, with 99.6% of the population within one standard deviation of the mean. Eighty percent of the gold values above detection limit have a grade <0.01 opt.

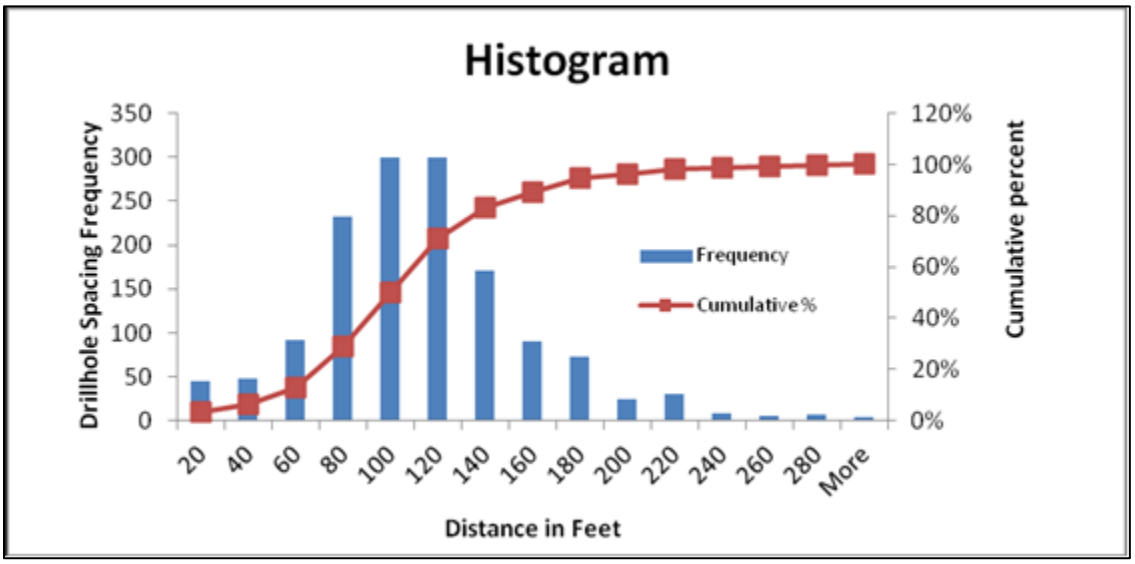

Figure 14.29. Drill Hole Spacing on the 6,625 Bench for West and Limerick Stockpiles (Coeur, 2013)

14.4.5 Material Density

Stockpile material is based on the same 1.5424 ton per cubic yard tonnage factor as Rochester in situ material, with a 37% swell factor applied.

14.4.6 Grade Capping/Outlier Restrictions

In addition to utilizing the same methods as the in situ models for capping, a probability plot of the assays was evaluated. Results of the different methods are provided in Table 14.20. Final values chosen for capping were 3.3 opt for silver, and 0.02 opt for gold. Capping was applied to five silver grades and seven gold values prior to compositing. Capping had the desired effect of lowering the COV for gold and silver values. Capping was applied to samples rather than composites to retain variability and reduce over-smoothing in the vertical direction.

Table 14.20. High Grade Analysis Results (Coeur, 2013)

	Disintegration	Cumulative Frequency (cut top 1%)	Probability Plot
Ag opt Cut	3.436	1.44	3.486
Au opt Cut	0.022	0.0085	0.025

14.4.7 Composites

The resource model utilizes 10 ft. composites. Composites are created from the top of drill hole. Twenty-five ft. composites based on bench elevation were also tested during the modeling process. All drill holes were sampled on 10 ft. intervals, except for seven samples taken on less than 10 ft. intervals. Unsampled intervals for each drill hole were assigned a value representing 'no sample taken'.

14.4.8 Variography

Variograms were calculated for gold and silver based on the 10 and 25 ft. composites. Search distances are not directionally dependent:

- Principal azimuth and intermediate azimuth are approximately perpendicular;
- Overall nugget affect is low; and
- The 25 ft. bench composites show lower variability and less correlation over distance.

Variography provided two of the search distances tested for inverse distance weighted to the second power (ID2), and ID3 modeling. The final resource model utilizes 10 ft. composites and a 186 ft. search distance, utilizing 3 to 15 samples, and limiting samples per drill hole to three, with an ID2 interpolation method. ID2 was chosen over ID3 and OK, based on the results of the grade-tonnage estimate, variography, and results of the comparison to ore control sampling. The same estimation parameters were used for gold and silver.

14.4.9 Estimation/Interpolation Methods

The final resource model uses 10 ft. composites and a 186 ft. search distance using 3 to 15 samples, and limiting samples per drill hole to three, with an ID2 interpolation method. A minimum of one drill hole was allowed for interpolation. Little difference was noted between ID2 and ID3 results, while the kriging methodology predicted lower tonnage and grade overall. ID2 was selected as the preferred interpolation method over ID3 and OK, based on the results of the grade-tonnage estimate, variography, and results of the comparison to ore control sampling.

Unestimated blocks outside of the 186 ft. search distance range were estimated using a second pass search distance of 799 ft., one to five samples, and no maximum number of samples per drill hole.

14.4.10 Block Model Validation

The resource models were validated by comparing block model statistics to the sample assay and composite statistics. Silver equivalence was calculated from estimated gold and silver values for each block, using a factor of 88 to convert gold ounces. Silver equilvalence was plotted on a grade-tonnage graph to compare the effect of search distance and modeling method. Results for all estimations methods are similar, below 0.9 opt AgEq. Predicted tonnage below 0.9 AgEq opt increases with search distance or larger 25 ft. composites.

To validate the resource model estimate, an additional estimate using the same estimation parameters and methodology was done using ore control samples taken on the north end of the stockpile in 2013. Ore control sampling was completed in a limited area of the stockpile where exploration sampling was sparse. Results were found to compare very well for the limited data analyzed.

Swath plots were prepared comparing gold and silver model grades from four different interpolation methods: OK, ID2, NN, and mean block grade. All grade estimates from the first and second pass estimates that were used to populate the North stockpile blocks were included in the swath plots. Overall, silver and gold grades matched well for all interpolation methods, except for the OK estimate.

Vertical cross-sections were also used to visually compare 10 ft. drill hole composites to the block model. Drill holes exhibit high variability from sample to sample. The block model shows reasonable correlation and smoothing of the composite results. Ore and waste zones are well defined by multiple drill hole intercepts. Examples are shown in Figure 14.30 and Figure 14.31.

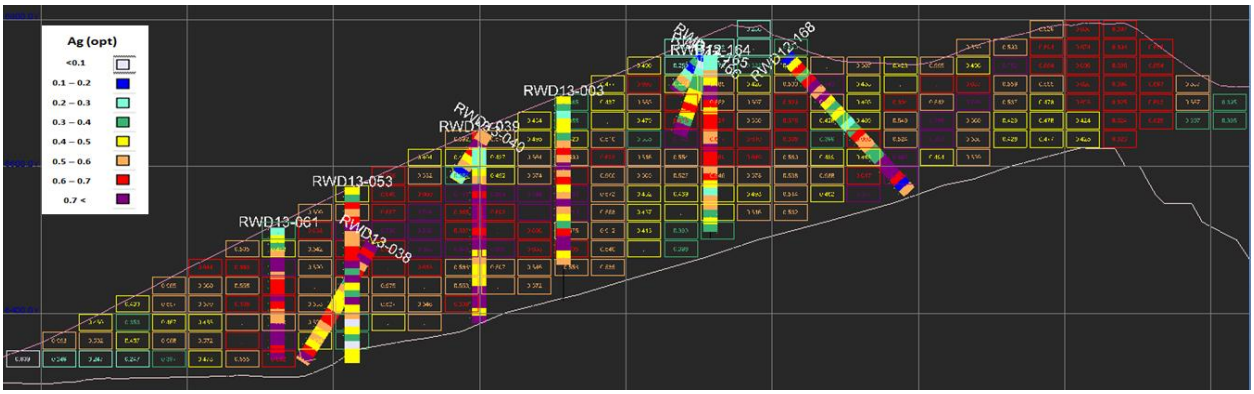

Figure 14.30. Vertical N-S Section 17100N (Coeur, 2013)

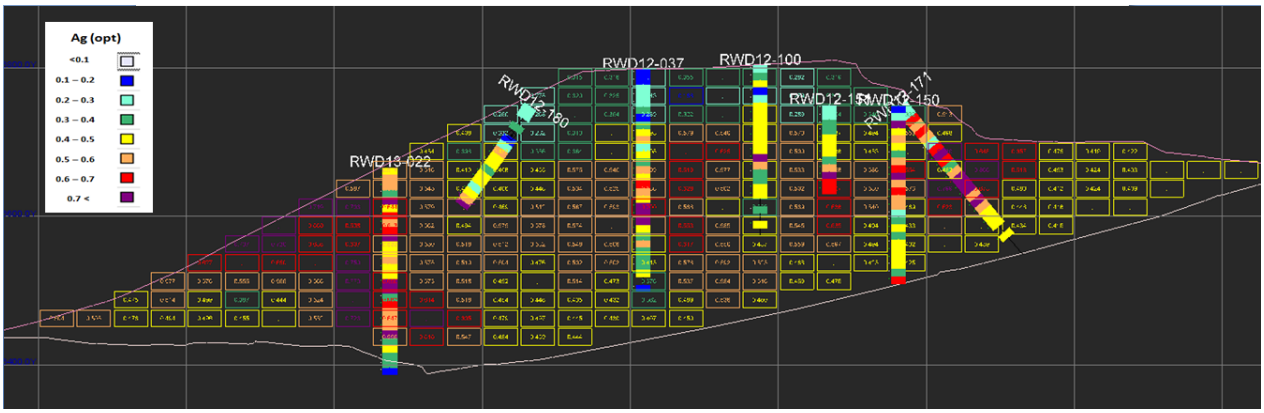

Figure 14.31. Vertical N-S Section 16750N (Coeur, 2013)

14.4.11 Classification of Mineral Resources

Mineral Resources in the North stockpile are classified as Measured, Indicated, and Inferred in accordance with the 2014 CIM Definition Standards. An internal reconciliation study comparing blasthole data to the 2012 resource estimate found that the model compared well, and the classification methodology performed as expected when the reconciliation was compared by classification. As a result, no reason was found to change the classification methods The resource was classified based on the distance of a block to nearest drill hole composite and the minimum number of drill holes identified within the search radius for the block. Resource classification parameters are shown in Table 14.21 and an overview of the classification distribution is illustrated in Figure 14.32. All blocks estimated with a second pass model were classified as Inferred.

Table 14.21. Resource Classification Parameters (Coeur, 2013)

YE2013 North Stockpile Classification	Distance to Nearest Composite	Number of Drill Holes
Measured	≤85 ft.	≥3
Indicated	≤170 ft.	≥2
Inferred	>170 ft.	≥1

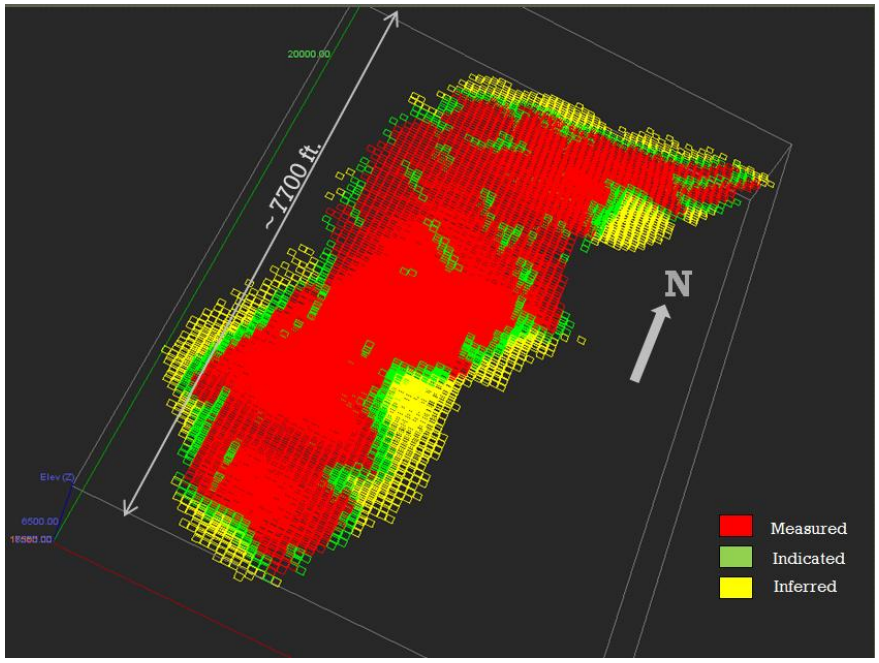

Figure 14.32. Oblique 3D View of Resource Classification as Applied to the North Stockpile Block Model (Coeur, 2013)

14.5 South and Charlie Rochester Stockpiles

14.5.1 Block Model Framework

The Rochester South and Charlie stockpiles share the common block model framework outlined in Section 14.2.1.

14.5.2 Resource Model Database

The South stockpile Mineral Resource estimate includes drilling from the South and Charlie stockpiles. The current Mineral Resource model utilizes 337 drill holes totaling 25,990 ft., represented by 7,179 samples. Drill hole data used in the South stockpile resource estimate was extracted from the acQuire® database on December 11, 2013, and includes all validated drilling and samples available up to that date.

14.5.3 Geologic Model

The South and Charlie stockpiles contain material mined from the southern end of the west pit. The South and Charlie stockpiles contain a higher percentage of pre-mine stripped material and show higher variability in grades throughout the stockpile than that seen in the North and West stockpiles. The South and Charlie stockpiles are up to 250 ft. in thickness.

Visually, material present in the South stockpile shows more intermittent areas of shale/siltstone than in the North stockpile. Shale/siltstone is typically barren. Overall, the South stockpile is less homogeneous than the North stockpile with regards to silver.

14.5.4 Exploratory Data Analysis (EDA)

Sample statistics were calculated for the combined South and Charlie stockpile datasets. After removing below detection limit values, gold and silver both exhibit skewed distributions. Seventy-five percent of silver values fall within one standard deviation of the mean, while 98% of gold values fall within one standard deviation of the mean. Silver and gold have relatively high standard deviations. Both the mean and maximum grades for silver are lower in the South stockpile than the North stockpile. Ninety-nine percent of the gold values above detection limit are below 0.01 opt.

14.5.5 Material Density

Stockpile material is based on the same 1.5424 ton per cubic yard tonnage factor as Rochester in situ material, with a 37% swell factor applied.

14.5.6 Grade Capping/Outlier Restrictions

The same capping methodology was applied to the South and Charlie stockpiles, as discussed above. Results are presented in Table 14.22. Silver probability plots indicate three potential values below 2 opt, at which capping could be applied. Given the spread of assays and overall low silver values, the higher value of 2.29 opt was chosen for capping silver. The value chosen for gold capping was more subjective. Since 99% of the gold values lay below 0.01 opt, it could be justified that capping occur near this value. However, gold values above this value are relevant, so a higher value of 0.02 opt was chosen for the gold cap. Capping was applied to eight silver assays and 12 gold assays prior to compositing.

Table 14.22. High Grade Analysis Results (Coeur, 2013)

	Disintegration	Cumulative Frequency	Probability Plot
Ag opt Cut	2.29	-	2.27
Au opt Cut	0.02	0.03	0.026

14.5.7 Composites

The final resource model utilizes 10 ft. composites. All drill holes were sampled on 10 ft. intervals. Twenty-five feet composites were also tested during the resource modeling process. Ten foot composites were chosen for the following reasons:

- Allow block model estimation to populate unsampled intervals;
- Compositing on 25 ft. benches assumes the material within the composite is similar geologically or mineralogically; and
- Compositing on 25 ft. benches applies smoothing prior to block model estimation. This appears to increase tonnage and decrease grade near the cut-off grade. Unsampled intervals for each drill hole were assigned a value representing 'no sample taken'.

14.5.8 Variography

The approach used for North and West stockpiles was applied to the South and Charlie stockpiles, with the following interpreted results:

- Variance appears to reflect localized continuity along the pre-fill topography for the South stockpile along a strike of approximately north 10-30° west (this was observed during earlier variogram modeling of South stockpile material only). The Charlie stockpile was much more random when ROM was placed and does not exhibit any preferred orientation;
- The variance between samples pairs is high and anisotropic ranges are shorter than the average distance between drill holes; and
- Composite length has no effect on variance.

Variography provided search distances and directions that were tested using OK, ID2, and ID3 estimation methods.

ID2 was chosen as the estimation method for gold and silver contained within the South stockpile, using a 120 ft. search radius, a minimum of three samples and a maximum of 15, and a maximum of three samples per drill hole. A second estimation pass was applied to blocks that fell outside of the blocks that were estimated in the first pass. The second pass estimate uses a search distance of 1,500 ft., and a minimum of one sample

and maximum of five samples to estimate outlier blocks. All blocks estimated with the second pass parameters are classified as Inferred.

14.5.9 Estimation/Interpolation Methods

Multiple resource estimation techniques were reviewed and three methods were selected and tested: ID2, ID3, and OK.

Resource estimation used 10 ft. and 25 ft. composites. Estimation results were compared against NN and block mean grade values. The block mean grade value is the mean of the samples that are spatially located within a given block.

All South and Charlie stockpiled material is treated as one domain called South stockpile (750).

The final resource model uses 10 ft. composites and a 120 ft. search distance using 3 to 15 samples, with a limit of three samples per drill hole. The final model uses an ID2 interpolation method. A minimum of one drill hole was allowed for interpolation. Little difference was seen between ID2 and ID3 results, while the kriging methodology predicted lower tonnage and grade overall. ID2 was selected as the preferred interpolation method over ID3 and OK, based on the results of the grade-tonnage estimate, variography, and results of the comparison to ore control sampling.

A second estimation pass was applied to blocks that fell outside of the blocks that were estimated in the first pass. The second pass estimate uses a search distance of 1,500 ft. and a minimum of one sample and maximum of five samples to estimate outlier blocks.

14.5.10 Block Model Validation

The validation methods outlined for North and West stockpiles were applied to the South and Charlie stockpiles as well. Results were plotted on a grade-tonnage graph to compare the effect of search distance and modeling method. The longer 25 ft. composites appear to have a significant effect on the total tonnage. The 25 ft. composite can increase the tonnage by over 25% at lower silver equivalent values, when compared to the same resource model parameters using 10 ft. composites.

Swath plots were prepared comparing silver and gold resource model grades from three different interpolation methods ID2, NN, and mean block grade. All grade estimates from the first and second pass estimate that were used to populate the South stockpile blocks are included in the swath plots. All methods compare well. The most significant differences between ID2, NN, and mean block grade occur with elevation change or decreased block population.

Vertical cross-sections were used to visually compare 10 ft. composites in the drill holes to the block model. Figure 14.33 shows an example where blocks are compared to drill holes. Sections are drawn perpendicular to the general underlying topographic slope for the South stockpile area. Review of the sections shows drill hole spacing of 200 ft. or greater. Boundaries between higher grade and lower grade zones are not always defined by drilling.

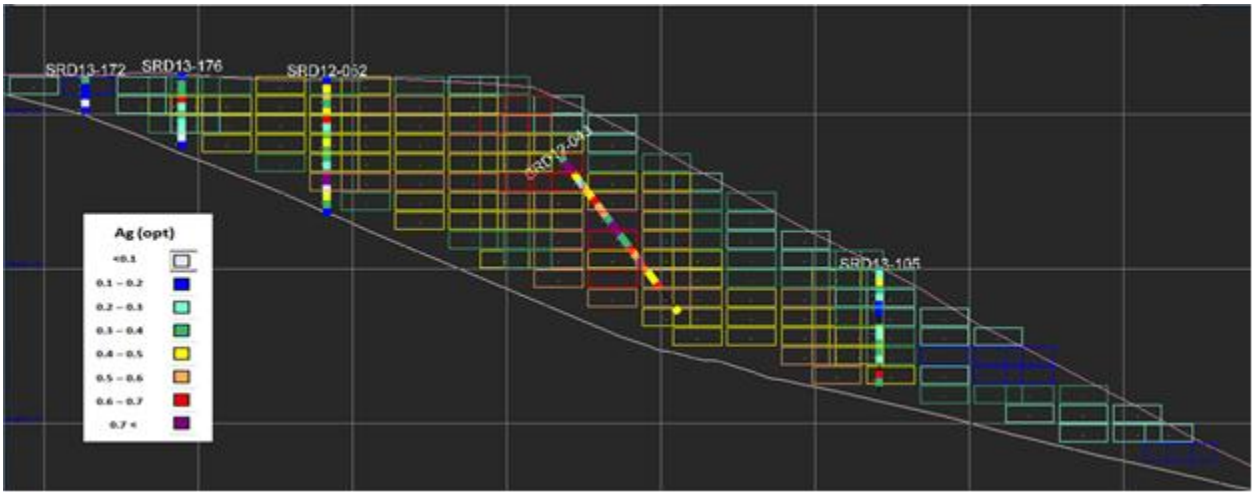

Figure 14.33. Section 900SD (Coeur, 2013)

14.5.11 Classification of Mineral Resources

Mineral Resources in the South stockpile are classified as Measured, Indicated, and Inferred in accordance with the 2014 CIM Definition Standards. The resource was classified based on the distance of block centroid to the nearest composite and the number of drill holes identified within the search radius for the block. The distance used for Measured classification is two-thirds of the search distance used for resource estimation. Classification parameters are shown in Table 14.23 and an overview of the classification distribution is illustrated in Figure 14.34. All blocks estimated with a second pass model were classified as Inferred.

Table 14.23. South Stockpile Resource Classification Parameters (Coeur, 2013)

YE2013 South Stockpile Classification	Measured	Indicated	Inferred
Distance to Nearest Composite	≤80	≤160	≥160
Minimum Number of Drill Holes Used	≥3	≤2	≤2

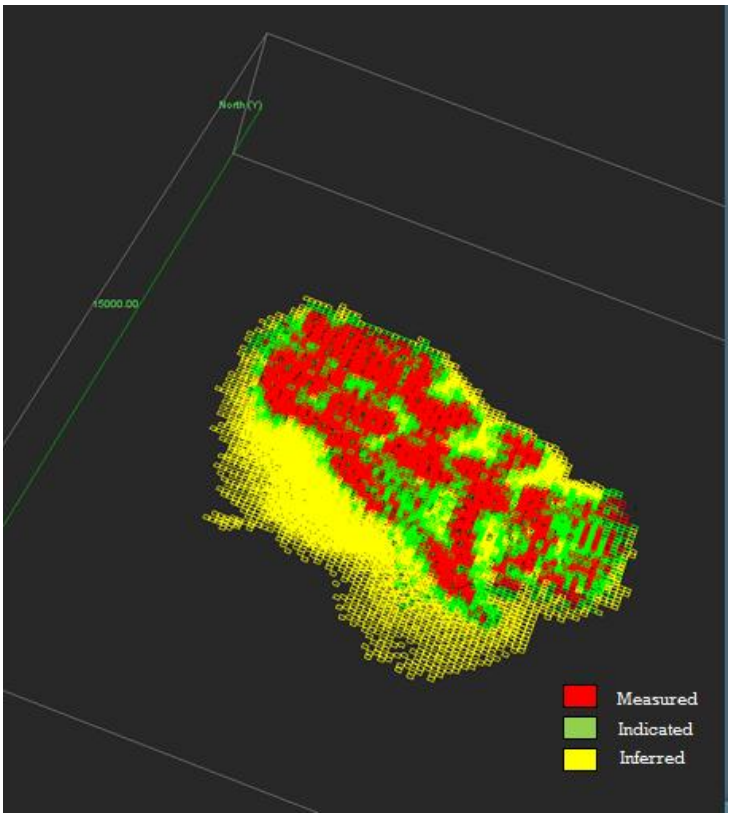

Figure 14.34. 3D View of Resource Classification as applied to South Stockpile Block Model (Coeur, 2013)

14.6 Nevada Packard Stockpile

14.6.1 Block Model Framework

The Nevada Packard stockpiles share the block model framework for Nevada Packard in situ outlined in Section 14.3.1.

14.6.2 Resource Model Database

A stockpile resource was added to the Nevada Packard area as of April 30, 2015. The stockpile drilling was completed in 2013. The current stockpile Mineral Resource model utilizes 46 RC drill holes totaling 3,700 ft., represented by 371 samples. Drill hole data used in the Nevada Packard stockpile Mineral Resource estimate was extracted from the acQuire® database on March 25, 2015, and includes all validated drilling and samples available up to that date. The Nevada stockpile resource overlies the current in situ resource at Nevada Packard. In previous reports, this material was treated as waste, with no associated grade.

14.6.3 Geologic Model

Four domains were defined for the Nevada Packard stockpile material based on geographic location. Nevada Packard stockpiles domains are shown in Figure 14.35.

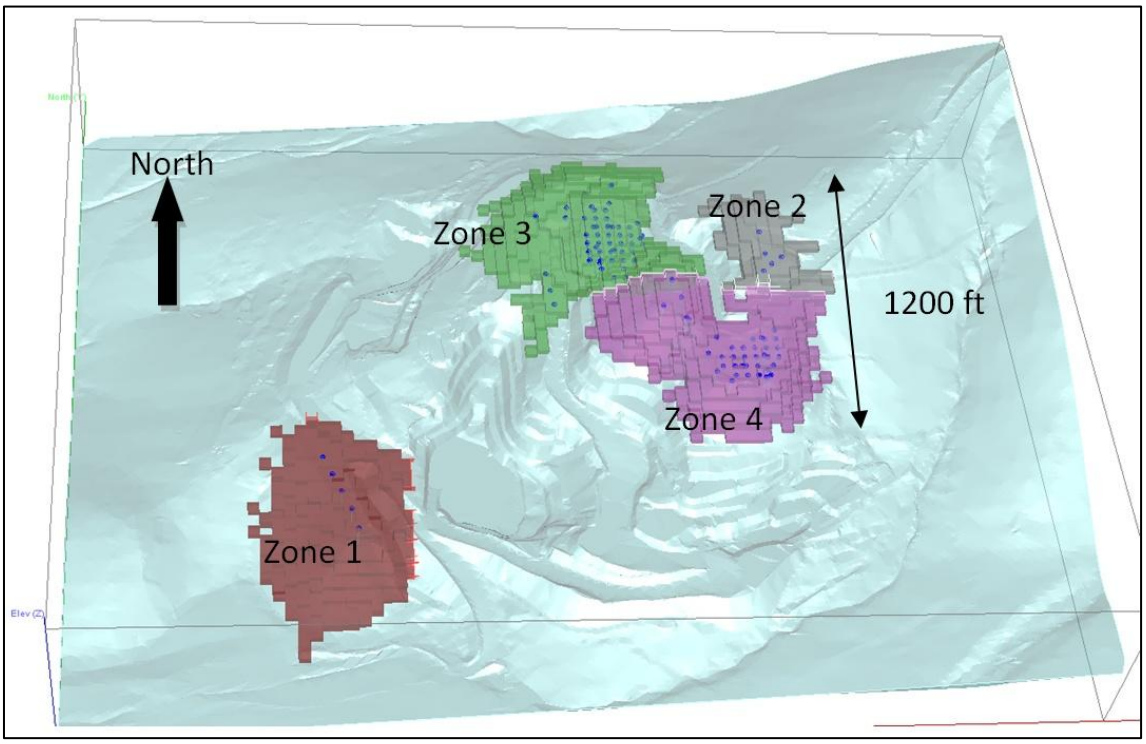

Figure 14.35. Nevada Packard Stockpile Domains and Current Topographic Surface (Coeur, 2015)

14.6.4 Exploratory Data Analysis

Sample statistics were calculated for the Nevada Packard stockpile Zones 1, 3, and 4 drill hole datasets. Silver has a bi-modal distribution for Zones 1 and 3, while Zone 4 has a slightly positive skewed distribution. Gold values are highly skewed for all zones.

Zone 1 contains five drill holes sampled on 10 ft. intervals, approximately 100 ft. apart. Given the volume of material and position of drilling, a resource estimate was not completed for Zone 1.

Zone 2 contains five drill holes sampled on 10 ft. intervals. Four drill holes are clustered within 75 ft. of each other, while the fifth is approximately 125 ft. from the cluster. Modeling parameters and classification parameters from Zones 3 and 4 are applied to Zone 2.

RC drilling completed in Zones 3 and 4 is spaced 60 to 250 ft. apart. Sampling was completed on 10 ft. intervals. A comparison of 10 ft., 25 ft., and 50 ft. composites was completed and compared against the original topographic surface, excluding stockpiles (No-Fill) surface, and adjusted, as needed. Review of the statistics for Zone 3 shows higher grade samples have more influence on the silver grades with longer composites, while in Zone 4, high grade samples are minimized with larger composite lengths.

14.6.5 Material Density

Stockpile material is based on the same 1.5424 ton per cubic yard tonnage factor as Rochester in situ material with a 37% swell factor applied.

14.6.6 Capping/Outlier Restrictions

Review of the data distribution for Nevada Packard stockpile material indicates capping is not required.

14.6.7 Composites

Nevada Packard stockpile models utilize 10 ft. down-the-hole composites.

14.6.8 Variography

Variography conducted on the Nevada Packard stockpile composites was inconclusive and indicates complete heterogeneity of the sample population.

14.6.9 Estimation/Interpolation Methods

ID2 models were tested for the Nevada Packard stockpiles using 10 ft. composites from RC drilling. Search distances tested were 100 ft., 150 ft., and 200 ft. horizontal search radii with 50 ft. vertical search limited to two composites per drill hole and a maximum of 12 samples. An additional model was created using 50 ft. composites with ID2 search ellipse parameters of 100 x 100 x 50 ft. using all available data for Zones 3 and 4. The final method chosen for the stockpile models of Zones 2, 3, and 4 utilizes 10 ft. composites and ID2 interpolation with a 100 x 100 x 50 ft. horizontal search ellipse. 1 to 12 samples from one or more drill holes were used and samples were restricted to 2 per drill hole. A second pass model was created to estimate outlier blocks using an ID2 interpolation with a 200 x 200 x 50 ft. search ellipse utilizing the same number of samples as the primary pass.

14.6.10 Block Model Validation

The Nevada Packard stockpile models for Zones 3 and 4 were validated by comparing the block model statistics to the sample assay statistics. The mean and population

distribution for the models utilizing longer search distances are more comparable than for the models with shorter search distances. Silver grades were also compared in swath plots generated on northing and easting coordinates for each of the methods tested and their NN components. Grades are significantly increased as search distances increase. The predicted grades also show greater separation from their NN component.

Vertical cross-sections were used to visually compare 10 ft. composites in the drill holes to the block model. Figure 14.36 shows 100 ft. sections through Zones 2, 3, and 4. Review of sections shows reasonable correlation of the interpolation with drill hole composites.

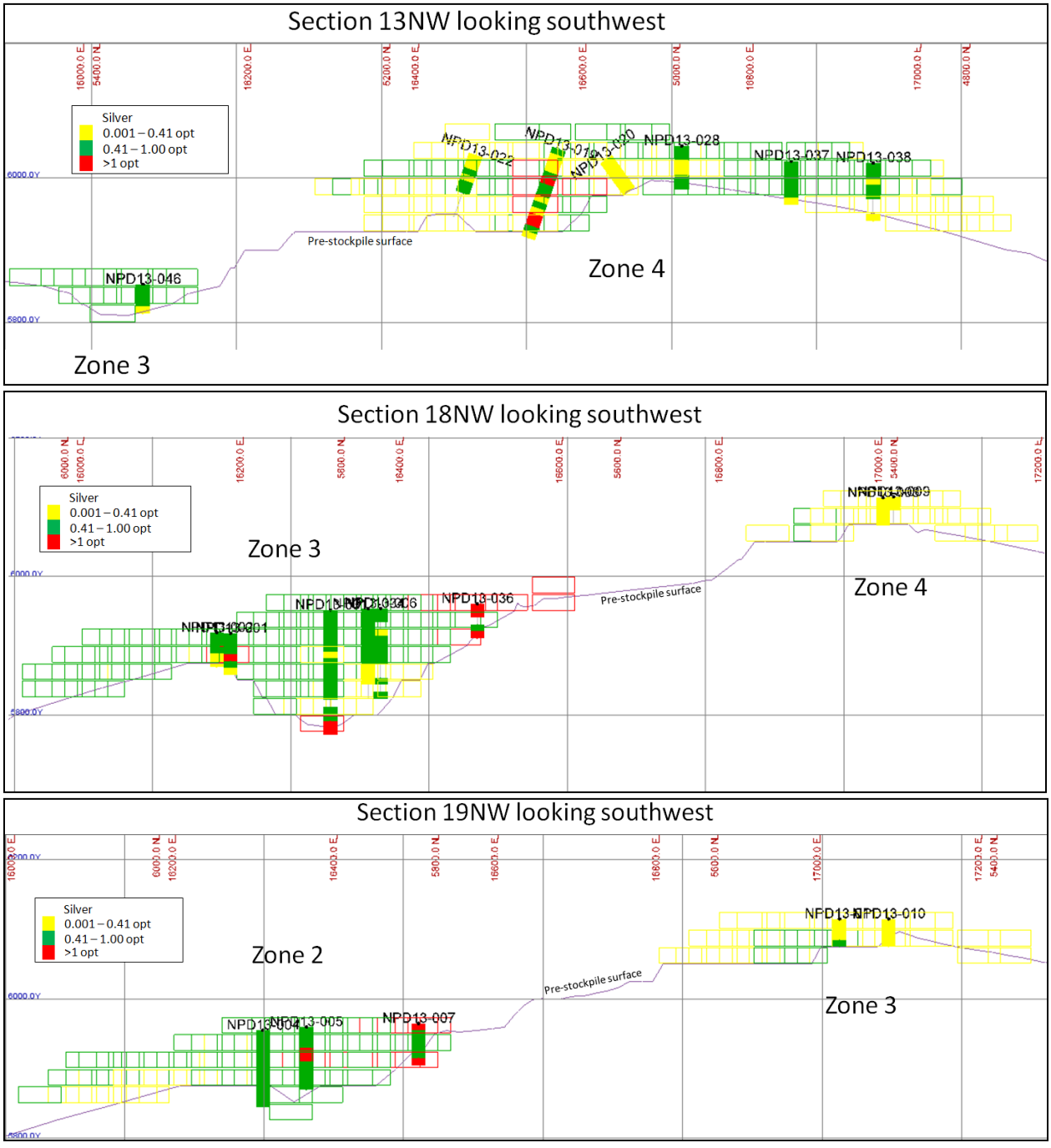

Figure 14.36. Nevada Packard Stockpile Cross-sections (Coeur, 2015)

14.6.11 Classification of Mineral Resources

Mineral Resources in the Nevada Packard stockpile are classified as Indicated and Inferred in accordance with the 2014 CIM Definition Standards. The resource was classified based on the distance of block centroid to the nearest composite and the number of drill holes identified within the search radius for the block. Angled drill holes were removed from the classification dataset based on their location accuracy. All material estimated in the second pass was considered Inferred. After algorithmic classification, blocks were selectively modified to smooth the classification edges and factor in drill hole placement and drill hole density in outlying areas. The general classification parameters are listed in Table 14.24 and illustrated in Figure 14.37.

Table 14.24. Nevada Packard Stockpile Classification Parameters (Coeur, 2015)

MY 2015 Nevada Packard Stockpile Classification	Indicated	Inferred
Distance to Nearest Sample	<100 ft.	<200 ft.
Number Samples	>3	>1
Number of Drill Holes	>2	>1

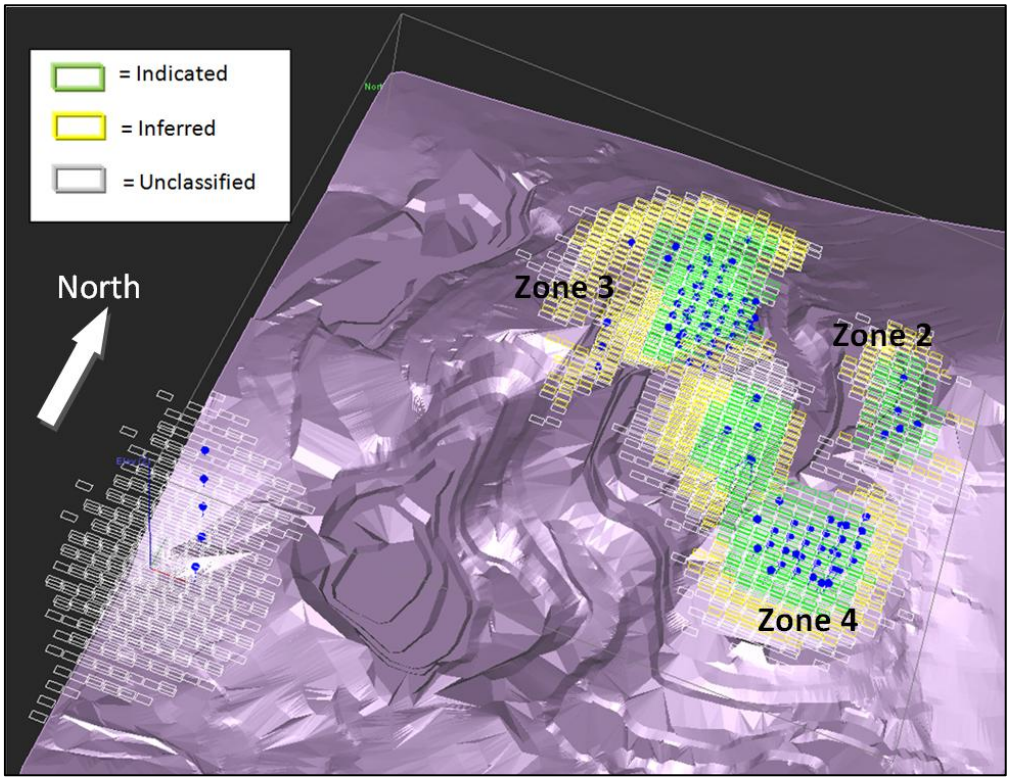

Figure 14.37. Oblique 3D View of Resource Classification as applied to South Stockpile Block Model (Coeur, 2015)

14.7 Reasonable Prospects of Eventual Economic Expansion

Classified blocks for all of the mineralization amenable to open pit mining methods and stockpile material were assessed for reasonable prospects of eventual economic extraction, by applying open pit mining costs that were applicable from January 2015 through June 2016. These costs are listed in Section 21.

These costs, together with a Corporate resource metal price guidance of $19/oz silver and $1,275/oz gold, were applied to a Whittle™ pit optimization, which also takes into account recoveries, pit slope, current processing, and operating costs.

The cut-off for reporting Mineral Resources was calculated based on silver and gold price, associated metallurgical process recoveries and costs, and selling costs outlined in Section 21. The silver equivalent (AgEq) opt cut-off for the Mineral Resource is 0.45 opt AgEq. The cut-off grade formula is shown below. The costs and factors used in the formula are provided in Table 15.2 in Section 15, with the exception of the silver price provided in this subsection.

$$\frac{\text{Cost/ton Ore mined + Cost/ton Crushing + Cost/ton Process + Cost/ton G\&A}}{\text{[Silver Price (\$/oz) - Refining Cost (\$/oz)] * Silver Recovery (\%)}}$$

14.8 Rochester Mineral Resource Statement

The Mineral Resource estimate is summarized in Table 14.25 through Table 14.28. The Mineral Resource estimate takes into account geological, mining, processing, and economic constraints and is classified in accordance with 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 14.25. Mineral Resources – Rochester Open Pit and Limerick, Exclusive of Mineral Reserves, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	9,543,000	0.006	0.64	60,000	6,132,000
Indicated	12,193,000	0.005	0.59	65,000	7,251,000
Total M&I	**21,736,000**	**0.006**	**0.62**	**125,000**	**13,383,000**
Inferred	45,791,000	0.003	0.58	140,000	26,681,000

Notes:
1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The AgEq cut-off equals 0.45 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.36/ton, crushing and process costs of $3.23/ton and G&A costs of $0.55/ton.
4. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
5. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The QP for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate is effective as of December 31, 2016.

Table 14.26. Mineral Resources – Rochester North and West Stockpiles, Exclusive of Mineral Reserves, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	5,515,000	0.002	0.63	9,000	3,447,000
Indicated	1,233,000	0.002	0.60	2,000	745,000
Total M&I	**6,748,000**	**0.002**	**0.62**	**11,000**	**4,192,000**
Inferred	2,093,000	0.002	0.62	4,000	1,292,000

Notes:
1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The AgEq cut-off equals 0.45 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.36/ton, crushing and process costs of $3.23/ton and G&A costs of $0.55/ton.
4. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
5. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The QP for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate is effective as of December 31, 2016.

Table 14.27. Mineral Resources – Rochester South and Charlie Stockpiles, Exclusive of Mineral Reserves, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	3,316,000	0.002	0.43	7,000	1,426,000
Indicated	1,874,000	0.002	0.43	4,000	809,000
Total M&I	**5,190,000**	**0.002**	**0.43**	**11,000**	**2,235,000**
Inferred	5,305,000	0.002	0.49	10,000	2,589,000

Notes:
1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The AgEq cut-off equals 0.45 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.36/ton, crushing and process costs of $3.23/ton and G&A costs of $0.55/ton.
4. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
5. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The QP for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate is effective as of December 31, 2016.

Table 14.28. Mineral Resources – Rochester Nevada Packard, Exclusive of Mineral Reserves, Effective December 31, 2016 (Coeur, 2016)

Category	Tons (short)	Average Grade (oz/ton)		Contained Ounces	
		Au	Ag	Au	Ag
Measured	21,357,000	0.003	0.57	56,000	12,277,000
Indicated	14,429,000	0.002	0.47	35,000	6,847,000
Total M&I	**35,786,000**	**0.003**	**0.53**	**91,000**	**19,124,000**
Inferred	14,589,000	0.002	0.34	24,000	4,992,000

Notes:
1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
2. Metal prices used for estimation of Mineral Resources were $1,275 per troy ounce of gold and $19.00 per troy ounce of silver. The AgEq cut-off equals 0.40 oz/ton and the gold multiplier equals 103.
3. Mineral Resources amenable to open pit mining methods are reported within a conceptual Whittle™ shell that has the following assumptions: average pit slope angle of 52.4º, assumed gold recovery of 92%, silver recovery of 61%, mining costs of $1.41/ton, crushing and process costs of $2.65/ton and G&A costs of $0.53/ton.
4. Rounding of short tons, grades, and troy ounces, as required by reporting guidelines, may result in apparent differences between tons, grades, and contained metal contents.
5. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be considered for estimation of Mineral Reserves.
6. U.S. Investors are cautioned that the term “Mineral Resource” is not defined or recognized by the U.S. Securities and Exchange Commission.
7. The QP for the estimate is Kelly B. Lippoth, CPG AIPG, a Coeur Rochester employee. The estimate is effective as of December 31, 2016.

14.9 Factors that may affect the Mineral Resource Estimate

Factors that may affect the conceptual pit shells and geologic models, and therefore, the Mineral Resource estimate include:

- Metal price assumptions and other factors used in generating the Whittle™ pit shells that constrain the open pit estimates;
- Additional drilling, which may change confidence category classification in the pit margins from those assumed in the current Whittle™ pit optimization;
- Additional sampling that may redefine the sulfide model interpolation and/or change the projected metallurgical recovery in certain areas of the resource estimation; and
- Additional density analysis on remaining material in the resource area.

14.10 Qualified Person Statement

The QP has reviewed the data and assumptions used to calculate the Mineral Resource estimate. The QP believes that the data presented by Coeur Rochester are generally an accurate and reasonable representation of the mineral Project and adequately support the Mineral Resources reported herein.

15. MINERAL RESERVE ESTIMATES

The methodology for estimating the reserves for the Rochester deposit is discussed in this section. The Nevada Packard deposit is not considered in the Mineral Reserve estimates at this time.

The Mineral Reserve estimates have been prepared under the direction of a QP, using accepted industry practices.

The Proven and Probable Mineral Reserves are effective December 31, 2016, and are based on Measured and Indicated Mineral Resources only (see Table 15.3). This estimate reflects 2016 mine production depletion and recent exploration drilling.

Mineral Reserves are derived with Geovia® software, using a detailed pit design, 2016 year-end topography, and year-end 2016 updated block model. The grades from the block model are restricted by a calculated cut-off grade for silver equivalent.

The detailed LOM pit design was created using GEOVIA® GEMS software from optimized pit shells, which is the result of an extensive LOM project completed in November 2016 by Coeur Rochester Technical Services department. The LOM pit design is similar to previous designs, but targets additional mineralized material within the 2014 Mineral Resource. This conversion is mainly attributed to recent exploration drill holes added to the model, an infill drilling program that reclassified Inferred mineralized material to either Measured or Indicated, and a reduction in operating costs, which resulted in a lower cut-off grade (Table 15.1).

15.1 Rochester Mineral Reserve Open Pit Estimates

Mining rates are primarily driven by crusher capabilities that are based on their physical configuration and environmental permit limits. Currently, there are two crushing units: an in-pit portable crushing system (N-Pit) and an external-pit (XPit) stationary primary crushing system (see Section 18). Current operating crushing rates range from 13 million tons per annum (Mtpa) to 15 Mtpa. Air permit limits are at 18.9 Mtpa total, with the two crushers combined.

A production schedule is created using the detailed pit design and crusher capacities. LOM economics and design parameters are discussed in Section 16.

15.2 Selective Mining Unit Sizing

The Mineral Reserve and Mineral Resource models both use the same origin, orientation, and block size (50 x 50 x 25 ft.). The 25 ft. dimension correlates with the bench heights used in the pit designs.

15.3 Geotechnical Considerations

Numerous geotechnical studies and reports have been completed by various independent third party contractors (see Section 16). The pit slope angles recommended by Golder Associates (1990 and 2015) and Steffen Robertson and Kirsten (2002) were used in the detailed pit designs. These slope angles were recommended based on analysis of the structures and domains defined within the pit area. A slope angle of 52.4° was selected from the recommendations for use in the optimized Whittle™ pits; however, the detailed pit designs adhere to the different domains and pit slope recommendations discussed in Section 16.3.

There are no currently known geotechnical risks that will significantly impact the reserve estimates.

15.4 Hydrogeological Considerations

This region in Nevada is considered a high desert and has very little annual precipitation. The mean annual precipitation (MAP) (snow and rain) estimated for the Rochester Project area is approximately 13.2 inches. This number is based on data collected from the Rochester Mine Meteorological Station located in the Project area from 1988 through 2009 (BLM, 2010).

Groundwater was intersected at 5,975 ft. in 2007 in the deepest part of the pit. That area is currently backfilled to 6,175 AMSL, so there is no pit lake development at Rochester. Additional permitting will be required to mine below 6,250 elevation, and is part of future permitting plans for the site.

15.5 Dilution and Mine Losses

A 3% dilution factor was used in the optimization runs on which the detailed pit design and mine plan is based. Due to the disseminated nature of the deposit, the margins around the orebody are mineralized waste, reducing the impacts of dilution during mining.

Reconciliations are completed on a weekly and monthly basis and the reconciliations indicate that the actual mined material and projected mined material correlate with less than a 5% difference in tonnage.

15.6 Gold Multiplier and Cut-off Grade

Cut-off grades are based on AgEq grade. The silver equivalent factor (gold multiplier) is calculated as follows for Mineral Reserves: (Note: the same formula applies to Mineral Resources, but Mineral Resource estimates use different metal prices.)

AuX=Au$/Ag$*GR/SR*((1-RC/Au$)/(1-RC/Ag$))

The parameters are included in Table 15.1.

Table 15.1. Rochester Gold Multiplier Parameters (Coeur, 2016)

Au Multiplier Parameters	Reserve
Au$=Gold Price ($/oz)	$1,250
Ag$=Silver Price ($/oz)	$17.50
GR=Gold Recovery (%)	92
SR=Silver Recovery (%)	61
RC=Refining Cost ($/oz)	0.27
AuX=Gold Multiplier	109

Coeur determines annually the metal prices used for Mineral Reserve and Mineral Resource reporting estimates at each of its operations. Corporate guidance for this Report was $1,250 per gold ounce and $17.50 per silver ounce for Mineral Reserves.

The cut-off grade formula is shown below. The costs and factors used in the formula are provided in Table 15.2.

Cost/ton Ore mined + Cost/ton Crushing + Cost/ton Process + Cost/ton G&A/ [Silver Price ($/oz)- Refining Cost ($/oz)] * Silver Recovery (%)

Table 15.2. Operating Cost, Recovery, and Cut-off Grade Estimate, Effective December 31, 2016 (Coeur, 2016)

Item	Unit	Value
Mineralized Material Mining	$/ton mined	1.36
Waste Mining	$/ton mined	1.42
Crushing and Processing	$/ton ore	3.23
G&A	$/ton ore	0.55
Cut-off Grade	oz/t AgEq	0.49
Gold Price	$/oz	1,250
Silver Price	$/oz	17.50
Metallurgical Recovery - Gold	%	92.0
Metallurgical Recovery - Silver	%	61.0

15.7 Ore Waste Determinations

Ore and waste are determined by the silver equivalent cut-off grade described above. Waste is material below the cut-off grade.

15.8 Surface Topography

The topography used was an updated year-end surface. A final survey of all active mining and rock disposal sites (RDS) was completed at the end of the year, which was used to update the topography contours within active mining areas. The topography contours outside the active surveyed areas are obtained from annual orthophotos and photogrammetry. These two sets of contours are then merged to create a final year end surface.

15.9 Density and Moisture

The densities used for the reserve estimate are:

- Fill (stockpile)= 0.057 ton/ft^3; and
- In Situ (open pit)= 0.0784 ton/ft^3.

In situ ore moisture contents tend to run 3%-5% and fill material averages 5%. Reserve tonnages are reported as dry bank tons.

15.10 Mineral Reserves Estimate

The Proven and Probable Minerals Reserves for the Rochester deposit are shown in Table 15.3.

Table 15.3. Proven and Probable Mineral Reserves - Rochester Consolidated Property Package Total, Effective December 31, 2016 (Coeur, 2016)

Reserve	Category	Tons	Average Grade (oz/t)		Contained Ounces	
			Au oz/t	Ag oz/t	Au oz	Ag
Rochester Open Pits	Proven	116,397,000	0.004	0.47	439,000	55,132,000
	Probable	95,077,000	0.003	0.43	287,000	40,878,000
Stockpiles	Proven	27,289,000	0.002	0.49	64,000	13,237,000
	Probable	6,041,000	0.002	0.46	13,000	2,798,000
Total Mineral Reserves	Proven	143,686,000	0.003	0.48	503,000	68,369,000
	Probable	101,118,000	0.003	0.43	300,000	43,676,000
	Total P+P	**244,804,000**	**0.003**	**0.46**	**803,000**	**112,045,000**

Notes:

1. Mineral Reserves are contained within Measured and Indicated pit designs, or in stockpiles, and are supported by a mine plan, featuring variable throughput rates, stockpiling and cut-off optimization. The mine plan designs incorporate variable open pit slope angles that approximately over the pit life average 52.4º, variable metallurgical recoveries depending on material processed, including gold recoveries for crushed and ROM ore of 92% and 70% respectively, silver recoveries for crushed and ROM ore of 61% and 20% respectively, sulfide ore recoveries are 60% for gold and 61% for silver, mining costs of $1.36/ton, crushing and process costs of $3.23/ton, G&A costs of $0.55/ton and metal prices of $1,250.00/oz for gold and $17.50/oz for silver.
2. The AgEq cut-off equals 0.49 opt and the gold multiplier equals 109. The gold multiplying factor for silver equivalent is based on: [($Price Au*$Refining Au) / ($Price Ag*$Refining Ag)] x [(%Recovery Au)/(%Recovery Ag)].
3. Rounding, as required by reporting guidelines, may result in apparent summation differences between tons, grade, and contained metal content.
4. The QP for the estimate is Greg Robinson, P.E., a Coeur Rochester employee. The estimate has an effective date of December 31, 2016.

15.11 Factors that may affect the Mineral Reserve Estimate

Factors that may affect the Mineral Reserve estimates include: maintaining appropriate control of dilution; metal prices; metallurgical recoveries; geotechnical characteristics of the rock mass; ability of the mining operation to meet the planned annual throughput rate; assumptions for the process plant; capital and operating cost estimates; effectiveness of surface and groundwater management; and, the likelihood of obtaining required permits and social licenses to support the operation.

At the report effective date, the QPs for this Report are not aware of any legal, political, environmental, or other factors that could materially affect the stated reserves.

The existing heap leach pads hold sufficient total capacity to enable operations to continue through late 2023. There are a number of viable options for adding additional pad capacity and Coeur is in the process of selecting the new pad location and obtaining permits for additional pad capacity, which are expected to be received by mid-2021. This expanded capacity is anticipated to further extend Rochester's active mine life, based on existing Mineral Reserves through the end of 2029.

The reserves at Rochester are inside pit limits fully contained within the Rochester Property Package, which is described in Section 4 of this Report.

15.12 Qualified Person Statement

The QP has reviewed the data and assumptions used to calculate the Mineral Reserve estimate. The QP believes that the data presented by Coeur Rochester are generally an accurate and reasonable representation of the mineral Project and adequately support the Mineral Reserves reported herein.

16. MINING METHODS

Since 1986, Coeur has mined at Rochester by conventional open pit, drill and blast, truck, and loader methods. The mining operation at Rochester is currently at planned capacity under the current PoO 10, and is expected to continue through the end of 2023. The planned mining areas have been cleared and grubbed and all pre-stripping has been completed. In 2017, Coeur plans to continue the process of obtaining permits for additional pad capacity, additional RDS facilities, and extensions of the Rochester Pit, which are expected to be received by mid-2021. This expanded capacity is anticipated to further extend Rochester's active mine life, based on existing Mineral Reserve estimates through the end of 2029. Internal waste movement does occur as it is encountered and is placed in the mine's RDS facilities.

Operations at Rochester consist of mining from in situ and stockpiled open pit sources that are either: (1) Fed directly into the primary crusher dump pocket; (2) Crushed at an in-pit crusher system; or (3) Placed directly onto a heap leach pad for ROM processing. Ore is described in Sections 13 and 17.

The following section describes the mining methods and details the design parameters used to generate the Mineral Reserve statement in Section 15 and the economic analysis in Section 22.

16.1 Pit Design

In 2016, Coeur Rochester completed a LOM planning project for the Rochester resource. Coeur used GEOVIA® GEMS software to complete several optimization runs, and from those runs, developed several detailed pit phases and mining schedules. The detailed pit designs adhere to the different domains and the pit slope angles recommended by Golder and Associates (1990 and 2015) and Steffen Robertson and Kirsten (2002).

The detailed LOM pit design was created using GEOVIA® GEMS software from optimized pit shells, which is the result of an extensive LOM project completed in November 2016 by Coeur Rochester Technical Services department. The LOM pit design is similar to previous designs, but targets additional mineralized material within the former Mineral Resource. This conversion is mainly attributed to recent exploration drill holes added to the model, an infill drilling program that reclassified Inferred mineralized material to either Measured or Indicated, and a reduction in operating costs, which resulted in a lower cut-off grade.

Coeur Rochester ran economic sensitivity analyses on the pit designs and mining schedule. Figure 16.1 illustrates the phases using different colors. The phases are being

mined according to the following sequence, with overlap between several of the phases to spread out waste mining:

- Phase 1 – Blue – North Setback and West Stockpile Pits;
- Phase 2 – Green – Sunflower and Charlie Pits;
- Phase 3 – Cyan – Post N-Pit Pit;
- Phase 4 – Orange – South Stockpile Pit; and
- Phase 5 – Magenta – LOM Pit.

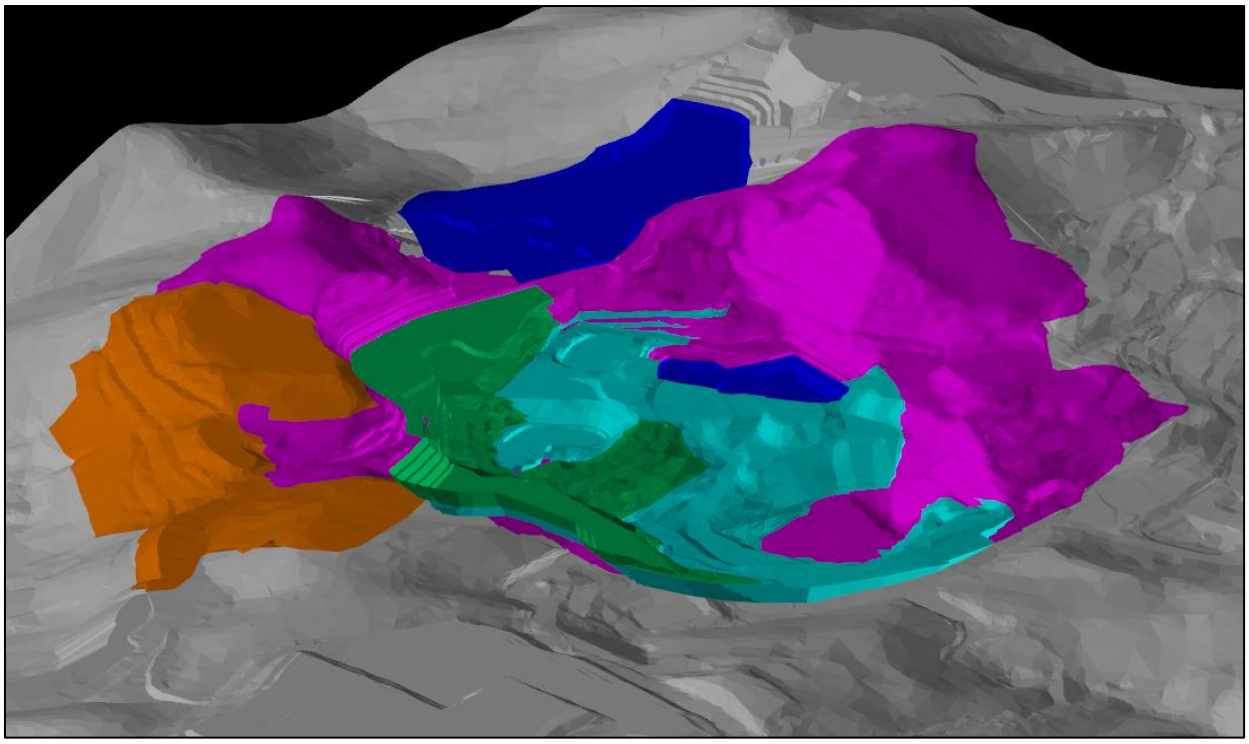

Figure 16.1. Pit Phases (Coeur, 2016)

16.2 Phase Selection and Design Criteria

Coeur designed five phases and the mining schedule to go with the detailed pit designs. Coeur Rochester engineers use those pit designs as the guide for short range and long range planning. The Phase 5 pit (LOM) is the current ultimate pit for the site.

The pit design and operating parameters used are included in Table 16.1.

Table 16.1. Rochester Design and Operational Parameters (Coeur, 2016)

Item	Unit
Design Parameters	
Bench Height (ft.)	25
North Highwall Slopes (°)	57
South Highwall Slopes (°)	42
East/West Highwall Slopes (°)	52.4
Stockpile Highwall Slopes (°)	37
Bench Face Angles (°)	70
Catch Benches (variable – ft.)	20-25
Minimum Mining Width (ft.)	90
Haul Road Design Width (ft.)	80
Haul Road Gradient (%)	10
Ore Production Rate (tons/day)	35,000-50,000
Working Time	
Shift Schedule	2-12 hour shifts/day, 7 days/week
Days lost for weather, etc. per year	10 days/year
Operating standby time	1.75 hours/shift
Production Equipment	
CAT 993K Front-End Loader (units)	2 units
Hitachi EX2600 Hydraulic Shovel (units)	1 unit
CAT 777F Haul Trucks (units)	2 units
Blasthole Drills	3 units
Komatsu 1500HD Trucks	11 units

16.3 Geotechnical Considerations

A number of geotechnical studies and reports have been completed by various independent third party contractors. The most recent study, conducted in 2014 by Golder Associates in the southern region of the current pit, assessed the highwall structures, and was documented in a 2015 engineering report. The 2015 *Golder Highwall Stability Study* found that the Rock Mass Strength is sufficiently high, and that the risk of rock mass failure for the overall slope is low. The study broke the current south highwall down into three sectors: Sector 1 and Sector 3, as shown in Figure 16.2, have favorable orientations with respect to structure, and steep bench face angles should be achievable with careful blasting, excavation, and scaling practices. Sector 1 is able to achieve a 70° bench face angle, and an inter-ramp angle of 52°. The highwall in Sector 3 can achieve a bench face angle of 70° and an inter-ramp slope angle of 48°. Sector 2 exhibits less favorable structural conditions for the development of steep bench face angles,

producing a bench face angle of 60° and in inter-ramp slope angle of 42°. It was also recommended that each sector be mined on double benches, using trim blasting.

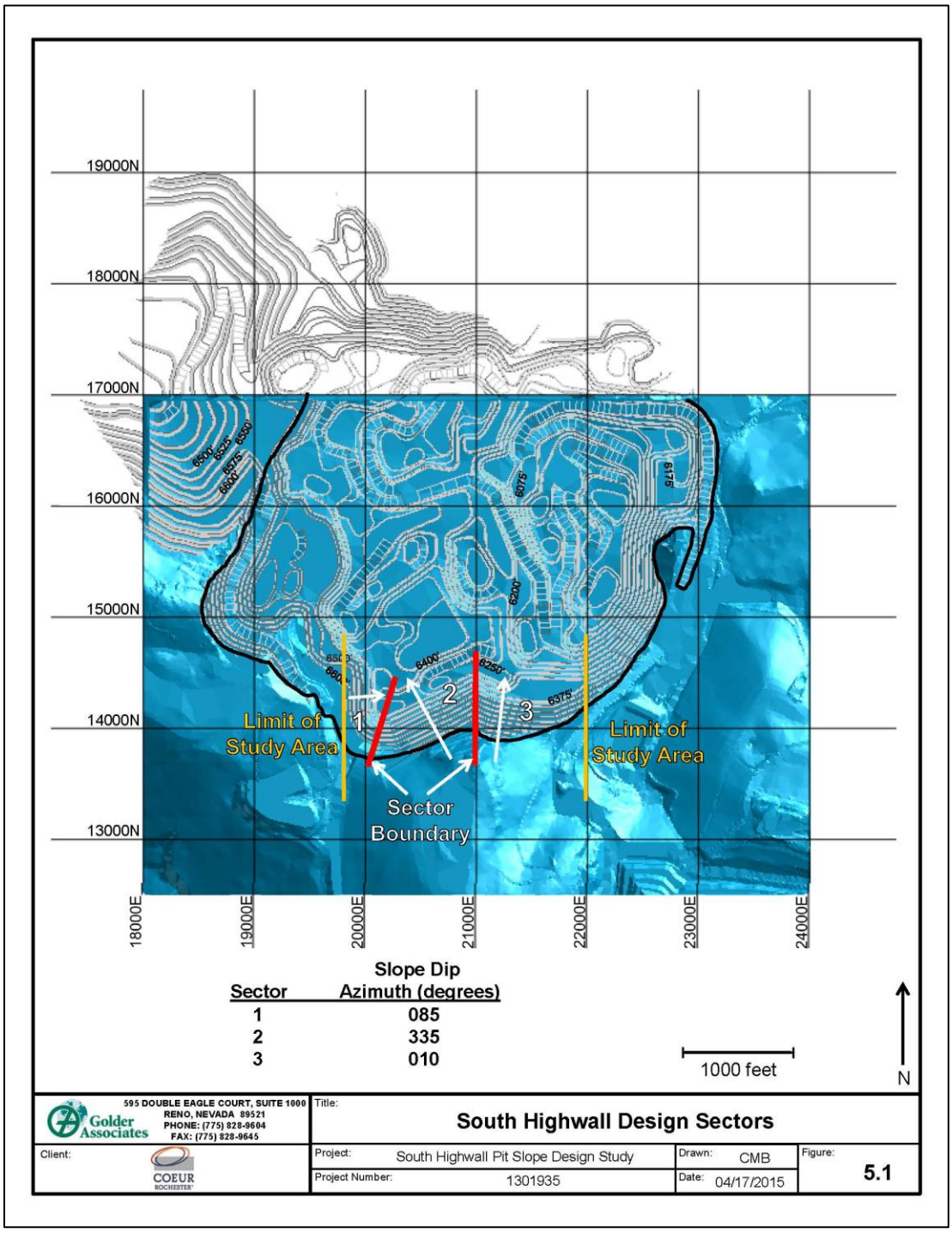

Figure 16.2. High Wall Slope Stability Study Areas (Coeur, 2016)

Prior to the 2014 Golder study, Call and Nicholas, Inc., performed geotechnical analyses and evaluations related to highwall slope and waste rock storage stability in 2006, 2011, and 2012. Other studies from Golder Associates (1990) and Steffen Robertson & Kirsten (2002) are still used as a basis for mining at Rochester. Geologic domains were mapped from the previous geotechnical work completed and that information was used as the basis for pit design criteria stated above.

Recommended monitoring programs, such as prism monitoring and slope surveying, are employed at the site. Existing prisms are shot once a week. The results are recorded in an Excel® spreadsheet, with charts showing the different directions of movement and velocities of movement. New prisms are added on benches in areas of concern as the mine deepens. Current records and field mapping and investigations by the inpit geologist show no signs of movement. The current south highwall has historically had some minor failures (less than 40,000 tons). That area has been evaluated by the study mentioned above by Golder Associates to ensure that future detailed pushbacks are appropriately designed. As of the Report effective date, there are no known large-scale geotechnical concerns that are within the pit boundaries.

16.4 Production Schedule

The production schedule is provided in Table 16.2, and includes only Mineral Reserve material.

In 2016, the Rochester Mine processed approximately 19.6 million tons. This figure includes 13.9 million tons of crushed material and 5.7 million tons of ROM stockpile material. In 2017, annual crushing rates are expected to increase to 15.5 million tons and 2.7 million tons ROM stockpile material. Beyond 2020, Coeur anticipates increasing annual crushing rates at the Rochester Mine to approximately 20 million tons, with the addition of a new crushing system; operations are expected to continue through late 2029.

Coeur's anticipated production profile was used as the basis for the economic analysis discussed in Section 22.

Table 16.2. Remaining LOM Production Summary based on Proven and Probable Mineral Reserves Only (Coeur, 2016)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Mineralized Material (t x 1,000)	18,259	15,414	17,124	16,382	19,996	19,946	20,068	20,050	19,898	19,959	19,972	19,102	18,635	244,804
Au Grade (oz/ton)	0.004	0.003	0.004	0.004	0.003	0.004	0.003	0.003	0.003	0.004	0.003	0.003	0.002	0.003
Ag Grade (oz/ton)	0.52	0.52	0.51	0.50	0.51	0.53	0.45	0.35	0.39	0.39	0.42	0.44	0.45	0.46
Tons Waste (t x 1,000)	7,531	7,274	14,159	11,952	10,583	10,205	35,676	37,805	28,067	15,103	13,405	13,307	0	205,067

16.5 Blasting and Explosives

Blasting services are contracted at the Rochester Mine. The contractor is responsible for obtaining and securing the explosive agents. They are also responsible for loading and initiating the blasts.

Blast patterns and locations are laid out by Coeur Rochester engineers and surveyors. Three blasthole drills are used to drill the typical staggered blast pattern of 14 x 16 ft. on the 25 ft. bench, with 3 ft. of subdrill. Shots are typically 350 to 450 holes. Three row trim shots are used near highwalls to protect the highwall from blast damage. Trim shots are laid out on a 15 x 15 pattern.

Current blasting practices at Rochester employ the use of Ammonium Nitrate and Fuel Oil (ANFO). Emulsions blends have been used in the past and are used, where necessary. Non-electric detonators are used for initiating and timing the blast. Stemming varies, but is typically 11 ft.

16.6 Backfill and Hydrogeological Considerations

As part of the approved Plan of Operations, there is a Waste Rock Management Plan (WRMP). All waste rock is placed either inside the pit perimeter as backfill, or outside the pit in the approved RDSs. Waste rock is classified as non-ore, if it is below cut-off grade; however, it could still contain some mineralization. It is then further evaluated to determine if it is Potential Acid Generating (PAG). If it is PAG, it is placed, according to the WRMP, in a PAG cell on top of the West and North RDS. Waste rock is placed in the RDSs or as backfill, according to the WRMP.

16.7 Qualified Person Statement

The QP has reviewed the data and assumptions used in the Mining Methods section. The QP believes that the data presented by Coeur Rochester are generally an accurate and reasonable representation of the mineral Project and adequately support the Mineral Reserves reported herein.

17. RECOVERY METHODS

17.1 Mineral Processing Overview

The Rochester Mine utilizes two independent crushing circuits, both comprising three stages of crushing to produce a nominal 3/8-inch product of ore. The crushed material, and at times ROM ore, is placed on heap leach pads, and cyanide heap leaching is used to extract silver and gold from mineralized ore. Metal laden pregnant solution is then collected from a drain system and Merrill-Crowe processing is utilized to recover the precious metal doré.

The Merrill-Crowe facility is currently in operation and assumptions in this Report were made with reference to actual results. The Merrill-Crowe facility is located northeast of the Rochester open pit. Furnace flux-smelt refining follows metal recovery. Table 17.1 summarizes the crushed tons placed, along with the totals for silver and gold recovered, Project-to-date, at the Rochester Mine.

Table 17.1. Rochester and Nevada Packard Production, 1986 – December 2016 (Coeur, 2016)

Tons Crushed	Ag oz Recovered	Au oz Recovered
221,612,847	148,601,800	1,648,663

17.2 Crushing

Ore extracted from the open pit mining operation is hauled to one of two crushing circuits. These circuits utilize three stages of crushing and are referred to as the X-pit and N-pit crushing systems.

17.2.1 X-pit Crusher

The original ore crushing facilities were installed in 1986. In 1987, the crushing circuit was modified with the addition of a fourth tertiary cone crusher and a scalping screen system. In 2003, the crushing circuit was changed to include a new tertiary system, replacing all but the primary and secondary systems. The primary crusher system consists of a metal removal system (MRS), apron feeder, a standard grizzly (screen), and a jaw crusher, followed by a secondary crusher system consisting of a vibrating screen and a cone crusher. A closed-circuit tertiary crushing system was in place at Rochester from 1986 to 2003 to achieve a 3/8” product; however, in 2003, the closed circuit tertiary system was replaced with two Nordberg MP800 crushers in open-circuit configuration to achieve a nominal 3/8” product. The current maximum permitted throughput is 1,700 tons per hour averaged over a one-hour period. The crusher is permitted to operate 24 hours per day. The current crusher schematic is shown in Figure 17.1.

Currently, ore from the mining operations is end-dumped from Komatsu HD1500 150-ton haul trucks into a dump hopper and onto an apron pan feeder at the primary crusher MRS. The MRS apron feeder discharges onto a 96-inch wide conveyor belt that feeds the primary crusher system. In the MRS unit, material passes under a metal detector on its way to the stationary grizzly and primary jaw crusher. The MRS was commissioned and placed into operation in July 2013 to remove tramp metal and better facilitate processing stockpiled material.

The primary jaw crusher reduces material to minus 8½ inch product size. The stationary grizzly undersize product and jaw crusher product are combined and fed to a vibrating grizzly scalper. Scalper oversize is fed to a Symons 7-foot standard cone crusher in the secondary crushing system. Scalper undersize joins the cone crusher product and discharges to the coarse ore surgepile. The secondary crushing system yields a minus 4 ½ inch product.

Material is reclaimed, fed from the coarse ore surgepile by a belt feeder, and fed to a pair of vibrating screens in the tertiary crusher system. Screen undersize product, at minus 9/16 inch, is conveyed to the final product belt. Oversized material from the screens is conveyed to tertiary crushing. The open-circuit tertiary system contains two Nordberg MP800 crushers.

The tertiary crusher product joins the screen undersize material on the final product belt, where pebble lime is added to the crushed material to control pH during heap leach processing. A series of overland conveyors deliver final crusher product, running a nominal 3/8 inch in size to the fine ore load out area stockpile, located near the Rochester Mine's Stage III leach pad. The Komatsu HD1500 150-ton haul trucks then transfer material onto the active Stage III leach pad.

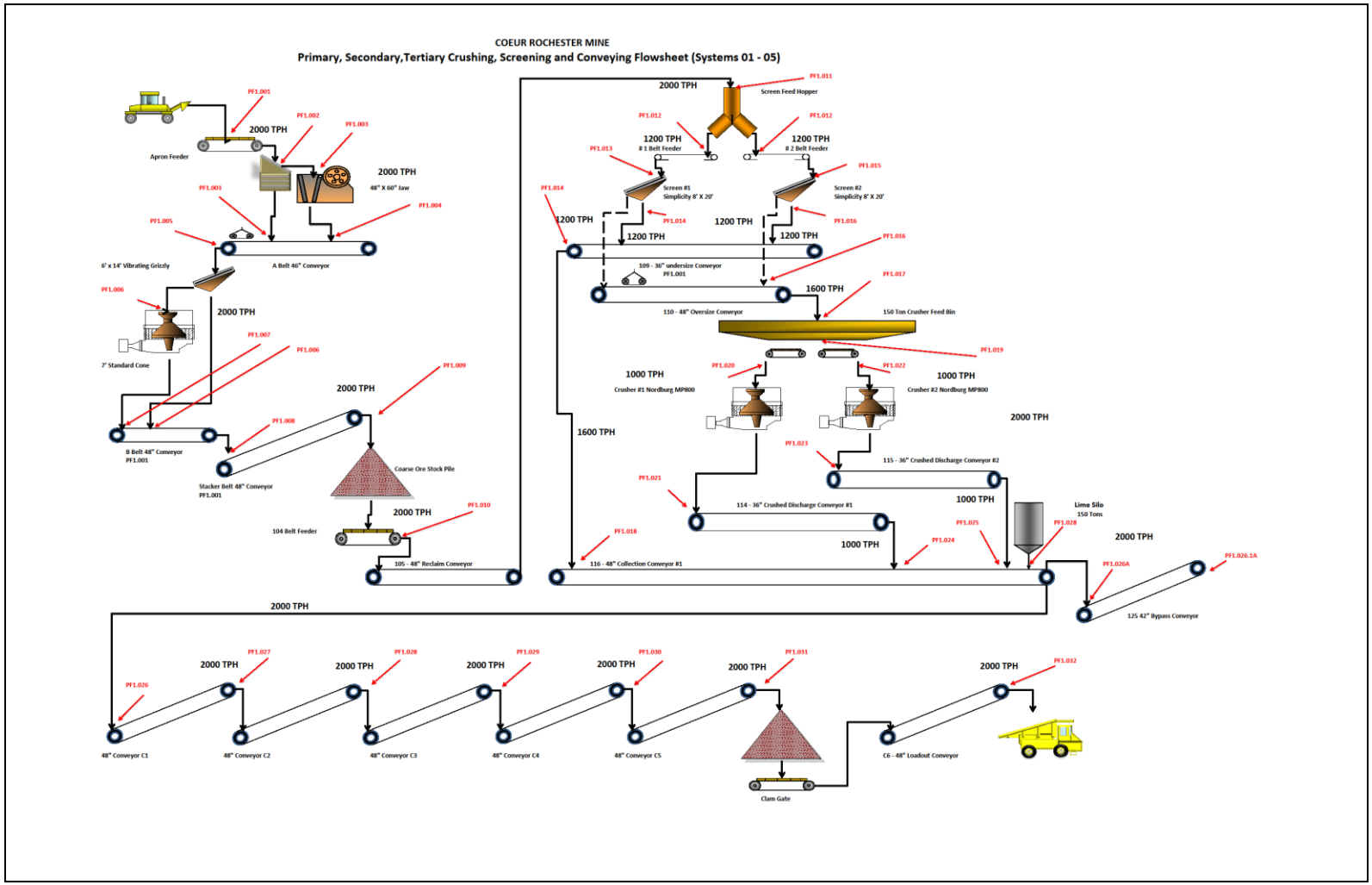

Figure 17.1. X-pit Crusher Schematic (Coeur, 2016)

17.2.2 N-pit Crusher

In 2013, a three stage crushing circuit was placed in the pit boundaries to produce additional 3/8-inch nominal product, in conjunction with the X-pit facility. The permitted throughput is currently 1,500 tons per hour, operating 24 hours per day. Ore from the mining operations is end-dumped from Komatsu HD1500 150-ton haul trucks, and an excavator feeds a vibrating grizzly feeder (VGF). The VGF scalps all oversize material greater than 6 inches and conveyors transfer the undersize material to the crushing system. Oversize material is transferred via loader and haul truck to the X-pit facility for further processing and crushing. Undersize material is processed via jaw crushing, screening and secondary crushing, followed by tertiary screening and crushing. A radial stacker is used to place crushed ore on a load-out pad where front end loaders are used to transfer material into Komatsu HD1500 150-ton haul trucks. The tertiary crusher product joins the screen undersize material on the final product belt, where pebble lime is added to the crushed material to control pH during heap leach processing. Haul trucks then transfer the crushed material to the active leach pad.

17.2.3 ROM

ROM ore is utilized as a secondary ore source to be treated on the leach pads. ROM is classified as blasted but uncrushed ore, and is transferred directly to the leach pads from the mining operations. ROM ore is transferred via Komatsu HD1500 150-ton haul trucks to the active leach pad and is capped with a lime-enhanced crushed product for appropriate pH control during the leaching process.

17.3 Heap Leach

Currently, there are four dedicated valley-fill heap leach facilities at the Rochester Mine, referred to as Stage I, II, III, and IV. The Rochester Mine leach pads are typically constructed in 30 ft. lifts to heights of 400 ft. above liner.

Stages I and II have been filled to their design capacity. Stage I has been recontoured, capped with topsoil, and re-seeded. Stages II and IV are currently under leach and contain primarily crushed material, but do contain some ROM material. Stage III is the newest pad to be constructed and was placed into production in 2011.

The Stage III leach pad has a final design capacity of approximately 90 million tons. A phased construction approach began in 2011 and was completed in 2015. The first phase of the liner and buttress expansion was completed in 2013 and the final expansion was completed in 2015.

Stage III is the most actively loaded leach pad with all crushing circuits and ROM material being placed on this pad. Stage IV has a small amount of capacity remaining, but is not actively loaded. Stage II and IV continue to leach and recover residual ounces and will continue to do so in the future.

Future additional leach pads include Stage V and Stage IV expansion, and are shown in Figure 18.1. This expansion permitting was approved in July 2016, and production on the Stage IV expansion is anticipated for 2017. Section 20 contains additional information on the permitting of leach pads.

17.4 Processing and Refining

On the heap leach pads, cyanide solution is applied via drip tube at a rate of ~0.004 gallons per minute per square foot, and allowed to percolate down through the crushed material to leach metals. Efficient silver extraction occurs at a pH of 10.5 and cyanide concentrations maintained at 1.5 lbs./ton of solution. Metal-laden 'pregnant' solution percolates downward to pad liner and migrates via gravity drain lines to a collection point (internal dike system). The pregnant solution from each of the active leach pads is processed at the Merrill-Crowe plant.

The Merrill-Crowe process is a separation method for removing dissolved metals from cyanide solution. At the Merrill-Crowe process plant, leaf filter clarifiers remove undesirable solid contaminants from the pregnant solution, and dissolved oxygen is removed using a vacuum de-aerator tower (Crowe tower). Following clarification and de-aeration, zinc dust is added to the solution, causing precious metals to form solid precipitates. Zinc has a higher affinity for the cyanide ion in solution, causing the cyanide solution to give up the precious metals. The precious metal precipitates are separated from solution using plate and frame filter presses.

The metal precipitates are removed from the filter presses, placed into trays, and retorted to remove moisture and extract mercury. Retorting is followed by batch flux-smelting using a propane-fired furnace; slag impurities are skimmed from the top of the molten metal, and the final product is poured from the furnace into half-round doré bars that each weigh approximately 350 lbs. The process circuit is shown in Figure 17.2.

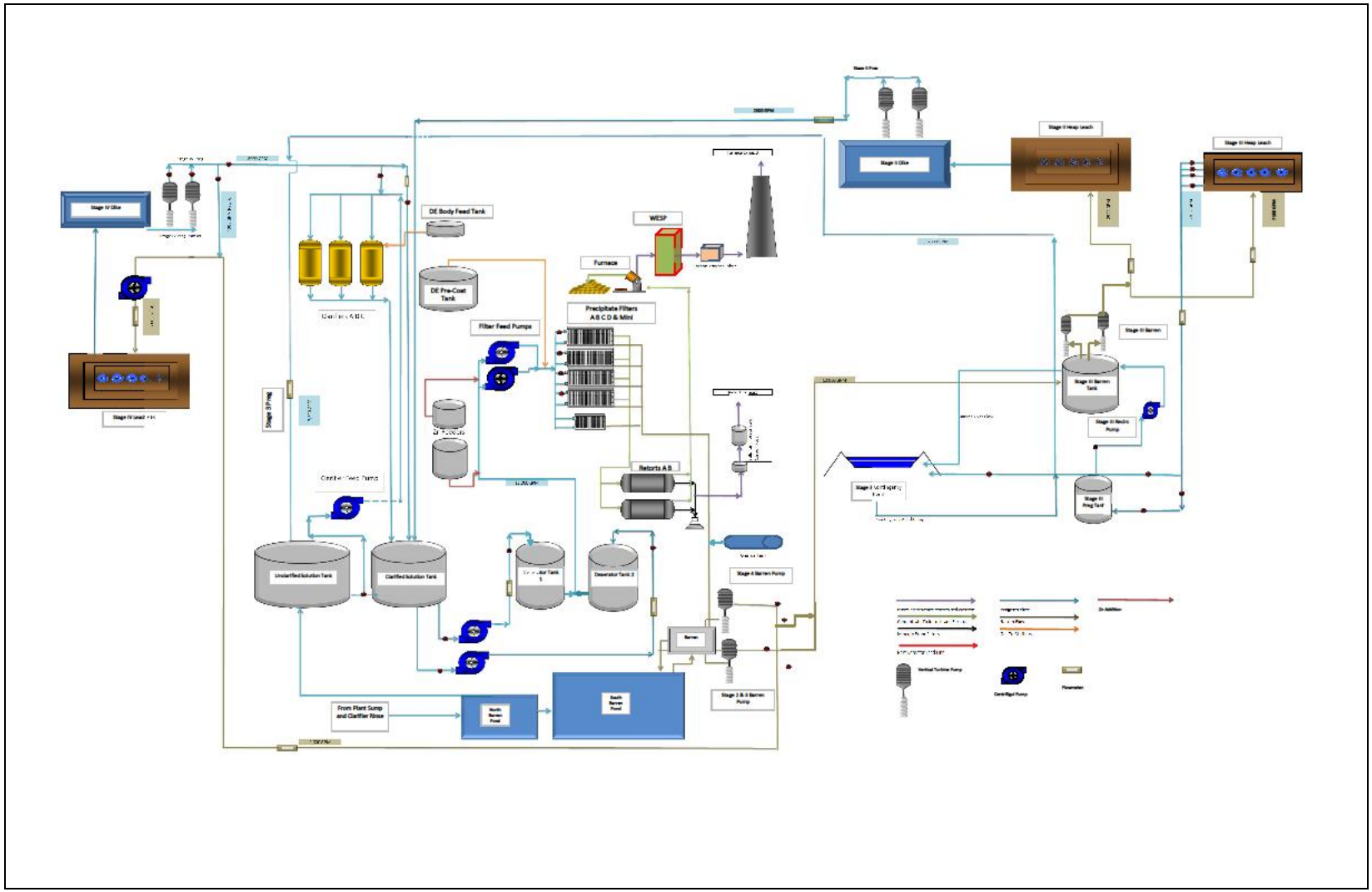

Figure 17.2. Solution Process Circuit (Coeur, 2016)

The Merrill-Crowe plant underwent several improvements in 2012 and 2013. The primary goal of each improvement project was to increase process capacity. Additional goals included reducing maintenance downtime and improving plant efficiency. A summary of plant improvements is provided in Table 17.2.

The crushed ore being placed on the pads has a typical initial moisture of 3.5%. The saturation target required before percolation from the heap leach pads is 11.5%. This indicates that for every 100 tons of crushed ore placed on the pads, the pads will retain 8 tons of water that will remain in the pads until drain-down. In 2016, the mine hauled approximately 13.9 million tons of crushed ore to the pads, which required about one million tons of water. This translates to an average of 450 gallons per minute of fresh water to be saturated into the ore on the pads.

Table 17.2. Process Plant Improvements – 2012 through 2015 (Coeur, 2016)

Dates	Ave. Process Flow at M-C Plant (GPM)	Merrill-Crowe Plant Recovery/Efficiency		Comments - Milestones
		Ave. %REC Ag (Plant)	Ave. %REC Au (Plant)	
Nov 1, 2011 through July 17, 2012	5,473	99.20%	96.70%	*4th Filter Press commissioned and put into full production July 18, 2012.
July 18, 2012 through May 27, 2013	9,693	97.20%	93.90%	*2nd Crowe Tower commissioned and put into full production May 28, 2013.
May 28, 2013 through Sept. 26, 2013	11,156	98.53%	95.91%	*2nd Crowe Tower resulted in: Increased plant flow rate, improved recovery, and lower zinc consumption.
Sept. 27, 2013 through Dec. 31, 2013	11,754	97.91%	94.79%	*5th filter press commissioned and resulted in increased plant flow rate.
Jan. 1, 2014 through Dec. 31, 2015	11,615	98.95%	96.15%	Optimized Flows and Recoveries since 2013 changes.

17.5 Rochester Oxide Recovery

Project-to-date metallurgical recoveries calculated from ‘contained’ ounces delivered to the pads, and ‘recovered’ settled ounces are shown in Table 17.3 and Table 17.4. These calculations take into consideration the ounces placed on each leach pad and ounces recovered from the heaps through December 2015.

The tables are broken down by individual heap leach pad. Stages I and II have been filled to their design capacity. Stage I has been recontoured, capped with topsoil and re-seeded. Stage II and IV are currently under leach and contain both ROM and crushed material. Stage III was constructed and placed into production in 2011.

Table 17.3. Gold Recoveries Project-to-Date (Coeur, 2016)

Leach Pad	Au Oz Contained	Au Oz Recovered	Au Recovery %
Stage I (complete)	271,522	235,743	87%
Stage II (in-progress)	430,459	419,275	97%
Stage III (in-progress)	246,589	205,932	84%
Stage IV (in-progress)	899,388	788,738	88%
Total	**1,847,958**	**1,649,688**	**89%**

Table 17.4. Silver Recoveries Project-to-Date (Coeur, 2016)

Leach Pad	Ag Oz Contained	Ag Oz Recovered	Ag Recovery %
Stage I (complete)	41,307,087	22,186,395	54%
Stage II (in-progress)	64,400,171	38,790,625	60%
Stage III (in-progress)	41,934,049	15,900,943	38%
Stage IV (in-progress)	110,095,228	71,060,783	65%
Total	**257,736,535**	**147,938,746**	**57%**

The historically applied ultimate (20 year) recovery expectations for crushed oxide material are 92% for gold and 61% for silver. Recovery values for ROM oxide material are projected to be 70% for gold and 20% for silver. These assumptions were used for the Whittle™ analysis and in the economic analysis detailed in Section 22.

Total metal recovery, provided in Table 17.5, was updated using 2015-2016 tests that include bottle rolls, columns, test heaps and 30 years of metal recovery values vs. placed ounces attributed to each stage (see Table 17.3 and Table 17.4 above). Stage II gold recovery has reached 97%, and Stage IV silver recovery has reached 65%. Both Stage II and Stage IV consist mostly of crushed material. Both of these pads continue to produce residual silver despite Stage IV already surpassing the updated ultimate silver recovery of 64%. This demonstrates the conservative nature of historically applied ultimate recovery value. Stage II still produces residual gold ounces despite surpassing the ultimate recovery of 94%. Stage III is a combination of crushed and ROM material which will impact the overall recovery of that pad. New recovery curves were generated for each ore type and metal that show an overall increase in total recovery, with a

reduction in the initial phase of the recovery curve. The recovery curves were utilized in various predictive models and matched up to actual production to assure their validity.

Table 17.5. Updated Gold and Silver Recoveries (Coeur, 2016)

	Oxides	
	Crushed Material	**ROM Material**
Gold Recovery, %	94%	90%
Silver Recovery, %	64%	37%

The length of time necessary to achieve ultimate recoveries for gold and silver are currently estimated to be between five and 20 years. However, the ultimate recovery values and estimated time to achieve ultimate recovery, as provided in this Report, are conservative projections. The actual ultimate recovery values may not be realized until near cessation of mine operation.

Energy and water requirements are addressed in Section 18 of this Report.

17.6 Qualified Person Statement

The updated gold and silver recoveries obtained during 2016 metallurgical test work demonstrated the potential to increase metal production within a five-year leaching cycle. The facility has sufficient capacity to process the planned feed material, and sufficient energy, water, and process materials are readily available. The QP is not aware of any other factors that could have a significant impact on economic extraction.

18. PROJECT INFRASTRUCTURE

18.1 Road and Logistics

The Rochester property is accessed by a three-mile long arterial branch of Unionville-Lovelock County road. This arterial branch leaves the Unionville-Lovelock County road nine miles from where the county road converges with I-80 at the Oreana-Rochester exit. The Oreana-Rochester exit is 13 miles north of Lovelock. The paved portion of the road terminates at the security building and gate that controls access on to the property. The county road is maintained for continuous access from I-80 to the security gate in all weather conditions by Coeur Rochester, and through a right-of-way (ROW) agreement (N-042727) with the BLM and a Road Maintenance Agreement with the Pershing County Road Department. Signage is located along the route to inform and direct the general public, visitors, personnel, and deliveries to the site.

Various unpaved roads exist on and around the Rochester property and are maintained by Coeur Rochester to facilitate light vehicle and heavy mobile equipment traffic necessary to execute the daily operations of the mine.

The active mining and processing areas are fenced to maintain perimeter safety and security. Gates with locks are used on all tertiary roads that have access on and off the site. The mine is fully supported with electricity, telephone, and radio communications. On-site infrastructure includes production water wells, offices, maintenance, warehouse and various ancillary facilities, open pit mining areas, waste dumps, crushing and conveying facilities, four-lined heap leach pads, and a process facility.

Figure 18.1 shows the locations of the Rochester Mine fixed infrastructure.

18.2 Stockpiles

The mining operations do not employ the use of large stockpiles. At times of upset, small feed piles are built, but they are blended with new material when the system is fully operational again.

18.3 Health and Safety and Communications

A security contractor is responsible for security at the site. Coeur Rochester maintains an Emergency Response Plan for the Rochester and Nevada Packard mines. There is an approximately 12-member Mine Emergency Response Team (MERT) at the mines. The team is composed of Coeur Rochester employees that have special training in mine emergency response activities, including: Level 1 fire brigade-mining, basic principles of mine rescue, hazardous materials first responder operations, U.S. Department of

Transportation medical first responder, and emergency medical technician training. The MERT includes approximately six emergency medical responders (EMR) and four emergency medical technicians (EMT) trained mine employees. In addition, there are medical trained personnel that are not on the MERT team: five EMRs, five EMTs, and one EMT1. Coeur Rochester maintains a variety of fire suppression and emergency medical equipment at the mine site, including a rescue truck, an ambulance, one 20,000 gallon tanker with fire fighting monitor, one 10,000 gallon tanker with fire fighting monitor, and one 4,000 gallon tanker. There is an on-site helicopter pad and Coeur Rochester has an arrangement with CareFlight of Reno to evacuate seriously injured personnel (Coeur, 2016).

All external communications (telephones, internet, corporate access) are delivered by an AT&T fiber and Masergy MPLS connections delivered at the high school in Lovelock. Communications access is transmitted across the valley to the site and back over a microwave system, using Redline AN50e communication devices transmitting over a license link. Transmissions start at the Pershing County High School to Lone Mountain, and from Lone Mountain to Nenzel Hill on to the administrative building.

Pershing County provides a limited range of services, which includes law enforcement, emergency response (fire and ambulance), and road maintenance to the unincorporated area around the Rochester and Nevada Packard mines. The Nevada Highway Patrol provides law enforcement services on the highways that access the Rochester Mine. The BLM provides fire suppression activities on BLM lands in the area around the mine. The BLM's Lovelock fire station is located within the Lovelock volunteer fire department station through a cooperative agreement with the city of Lovelock and the BLM. Station equipment includes two Type IV wildland engines. The Nevada Division of Forestry Humboldt Conservation Camp in Winnemucca provides fire suppression services for all rural non-federal land around the Project area (Blankenship & Sammons/Dutton, 2013).

18.4 Waste Storage Facilities

Waste rock is disposed of in established facilities outside the pit boundary, shown in Figure 18.1. PAG waste is placed in a PAG cell on top of the North and West RDS, as approved in POA10 and the latest WRMP.

The existing RDSs are currently being rehandled and mined out, as ore and new waste are being placed back in these RDS's. The waste rock facilities are constructed by end dumping in lifts to create slopes that stand at the natural angle of repose. Approximately 230 million tons of waste rock are in the Rochester RDSs, and approximately 6.5 million tons are in the Nevada Packard RDS.

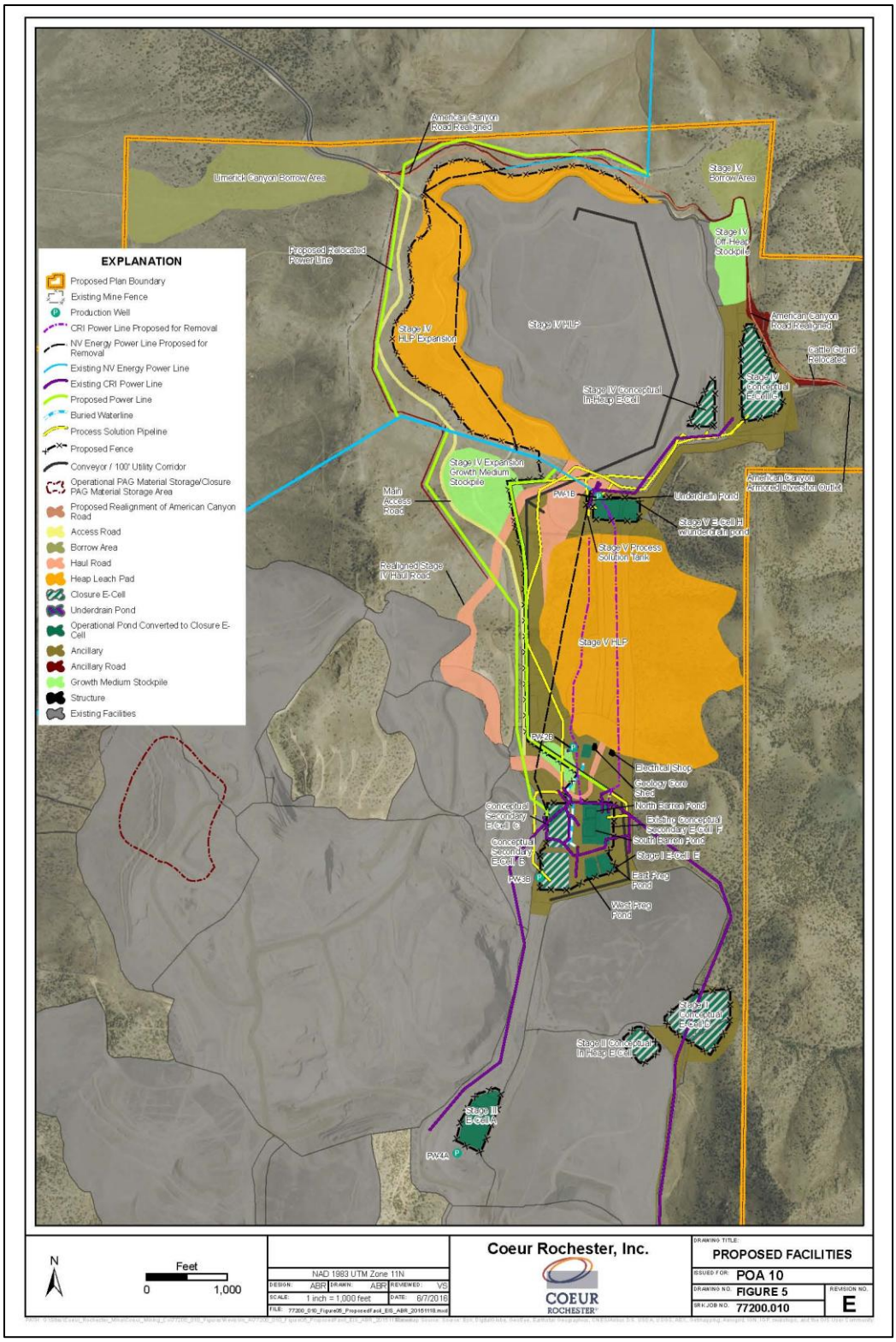

Figure 18.1. Rochester Facility Map (Coeur, 2016)

18.5 Heap Leach Facilities

The Rochester and Nevada Packard mines are open pit mining operations employing cyanide heap leach facilities. Silver and gold are leached from the ore through the application of a weak cyanide solution from a drip irrigation system. Silver and gold are extracted from the process solution using the Merrill-Crowe zinc precipitation method.

Four heap leach facilities have been constructed. The Stage I HLP was actively leached until 1998 and is presently in the closure process. The Stage II HLP is projected to continue being leached through 2017; the Stage III HLP is actively being stacked with fresh ore, with leaching expected to continue for another six to eight years. Leaching continues on Stage IV HLP and stacking additional tons is expected to resume in 2017, as permitted through POA 10. Leaching on Stage IV is expected to continue for another seven to ten years. Additional heap leach capacity is planned to be constructed with enough capacity to contain all Reserves that are currently defined, and will be the focus of another permitting process for the Project in the near future.

18.6 Power and Electrical

Power is supplied by NV Energy via a 60-kilovolt transmission line that runs through Rochester Canyon (ROW N-043389). Power is distributed throughout the site under NV Energy ROWs N-065285 and N-058336. Power is initially received at the Sage Hen substation and terminates at a second mine-site substation located at American Canyon. Electrical power exits at the substations at the five kilovolt level. NV Energy is responsible for the maintenance of these Project area transmission lines and substations. Step-down transformers are located at the crushing facilities, the maintenance shop and warehouse building, the process building, and several locations along the Stage III HLP overland conveyor. Motor control centers, which are located adjacent to these transformers, supply all additional electrical requirements.

Auxiliary generators are located throughout the area. Generator fuel is stored on the skids with the generators in secondary containment.

18.7 Fuel

Fuel is supplied to the site by a contractor that makes weekly deliveries. There is a fueling station with three large storage tanks totaling 70,000 gallons of fuel for equipment that uses dyed diesel fuel. Smaller tanks supply regular fuel and clear diesel for small vehicles.

18.8 Water Supply

There are currently three production wells that supply water to the process plant and storage tanks for dust abatement and other uses. There is also a potable water well that supplies potable water to the site. A water treatment plant, which was updated in 2014, processes the potable water to ensure it is safe for consumption.

18.9 Conclusions

The on-site infrastructure for the Rochester Mine is complete and stable and the mine is operating and processing ore 24 hours per day, seven days per week. The planned expansion of the Stage V and Stage IV leach pads are approved and all appropriate permits are in place.

18.10 Qualified Person Statement

The QP has reviewed the Project infrastructure data and believes that the data presented by Coeur Rochester are generally an accurate and reasonable representation of the Project site and adequately support the Mineral Reserves reported herein.

19. MARKET STUDIES AND CONTRACTS

The final product shipped by Coeur Rochester consists of doré ingots rich in silver and gold, each weighing approximately 350 lbs. Doré is shipped by armored truck to a refinery. Once the doré has been refined into bullion that meets benchmark standards set by the London Bullion Market Association, Coeur Rochester sells the Rochester Mine's production to refiners, multi-national banks and bullion trading houses at prevailing market prices. Coeur Rochester does not control or materially influence the market prices for gold or silver or the ultimate end use of the gold and silver it produces.

19.1 Market Studies

The Rochester Mine produces silver and gold doré, which is transported from the mine site to the refinery by a secure transportation provider. The door-to-door transportation cost ranges from $0.01 to $0.03 per ounce.

Coeur Rochester has contracts with two U.S.-based refiners who refine the Rochester Mine's doré bars into silver and gold bullion that meet certain benchmark standards set by the London Bullion Market Association, which regulates the acceptable requirements for bullion traded in the London precious metals markets. The terms of these contracts include: 1) A treatment charge based on the weight of the doré bars received at the refinery; 2) A refining charge applied to the contained gold ounces; 3) A metal return percentage applied to recoverable gold; and, 4) A metal return percentage applied to recoverable silver. The total of these charges generally ranges from $0.24 to $0.26 per ounce of doré, based on the silver and gold grades of the doré bars.

In addition to the contracted terms detailed above, there are other uncontracted losses experienced through the refinement of Rochester's doré bars, namely the loss of precious metal during the doré melting process, as well as differences in assays between Coeur Rochester and the refiner. These are due to a number of factors, including, but not limited to, the composition of the doré bars, the operating performance of the refiner and differences in assaying techniques used by Coeur Rochester and the refiner. Uncontracted losses generally range from 0.10% to 0.30% of the silver and gold ounces contained in the shipped doré bars. The value of these lost ounces varies with the price of silver and gold. For the purposes of our analysis, we have assumed that uncontracted losses amount to another $0.10 per ounce of doré received by the refiner.

Coeur sells payable silver and gold production on behalf of its subsidiaries on a spot or forward basis, primarily to refiners, smelters, multi-national banks, and bullion trading houses. The markets for both silver and gold bullion are highly liquid, and the loss of a single trading counterparty would not impact Coeur's ability to sell its bullion.

Precious metal and trace metal compositions of the doré are as follows:

- 2016 average doré composition:
  - Ag – 98.508 wt%.
  - Au – 1.125 wt%.
  - Trace elements – 0.367 wt%.
- Expected doré composition:
  - Silver (Ag) – Approximately 98%; in range of 95% to 99.5%.
  - Gold (Au) – Approximately 1%; in range of 0.5% to 2%.
- Other deleterious elements that can be present:
  - Bismuth (Bi) – Approximately 1ppm; in range of 0-10ppm.
  - Cadmium (Cd) – Approximately 35ppm; in range of 0-100ppm.
  - Copper (Cu) – Approximately 800ppm; in range of 0-1000ppm.
  - Iron (Fe) – Approximately 3ppm; in range of 0-10ppm.
  - Lead (Pb) – Approximately 8ppm; in range of 0-20ppm.
  - Mercury (Hg) – Approximately 100ppm; in range of 0-200ppm.
  - Selenium (Se) – Approximately 500ppm; in range of 0-1500 ppm.
  - Zinc (Zn) – Approximately 0ppm; in range of 0-10ppm.

19.2 Commodity Price Projections

Coeur provides annual metal price guidance for use in Mineral Reserve and Mineral Resource estimation and financial analysis. For the 2016 year-end, gold and silver price projections are based on several sources of information. Monthly historic price data from the London Metal Exchange (LME) is compiled and analyzed for long- and short-term trends, and the trailing 3-year average metal price is calculated. Annual reserve metal pricing from peer companies is also compiled for comparison to Coeur pricing, to determine where Coeur pricing is relative to other companies. Lastly, the end-of-year spot metal price is used to compare to the 3-year average metal price, so that any significant variances may be addressed (Figure 19.1 and Figure 19.2).

Historically, the year-end reserve price reflects the 3-year average price, and is less than the end-of-year spot metal price. With rising or falling metal prices, the 3-year average price may be significantly different from the spot metal price. A year-end reserve price was selected that best represents the difference between the 3-year average and the expected end-of-year spot metal price.

Metal pricing guidance is shown in Table 19.1; base case pricing is used for 2016 reserves and resources; downside and upside metal prices are used for metal price sensitivity analyses. Resource metal pricing reflects Coeur's long-term view of metal price trends, while reserve metal pricing reflects a 3-year [historical] view of metal price trends. It is important to note that Coeur does not control or materially influence the market prices of gold or silver.

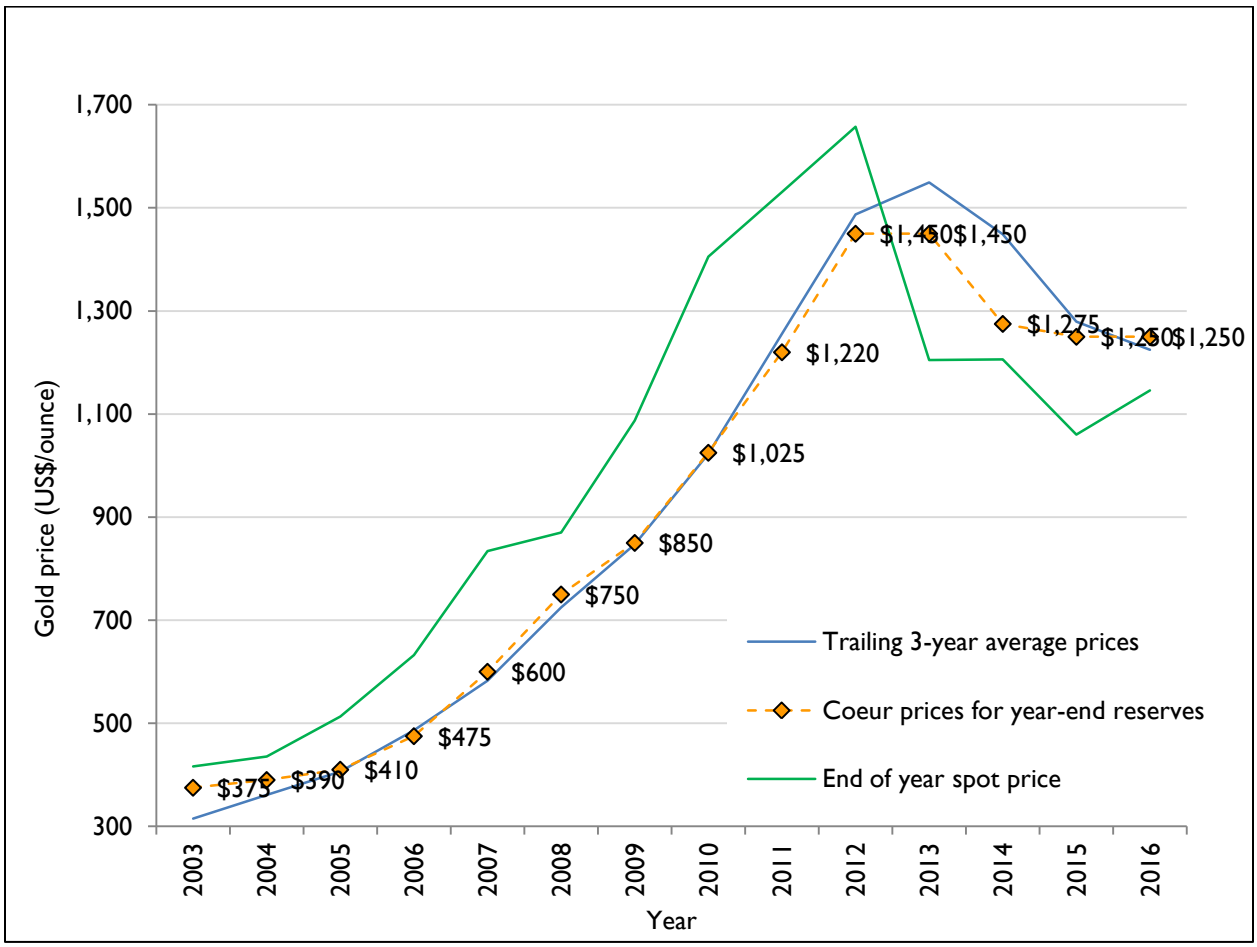

Figure 19.1. Trailing 3-year Average Gold Price and End-of-year Spot Price vs. Coeur End-of-year Reserve Price (Coeur, 2016)

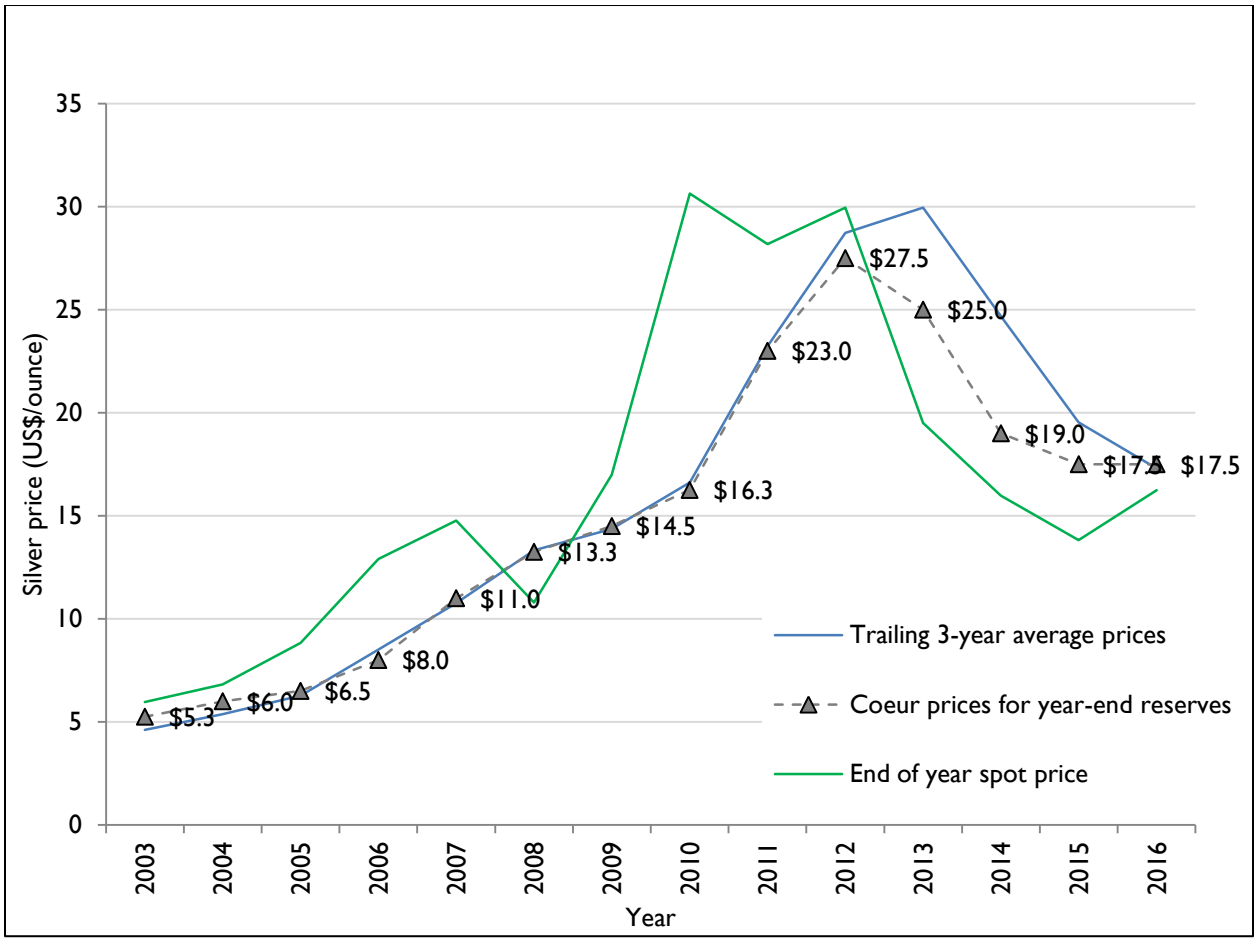

Figure 19.2. Trailing 3-year Average Silver Price and End-of-year Spot Price vs. Coeur End-of-year Reserve Price (Coeur, 2016)

Table 19.1. Year-end Metal Pricing Guidance for End-of-Year 2016 (Coeur, 2016)

	Reserves		Resources		Open pit
	Ag Price ($)	Au Price ($)	Ag Price ($)	Au Price ($)	
Downside 2	$12.50	$1,000	$14	$1,025	LG or Whittle pit
Downside 1	$15	$1,125	$16.50	$1,150	LG or Whittle pit
Base Case	$17.50	$1,250	$19	$1,275	Design pit
Upside 1	$20	$1,375	$21.50	$1,400	LG or Whittle pit
Upside 2	$22.50	$1,500	$24	$1,525	LG or Whittle pit

19.3 Contracts

Coeur Rochester has refining contracts in place with two U.S.-based refiners, as described above.

20. ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Community Impacts

The Rochester Mine has been in operation since 1986 and has obtained all necessary environmental permits and licenses from the appropriate state and federal agencies for the open pit mines, heap leach pads, and all necessary support facilities. Table 20.1 presents a list of the permits, authorizations and approvals maintained by Coeur Rochester for the Project area (Coeur, 2016).

Operational standards and best management practices (BMPs) have been established to maintain compliance with applicable state and federal regulatory standards and permits.

The facility heap leach pad expansion (Stage III) was approved by the BLM in October 2010, with phased pad construction, which was completed end of year 2015. Minor amendments (Stage III buttress) to the current permits were proposed and approved in 2013, which added capacity to the Stage III heap leach pad. Phase I of the buttress was constructed in 2013, and Phase II was constructed in 2015. An approval to increase the height of the Stage III to 400 ft. was obtained in 2015, bringing the total pad capacity to 84 million tons.

In June 2013, Coeur Rochester submitted a Plan of Operations Amendment 10 (POA 10) to the BLM and Nevada Division of Environmental Protection (NDEP) for an expansion of the Stage IV heap leach pad, construction of an additional heap leach pad (Stage V), and additional supporting facilities. A substantial amount of baseline data has been collected and Coeur staff have been working closely with BLM and NDEP personnel to ensure timely initiation of permitting activities. POA 10 was deemed complete by the BLM in November 2013, which initiated an environmental impact statement under the National Environmental Policy Act (NEPA). A Record of Decision (ROD) was issued from the BLM on POA 10 on June 30, 2016. Construction began on POA 10 in late 2016.

Financial surety sufficient to reclaim mine and processing facilities is up to date and held by the BLM, the primary federal agency responsible for regulatory oversight. The closure plan associated with reclamation surety was updated in 2013 and accepted by both the BLM and NDEP. The estimated asset retirement obligation for the Project is approximately $68.4 M. The asset retirement obligation was reviewed in 2016 and will be updated in 2017.

Coeur Rochester currently enjoys a strong relationship with local communities. A majority of the workforce is local to the area and mining is an historically important activity in rural Nevada. Coeur Rochester continues to support local businesses and generally receives strong community support during permit actions and other activities influenced by public opinion.

Table 20.1. Permits and Approvals (Coeur, 2016)

Agency	Permit or Approval
NDEP Bureau of Air Pollution Control	• Class II Air Permit #AP1044-0063 • Mercury Control Program #AP1044-2242
NDEP Bureau of Air Quality Planning	• Open Burn Variances
NDEP Bureau of Mining Regulation and Reclamation	• Reclamation Permit #0087 • Water Pollution Control Permit #NEV0050037
NDEP Bureau of Safe Drinking Water	• Public Water System #PE-3076-12NTNC • Fe and Mn Removal System, Permit # PE-3076-TP02-12NTNC
NDEP Bureau of Waste Management	• Hazardous Waste ID #NVD-986767572 • Solid Waste Class III Landfill Waiver #SWMI-14-30
NDEP Bureau of Water Pollution Control	• General Stormwater Permit #NVR300000-MSW166 • General Septic Permit #GNEVOSDS09-L0028
Nevada Department of Wildlife	• Industrial Artificial Pond Permit #S37974
Nevada Division of Water Resources	• Water Right #48785 (Well PW-2A) - Proven • Water Right #81864 (Well PW-4A) • Water Right #49613 (Well PW-3A) • Water Right #49614 (C-4 Corridor) • Water Right #58449 (SAC) • Water Right #58450 (CBC) • Water Right #61762 (Well PW-1A) - Proven • Water Right #81235 (Packard Well) • Water Right #85015 (St. V Underdrain) • Water Right #85016 (St. IV Underdrain) • Dam Safety Permit J-721 (St. III Pond) • Dam Safety Permit J-723 (St. V Pond)
State of Nevada Liquefied Petroleum Gas	• Class 5 License #5-3875-01
Nevada State Fire Marshall	• Hazardous Materials Permit #FDID 14000
Nevada State Business License	• Business License #NV19851018129
Pershing County Business License	• Business License #5270
U.S. Department of the Interior Bureau of Land Management, Winnemucca District Office	• Rochester Mine Plan of Operations Case File #NVN-064629 • Reclamation Bond NBN-06429 • ROW – Microwave Comm Site #NVN-050235 • ROW – Access Road #NVN-042727 • Notice of Intent – Mystic Springs Exploration #NVN-089745 • Notice of Intent – Buena Vista Playa Exploration

Agency	Permit or Approval
	#NVN-089944 • Programmatic Agreement – Cultural Resources
U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives	• Explosives Permit #9-NV-027-33-3E-92862
U.S. Department of Transportation	• Hazardous Materials Transportation General Permit Reg. #052715 600 003XZ; Company ID #051785
U.S. Environmental Protection Agency	• Toxic Release Inventory #89419CRRCH180EX - Form R's • Toxic Substances Control Act - Form U's • RCRA #NVD-986767572 - Biennial Report
U.S. Federal Communications Commission	• Radio Station Authorization - Call sign #WNFH594 • Radio Station Authorization - Call sign #KB77195

20.2 Environmental Studies

There are no environmental studies disclosing adverse effects that would impact the ability to extract the Mineral Resources or Mineral Reserves.

20.3 Environmental Site Management

Coeur Rochester currently manages waste rock as per the Waste Rock Management Plan (WRMP). All waste is reviewed and classified in accordance with the WRMP, and any PAG waste is placed in the PAG cell located on the North and West RDS.

The site groundwater, air, and waste monitoring are outlined in detail in the Water Pollution Control Permit NEV0050037 and the Class II Air Permit #AP1044-0063, Mercury Control Program #AP1044-2242. The monitoring reporting is listed in Table 20.2. A comprehensive closure plan has been developed for the site and approved and bonded through the BLM and NDEP.

Table 20.2. Environmental Monitoring Components (Coeur, 2015)

Monitoring Component	Permit/Plan and Agency
Air Quality	• Throughput, Emissions, Ore Characteristics, Fuel Use, and Stack Testing • NDEP Bureau of Air Pollution Control
Solid Waste	• Landfill Visual Inspections • NDEP Bureau of Waste Management
Hazardous Waste	• 90-Day Storage Area Weekly Visual Inspections • Satellite Storage Area Weekly Visual Inspections • RCRA Container Storage Area Weekly Visual Inspections • NDEP Bureau of Waste Management

Monitoring Component	Permit/Plan and Agency
Explosives	• Weekly Visual Magazine Inspection • Bureau of Alcohol, Tobacco, Firearms, and Explosives
Water	• Process Water, Surface Water and Groundwater Quality and Quantity • NDEP Bureau of Mining Regulation and Reclamation • Inspection of Stormwater BMPs • NDEP Bureau of Water Pollution Control • Water Usage • Nevada Division of Water Resources
Noxious Weeds	• Periodic Noxious Weed Surveys and updated Weed Management Plan • BLM – under the Plan of Operations
Reclamation	• Reclamation Revegetation Success • NDEP Bureau of Mining Regulation and Reclamation – under the Reclamation Permit
Slope Stability	• Visual Inspections • BLM and NDEP Bureau of Mining Regulation and Reclamation
Waste and Ore Rock Chemistry	• Waste Rock and Ore Analysis • NDEP Bureau of Mining Regulation and Reclamation
Wildlife	• Wildlife Mortality • Nevada Department of Wildlife

21. CAPITAL AND OPERATING COSTS

The cost estimate for Rochester is based on execution of the mining plans outlined in Section 16 and form the basis of the economic analysis in Section 22. Operating and capital cost assumptions are sufficient for the planned extraction of the reserves, including all manpower, equipment, and infrastructure.

21.1 Capital Expenditures

Capital expenditures for the LOM for Rochester are estimated at $393,000,000 from January 1, 2016. The estimated capital expenditures are shown in Table 21.1. Major LOM capital costs include, but are not limited to, Stage IV and Stage V heap leach pad expansion and construction, new crusher and conveying systems, and other planned site infrastructure improvements.

Major expenditures in 2017 at Rochester are expected to total $34,400,000 for various sustaining capital projects and equipment purchases. These include, but are not limited to, construction and expansion of the Stage IV leach pad, conveyance system relocation, mining equipment, and permitting activities. All estimates are based on contractor quotes and/or experience with similar projects.

Table 21.1. Capital Expenditures by Year ($M) (Coeur, 2016)

Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
387.43	34.35	11.64	5.27	40.27	182.72	45.83	10.27	5.27	5.27	25.27	18.27	3.00	0.00

21.2 Operating Costs

Operating costs for 2016 are summarized in Table 21.2. These operating costs are based on actual costs for 2016. The costs are provided for each major cost center: mining, processing, smelting/refining, and General and Administrative (G&A).

Silver and gold prices used for planning and financial modeling are updated annually by Coeur's Corporate financial analysts. These prices are used in the financial model and in the sensitivity analyses. See the discussion in Section 19 for more information.

Table 21.2. Actual Production and Costs per Ounce Produced for 2016 (Coeur, 2016)

Mine Production		
Mineralized Material Tons	tons	16,414,302
Mineralized Material Au Grade	opt Au	0.003
Mineralized Material Ag Grade	opt Ag	0.63
Crushing/Processing		
Total Mineralized Material Processed	tons	13,294,320
Mineralized Material Grade Au	opt Au	0.003
Mineralized Material Grade Ag	opt Ag	0.65
Metallurgical Recovery Au	%	92%
Metallurgical Recovery Ag	%	61%
Revenue		
Gold Price	$/oz	$1,263
Silver Price	$/oz	$18.74
Gross Revenue	$M	$123.8
Operating Costs		
Mining	$M	($34.9)
Processing	$M	($51.6)
G & A	$M	($11.4)
Corporate Management Fee	$M	($4.4)
Net Proceeds Tax	$M	($1.1)
Royalties[1]	$M	($0.6)
Total Operating Cost	$M	($103.9)
Cash Flow		
Operating Cash Flow	$M	$19.9
Capital	$M	($17.3)
Total Cash Flow (Net Cash Flow)	$M	$5.3

[1] See "Royalties" in Section 4

21.3 Forecast Unit Costs

Rochester Mine is an operating mine and actual realized costs form the basis for the unit costs shown in Table 21.3. Costs and recoveries are reviewed on a periodic basis and adjusted in Coeur's mine planning and financial models. Cost assumptions reflect actual performance, as well as reasonable expectations for the future based on considerations such as improvement efforts, specific mining, and processing conditions. These costs were reviewed and authorized by Coeur and Coeur Rochester site management.

Table 21.3. Unit Cost Guidance for 2016 (Coeur, 2016)

Item	Unit	Value
Mineralized Material Mining	$/ton mined	$1.36
Waste Mining	$/ton mined	$1.42
Crushing and Processing	$/ton ore	$3.23
G&A	$/ton ore	$0.55

21.4 Life of Mine Costs

The total LOM costs are $1,394,000,000 (Table 21.4). The metal prices are based on guidance from Coeur. Coeur guidance specified a silver price of $17.50/oz and gold at $1,250/oz for the LOM. The unit costs used for mining, crushing/process, smelting and refining and G&A came from the 2016 budget unit costs (see Table 21.3). Net Cash Flow values shown are after Net Proceeds tax.

Table 21.4. Production and Costs per Ounce Produced – LOM (Coeur, 2016)

Mine Production/Crushing/Processing		
Mineralized Material Tons	Tons (x1,000)	244,804
Mineralized Material Au Grade	opt Au	0.003
Mineralized Material Ag Grade	opt Ag	0.46
Metallurgical Recovery Au	%	92%
Metallurgical Recovery Ag	%	61%
Revenue		
Gold Price – 2017 and 2018	$/oz	$1,250
Silver Price – 2017 and 2018	$/oz	$17.50
Gold Price – 2019 and Beyond	$/oz	$1,275
Silver Price – 2019 and Beyond	$/oz	$19.00
Gross Revenue	$M	$2,225
Operating Costs		
Mining	$M	($549)
Crushing/Processing	$M	($613)
Smelting and Refining	$M	($20)
G & A	$M	($135)
Corporate Management Fee	$M	($35)
Net Proceeds Tax	$M	($43.1)
Royalties[1]	$M	$0
Total Operating Cost	**$M**	**($1,394)**
Cash Flow		
Operating Cash Flow	$M	$831
Capital	$M	($387)
Royalties and others	$M	($12)
Total Pre-Tax Cash Flow	**$M**	**$431**
Project Pre-Tax NPV (8% discount rate)	**$M**	**$223**

22. ECONOMIC ANALYSIS

The results of the economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here.

The Rochester Mineral Reserve estimates are believed to be economically viable based on Coeur's working financial model, which was updated with LOM production schedules (as provided in Table 16.2 and below), metal recoveries, costs and capital expenditures as described in Section 21.

The production schedules are estimated to return a pre-tax NPV of $223,000,000 at a 8% discount rate, and generate a pre-tax Net Cash Flow of $431,000,000 over the remaining life of the Project, based on the design and operational parameters contained in this Report. The pre-tax Net Cash Flow reported in this Report is defined as total revenue minus all costs. Costs include: mining, process, G&A, royalties, management fees, net proceeds taxes, and all capital and royalties. Mining and processing costs end in 2029. Internal Rates of Return and payback timing is not included in this analysis because Rochester is in continuous operation, with previously invested capital.

In 2016, Rochester processed approximately 19.6 million tons. This includes 13.9 million tons of crushed material and 5.7 million tons of ROM stockpile material. In 2017, annual crushing rates are expected to increase to 15.5 million tons and 2.7 million tons ROM stockpile material. Beyond 2019, Coeur anticipates increasing annual crushing rates at Rochester to approximately 20 million tons, with operations expected to continue through late 2029. This schedule shows residual leaching for two years (2030 and 2031) after the last ore tons are mined and placed on the leach pads.

Table 22.1 depicts the annual production schedule and projected cash flows for the LOM of the site. The LOM schedule is based on Mineral Reserves only.

Table 22.2 illustrates the financial sensitivity of the Project to standalone changes in a number of operating parameters. The base case used to estimate Mineral Reserves for this Report is in bold type. The Net Cash Flow after net proceeds tax is most sensitive to changes in metal price and grade, operating cost, followed by capital costs.

22.1 Taxes

Mining companies doing business in Nevada are primarily subject to the Net Proceeds of Minerals Tax, sales and use tax, tax on real property and personal property, and employer unemployment insurance contributions (Table 22.3). The state of Nevada has no corporate income tax.

22.2 Royalties

Coeur Rochester is subject to NSRs payable to ASARCO and RPG, and other royalties as described in Section 4.

The economic analysis in this section takes into account future royalty payment obligations, as appropriate.

Table 22.1. Yearly Production and Cash Flows (Coeur, 2016)

	2017	2018	2019	2020	2021	2022	2023	2024
Material Processed (t x 1,000)	18,259	15,414	17,124	16,382	19,996	19,946	20,068	20,050
Recovered Oz Au (x1,000)	51.3	61.1	46.8	65.8	52.7	64.6	64.1	56.8
Recovered Oz Ag (x1,000)	4,572	4,759	5,100	5,597	6,244	6,437	5,719	4,884
Oper. Cash Flow ($M)	$144.1	$159.6	$147.8	$180.2	$175.2	$193.4	$180.2	$156.5
Pre-Tax Net Cash Flow ($M)	($1.3)	$50.1	$31.2	$35.4	($108.5)	$46.3	$38.6	$18.9
	2025	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**Total**
Material Processed (t x 1,000)	19,898	19,959	19,972	19,102	18,635	0	0	244,804
Recovered Oz Au (x1,000)	58.8	63.5	60.4	56.2	45.1	17.9	7.8	773.0
Recovered Oz Ag (x1,000)	4,741	4,814	4,977	5,052	5,070	2,683	1,267	71,917
Oper. Cash Flow ($M)	$156.4	$163.7	$162.6	$158.7	$145.1	$69.3	$31.9	$2,224.8
Pre-Tax Net Cash Flow ($M)	$31.0	$33.1	$41.1	$56.1	$63.9	$65.2	$30.0	$430.9

Table 22.2. Sensitivity of Project Performance to changes in Gold and Silver Price & Grades, Operating and Capital Costs (Coeur, 2016)

Gold Price ($/oz)	Silver Price ($/oz)	Pre-Tax Net Present Value ($M)						
		Metal Price Only	+10% Grade	-10% Grade	+10% op cost	-10% op cost	+10% cap cost	-10% cap cost
$1,000	$14.00	($48.90)	$58.63	($156.44)	($138.91)	$41.10	($77.09)	($20.71)
$1,125	$15.75	$87.01	$208.14	($34.12)	($3.70)	$177.73	$58.82	$115.20
$1,250	**$17.50**	**$222.93**	**$357.65**	**$88.21**	**$131.50**	**$314.36**	**$194.74**	**$251.12**
$1,375	$19.25	$358.84	$507.16	$210.53	$266.70	$450.99	$330.65	$387.03
$1,500	$21.00	$494.76	$656.66	$332.85	$401.90	$587.62	$466.57	$522.95
$1,625	$22.75	$630.67	$806.17	$455.18	$537.10	$724.25	$602.49	$658.86

Table 22.3. Tax Rates for the Primary Taxes (Coeur, 2016)

Tax Type	Tax Rate
Net Proceeds of Minerals Tax	5%
Sales & Use Tax	7.1%
Nevada Unemployment Insurance Rate	1.5% for wages up to $26,900
Mining Property Tax	3.0968%
Modified Business Tax	1.17% on total wages in excess of $62,500

23. ADJACENT PROPERTIES

This section is not relevant to this Report.

24. OTHER RELEVANT DATA AND INFORMATION

All relevant data and information have been covered in other sections of this Report.

25. INTERPRETATION AND CONCLUSIONS

Rochester is an established operation with a long history demonstrating the viability of continued operations.

25.1 Mineral Resources and Mineral Reserves

The LOM schedule was based on proven and probable reserves only using the YE2016 resource model. Using this new model, there was a gain of approximately 94 million tons of mineralized material from previous LOM schedules. That gain is primarily attributed to a large conversion of Mineral Resources based on additional exploration drill holes included in the model, an infill drilling program that reclassified Inferred mineralized material to either Measured or Indicated, and a reduction in operating costs, which resulted in a lower cut-off grade. Additionally, the revised pit designs targeted areas of recent exploration drilling that were not included in previous models.

25.2 Economic Analysis

Rochester is an operating mining venture that has demonstrated positive cash flow in the past. The financial analysis and associated assumptions conducted for this Report support the conclusion that the Rochester Mine will continue to be profitable and generate acceptable returns over its remaining life.

25.3 Risks

The economic viability and continued operation of the Project is subject to certain risk factors, as has been discussed throughout this Report, and are summarized below.

25.3.1 Ownership and Access Risks

To the extent known, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on, or within, the Rochester Property Package.

25.3.2 Estimation Risk

The Mineral Resource and Mineral Reserve estimates contained in this Report are supported by a large database acquired during exploration programs, which were carefully designed and conducted to produce samples representative of the overall mineralized deposits, and which yield accurate assessments of the overall grade of the deposits. Exploration samples also need to provide data allowing estimation of the tonnage and grade of the portion of the overall deposits, which will be crushed and placed on the heap leach pads. Sampling of ROM stockpile material can provide an

indication of silver grade, but due to the size distribution of the material, the sample can be biased in grade.

25.3.3 Recovery Risk

Mining materials with elevated levels of sulfide minerals may reduce the recovery and increase the consumption of lime and cyanide.

The QPs believe that there are no significant risks and uncertainties that could affect the reliability or confidence of exploration information, Mineral Resource or Mineral Reserve estimates or economic outcomes.

26. RECOMMENDATIONS

26.1 Exploration

Verification of the 2016 sulfide model should be completed over the next three years, with wide-spaced drilling in the central portion of the pit, starting with 800 ft. spacing, and decreasing to 400 ft. spacing, as needed. Estimated cost is $350,000.

Work should be continued to incorporate all known drilling into the acQuire® database and incorporate all relevant collar information, allowing for consistent querying and collation of the dataset. The data entry program entails research through historical documentation and data entry. Estimated cost is $30,000.

Based on review of current sampling practices and analysis of reconciliation results, further work should be conducted to determine the best sampling methodology with regards to RC drill sample collection. Sampling studies should include sample size analysis, alternative drilling methods that would allow dry sample collection and close monitoring of sampling at the drill rig by trained geologists. A suggested course of action to undertake the study would require a trained geologist to review drilling in various geologic areas, with varying flows of water produced during drilling and duplicate sampling. It is also recommended to drill core twins of at least three existing RC drill holes in the East Rochester area to test RC sample results within the water table. Estimated program cost is $250,000.

While current standards utilized at Rochester are acceptable to support resource estimation, a study should be undertaken to determine if standards specific to the geology of the deposit be developed for future use.

To substantiate historical drilling in the Limerick area, twinning of drill holes is recommended. While assays cannot be reviewed against original certificates for certain historical drill holes, assays have been verified in cross-section with surrounding drilling from more recent campaigns and geology. Mineralized intervals appear to be in the correct location and of reasonable length. A minimum of two drill holes (each 200 ft.) should be twinned at an approximate cost of $30,000.

26.2 Operations

It is recommended to continue running and refining quarterly and annual reconciliation (tons, grade, and metal) of mine production to resource block model, to ensure that variances are within historically acceptable ranges (±10 percent variance) (including provision for corrective action for variance outside of acceptable ranges), and the

indicator values chosen during resource modeling are still valid, given the increased metal prices and subsequent lower cut-off grades.

Currently, in-house metallurgical testing continues to further refine metal recovery rates and ultimate recovery values. Studies are ongoing at this time; additional test work will provide better understanding about process optimization, potential cost reduction, increased crusher throughput, and for engineering support on future operational planning.

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28. EFFECTIVE DATE AND SIGNATURE PAGE

This Report titled *Technical Report for the Rochester Mine, Lovelock, Nevada, U.S.A.: NI 43-101 Technical Report – Updated Project Study*, prepared by Coeur Mining, Inc., with an effective date of December 31, 2016, and a filing date of February 8, 2017, was prepared and signed by the following authors:

1. Dated February 8, 2017 — (Signed and Sealed) "Mr. Gregory D. Robinson"

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   .

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   Mr. Raul Mondragon, RM SME
   Director of Metallurgy, Operations Support
   Coeur Mining, Inc.

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   Mr. Paul W. Hohbach, CPG AIPG
   Consultant Geologist
   Paul Hohbach and Associates

29. APPENDICES

29.1 Schedule of the Property Package

29.1.1 Federal Unpatented Lode Claims

№	Claim Name	BLM Serial №	County Doc. №
1.	Sabre 1	NMC 1094291	486749
2.	Sabre 2	NMC 1094292	486750
3.	Sabre 3	NMC 1094293	486751
4.	Sabre 4	NMC 1094294	486752
5.	Sabre 5	NMC 1094295	486753
6.	Sabre 6	NMC 1094296	486754
7.	Sabre 7	NMC 1094297	486755
8.	Sabre 8	NMC 1094298	486756
9.	Sabre 9	NMC 1094299	486757
10.	Sabre 10	NMC 1094300	486758
11.	Sabre 11	NMC 1094301	486759
12.	Sabre 12	NMC 1094302	486760
13.	Sabre 13	NMC 1094303	486761
14.	Sabre 14	NMC 1094304	486762
15.	Sabre 15	NMC 1094305	486763
16.	Sabre 16	NMC 1094306	486764
17.	Sabre 17	NMC 1094307	486765
18.	Sabre 18	NMC 1094308	486766
19.	Sabre 19	NMC 1094309	486767
20.	Sabre 20	NMC 1094310	486768
21.	Sabre 21	NMC 1094311	486769
22.	Sabre 22	NMC 1094312	486770
23.	Sabre 23	NMC 1094313	486771
24.	Sabre 24	NMC 1094314	486772
25.	Sabre 25	NMC 1094315	486773
26.	Sabre 26	NMC 1094316	486774
27.	Sabre 27	NMC 1094317	486775
28.	Sabre 28	NMC 1094318	486776
29.	Leonidas 1	NMC 1094319	486630
30.	Leonidas 2	NMC 1094320	486631
31.	Leonidas 3	NMC 1094321	486632
32.	Leonidas 4	NMC 1094322	486633
33.	Leonidas 5	NMC 1094323	486634
34.	Leonidas 6	NMC 1094324	486635
35.	Leonidas 7	NMC 1094325	486636
36.	Leonidas 8	NMC 1094326	486637
37.	Leonidas 9	NMC 1094327	486638

38.	Leonidas 10	NMC 1094328	486639
39.	Leonidas 11	NMC 1094329	486640
40.	Leonidas 12	NMC 1094330	486641
41.	Leonidas 13	NMC 1094331	486642
42.	Leonidas 14	NMC 1094332	486643
43.	Leonidas 15	NMC 1094333	486644
44.	Leonidas 16	NMC 1094334	486645
45.	Leonidas 17	NMC 1094335	486646
46.	Leonidas 18	NMC 1094336	486647
47.	Leonidas 19	NMC 1094337	486648
48.	Leonidas 20	NMC 1094338	486649
49.	Leonidas 21	NMC 1094339	486650
50.	Leonidas 22	NMC 1094340	486651
51.	Leonidas 23	NMC 1094341	486652
52.	Leonidas 24	NMC 1094342	486653
53.	Leonidas 25	NMC 1094343	486654
54.	Leonidas 26	NMC 1094344	486655
55.	Leonidas 27	NMC 1094345	486656
56.	Leonidas 28	NMC 1094346	486657
57.	Leonidas 29	NMC 1094347	486658
58.	Leonidas 30	NMC 1094348	486659
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63.	Leonidas 35	NMC 1094353	486664
64.	Leonidas 36	NMC 1094354	486665
65.	Leonidas 37	NMC 1094355	486666
66.	Leonidas 38	NMC 1094356	486667
67.	Leonidas 39	NMC 1094357	486668
68.	Leonidas 40	NMC 1094358	486669
69.	Dreadnought 1	NMC 1094138	486529
70.	Dreadnought 2	NMC 1094139	486530
71.	Dreadnought 3	NMC 1094140	486531
72.	Dreadnought 4	NMC 1094141	486532
73.	Dreadnought 5	NMC 1094142	486533
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79.	Dreadnought 11	NMC 1094148	486539
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82.	Dreadnought 14	NMC 1094151	486542
83.	Dreadnought 15	NMC 1094152	486543

84.	Dreadnought 16	NMC 1094153	486544
85.	Dreadnought 17	NMC 1094154	486545
86.	Dreadnought 18	NMC 1094155	486546
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91.	Dreadnought 23	NMC 1094160	486551
92.	Dreadnought 24	NMC 1094161	486552
93.	Dreadnought 25	NMC 1094162	486553
94.	Dreadnought 26	NMC 1094163	486554
95.	Dreadnought 27	NMC 1094164	486555
96.	Dreadnought 28	NMC 1094165	486556
97.	Dreadnought 29	NMC 1094166	486557
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103.	Dreadnought 35	NMC 1094172	486563
104.	Dreadnought 36	NMC 1094173	486564
105.	Dreadnought 37	NMC 1094174	486565
106.	Dreadnought 38	NMC 1094175	486566
107.	Dreadnought 39	NMC 1094176	486567
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109.	Dauntless 1	NMC 1094177	486489
110.	Dauntless 2	NMC 1094178	486490
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112.	Dauntless 4	NMC 1094180	486492
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114.	Dauntless 6	NMC 1094182	486494
115.	Dauntless 7	NMC 1094183	486495
116.	Dauntless 8	NMC 1094184	486496
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129.	Dauntless 21	NMC 1094197	486509

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134.	Dauntless 26	NMC 1094202	486514
135.	Dauntless 27	NMC 1094203	486515
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137.	Dauntless 29	NMC 1094205	486517
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144.	Dauntless 36	NMC 1094212	486524
145.	Dauntless 37	NMC 1094213	486525
146.	Dauntless X	NMC 1094214	486526
147.	Dauntless Y	NMC 1094215	486527
148.	Rampart 1	NMC 1094422	486843
149.	Rampart 2	NMC 1094423	486844
150.	Rampart 3	NMC 1094424	486845
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167.	Rampart 20	NMC 1094441	486862
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175.	Phalanx 8	NMC 1094263	486417

176.	Phalanx 9	NMC 1094264	486418
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178.	Phalanx 11	NMC 1094266	486420
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243.	War Emblem 41	NMC 1094482	486486
244.	War Emblem 42	NMC 1094483	486487
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303.	Tomahawk 23	NMC 1094419	486839
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305.	Tomahawk 25	NMC 1094421	486841
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313.	Indomitable 8	NMC 1094366	486785

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327.	Indomitable 22	NMC 1094380	486799
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329.	Indomitable 24	NMC 1094382	486801
330.	Indomitable 25	NMC 1094383	486802
331.	Indomitable 26	NMC 1094384	486803
332.	Indomitable 27	NMC 1094385	486804
333.	Indomitable 28	NMC 1094386	486805
334.	Indomitable 29	NMC 1094387	486806
335.	Indomitable 30	NMC 1094388	486807
336.	Indomitable 31	NMC 1094389	486808
337.	Indomitable 32	NMC 1094390	486809
338.	Indomitable 33	NMC 1094391	486810
339.	Indomitable 34	NMC 1094392	486811
340.	Indomitable 35	NMC 1094393	486812
341.	Indomitable 36	NMC 1094394	486813
342.	Indomitable 37	NMC 1094395	486814
343.	Indomitable 38	NMC 1094396	486816
344.	Sir Winston 1	NMC 1094520	486381
345.	Sir Winston 2	NMC 1094521	486382
346.	Sir Winston 3	NMC 1094522	486383
347.	Sir Winston 4	NMC 1094523	486384
348.	Sir Winston 5	NMC 1094524	486385
349.	Sir Winston 6	NMC 1094525	486386
350.	Sir Winston 7	NMC 1094526	486387
351.	Sir Winston 8	NMC 1094527	486388
352.	Sir Winston 9	NMC 1094528	486389
353.	Sir Winston 10	NMC 1094529	486390
354.	Sir Winston 11	NMC 1094530	486391
355.	Sir Winston 12	NMC 1094531	486392
356.	Sir Winston 13	NMC 1094532	486393
357.	Sir Winston 14	NMC 1094533	486394
358.	Sir Winston 15	NMC 1094534	486395
359.	Sir Winston 16	NMC 1094535	486396

360.	Sir Winston 17	NMC 1094536	486397
361.	Sir Winston 18	NMC 1094537	486398
362.	Sir Winston 19	NMC 1094538	486399
363.	Sir Winston 20	NMC 1094539	486400
364.	Sir Winston 21	NMC 1094540	486401
365.	Sir Winston 22	NMC 1094541	486402
366.	Sir Winston 23	NMC 1094542	486403
367.	Sir Winston 24	NMC 1094543	486404
368.	Sir Winston 25	NMC 1094544	486405
369.	Sir Winston 26	NMC 1094545	486406
370.	Sir Winston 27	NMC 1094546	486407
371.	Sir Winston 28	NMC 1094547	486408
372.	Archon 1	NMC 1094548	486569
373.	Archon 2	NMC 1094549	486570
374.	Archon 3	NMC 1094550	486571
375.	Archon 4	NMC 1094551	486572
376.	Archon 5	NMC 1094552	486573
377.	Archon 6	NMC 1094553	486574
378.	Archon 7	NMC 1094554	486575
379.	Archon 8	NMC 1094555	486576
380.	Archon 9	NMC 1094556	486577
381.	Archon 10	NMC 1094557	486578
382.	Archon 11	NMC 1094558	486579
383.	Archon 12	NMC 1094559	486580
384.	Archon 13	NMC 1094560	486581
385.	Archon 14	NMC 1094561	486582
386.	Archon 15	NMC 1094562	486583
387.	Archon 16	NMC 1094563	486584
388.	Archon 17	NMC 1094564	486585
389.	Archon 18	NMC 1094565	486586
390.	Archon 19	NMC 1094566	486587
391.	Archon 20	NMC 1094567	486588
392.	Archon 21	NMC 1094568	486589
393.	Archon 22	NMC 1094569	486590
394.	Archon 23	NMC 1094570	486591
395.	Archon 24	NMC 1094571	486592
396.	Archon 25	NMC 1094572	486593
397.	Archon 26	NMC 1094573	486594
398.	Archon 27	NMC 1094574	486595
399.	Archon 28	NMC 1094575	486596
400.	Archon 29	NMC 1094576	486597
401.	Archon 30	NMC 1094577	486598
402.	Archon 31	NMC 1094578	486599
403.	Archon 32	NMC 1094579	486600
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405.	Archon 34	NMC 1094581	486602

406.	Archon 35	NMC 1094582	486603
407.	Archon 36	NMC 1094583	486604
408.	Archon 37	NMC 1094584	486605
409.	Archon 38	NMC 1094585	486606
410.	Archon 39	NMC 1094586	486607
411.	Archon 40	NMC 1094587	486608
412.	Archon 41	NMC 1094588	486609
413.	Archon 42	NMC 1094589	486610
414.	Archon 43	NMC 1094590	486611
415.	Archon 44	NMC 1094591	486612
416.	Archon 45	NMC 1094592	486613
417.	Archon 46	NMC 1094593	486614
418.	Archon 47	NMC 1094594	486615
419.	Archon 48	NMC 1094595	486616
420.	Archon 49	NMC 1094596	486617
421.	Archon 50	NMC 1094597	486618
422.	Archon 51	NMC 1094598	486619
423.	Archon 52	NMC 1094599	486620
424.	Archon 53	NMC 1094600	486621
425.	Minutemen 1	NMC 1094216	486671
426.	Minutemen 2	NMC 1094217	486672
427.	Minutemen 3	NMC 1094218	486673
428.	Minutemen 4	NMC 1094219	486674
429.	Minutemen 5	NMC 1094220	486675
430.	Minutemen 6	NMC 1094221	486676
431.	Minutemen 7	NMC 1094222	486677
432.	Minutemen 8	NMC 1094223	486678
433.	Minutemen 9	NMC 1094224	486679
434.	Minutemen 10	NMC 1094225	486680
435.	Minutemen 11	NMC 1094226	486681
436.	Minutemen 12	NMC 1094227	486682
437.	Minutemen 13	NMC 1094228	486683
438.	Minutemen 14	NMC 1094229	486684
439.	Minutemen 15	NMC 1094230	486685
440.	Minutemen 16	NMC 1094231	486686
441.	Minutemen 17	NMC 1094232	486687
442.	Minutemen 18	NMC 1094233	486688
443.	Minutemen 19	NMC 1094234	486689
444.	Minutemen 20	NMC 1094235	486690
445.	Minutemen 21	NMC 1094236	486691
446.	Minutemen 22	NMC 1094237	486692
447.	Minutemen 23	NMC 1094238	486693
448.	Minutemen 24	NMC 1094239	486694
449.	Minutemen 25	NMC 1094240	486695
450.	Minutemen 26	NMC 1094241	486696
451.	Minutemen 27	NMC 1094242	486697

452.	Minutemen 28	NMC 1094243	486698
453.	Minutemen 29	NMC 1094244	486699
454.	Minutemen 30	NMC 1094245	486700
455.	Minutemen 31	NMC 1094246	486701
456.	Minutemen 32	NMC 1094247	486702
457.	Minutemen 33	NMC 1094248	486703
458.	Minutemen 34	NMC 1094249	486704
459.	Minutemen 35	NMC 1094250	486705
460.	Minutemen 36	NMC 1094251	486706
461.	Minutemen 37	NMC 1094252	486707
462.	Minutemen 38	NMC 1094253	486708
463.	Minutemen 39	NMC 1094254	486709
464.	Minutemen 40	NMC 1094255	486710
465.	N 433	NMC 1061421	477306
466.	N 436	NMC 1061424	477309
467.	LH 29	NMC 1061499	476775
468.	LH 30	NMC 1061500	476776
469.	Tolstoy 3	NMC 1095352	486986
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473.	Tolstoy 7	NMC 1095356	486990
474.	Tolstoy 8	NMC 1095357	486991
475.	Tolstoy 9	NMC 1095358	486992
476.	Tolstoy 10	NMC 1095359	486993
477.	Tolstoy 11	NMC 1095360	486994
478.	Tolstoy 12	NMC 1095361	486995
479.	Tolstoy 13	NMC 1095362	486996
480.	Tolstoy 14	NMC 1095363	486997
481.	Tolstoy 15	NMC 1095364	486998
482.	Tolstoy 16	NMC 1095365	486999
483.	Tolstoy 17	NMC 1095366	487000
484.	Tolstoy 18	NMC 1095367	487001
485.	Tolstoy 19	NMC 1095368	487002
486.	Tolstoy 20	NMC 1095369	487003
487.	Tolstoy 21	NMC 1095370	487004
488.	Tolstoy 22	NMC 1100571	488293
489.	Tolstoy 23	NMC 1100572	488294
490.	Tolstoy 24	NMC 1100573	488295
491.	Tolstoy 25	NMC 1101232	488507
492.	Tolstoy 26	NMC 1101233	488508
493.	Tolstoy 27	NMC 1101234	488509
494.	Tolstoy 29	NMC 1104442	490142
495.	Tolstoy 30	NMC 1104443	490143
496.	Emissary 1	NMC 1096127	487448
497.	Emissary 2	NMC 1096128	487449

498.	Emissary 3	NMC 1096129	487450
499.	Emissary 4	NMC 1096130	487451
500.	Emissary 5	NMC 1096131	487452
501.	Emissary 6	NMC 1096132	487453
502.	Emissary 7	NMC 1096133	487454
503.	Emissary 8	NMC 1096134	487455
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505.	Emissary 10	NMC 1096136	487457
506.	Emissary 11	NMC 1096137	487458
507.	Emissary 12	NMC 1096138	487459
508.	Emissary 13	NMC 1096139	487460
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510.	Emissary 15	NMC 1096141	487462
511.	Emissary 16	NMC 1096142	487463
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516.	Emissary 21	NMC 1096147	487468
517.	Emissary 22	NMC 1096148	487469
518.	Emissary 23	NMC 1096149	487470
519.	Emissary 24	NMC 1096150	487471
520.	Emissary 25	NMC 1096151	487472
521.	Emissary 26	NMC 1096152	487473
522.	Emissary 27	NMC 1096153	487474
523.	Emissary 28	NMC 1096154	487475
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525.	Emissary 30	NMC 1096156	487477
526.	Emissary 31	NMC 1096157	487478
527.	Emissary 32	NMC 1096158	487479
528.	Emissary 33	NMC 1096159	487480
529.	Emissary 34	NMC 1096160	487481
530.	Emissary 35	NMC 1096161	487482
531.	Emissary 36	NMC 1096162	487483
532.	Emissary 37	NMC 1096163	487484
533.	Emissary 38	NMC 1096164	487485
534.	Emissary 39	NMC 1096165	487486
535.	Emissary 40	NMC 1096166	487487
536.	Emissary 41	NMC 1096167	487488
537.	Emissary 42	NMC 1096168	487489
538.	Emissary 43	NMC 1096169	487490
539.	Emissary 44	NMC 1096170	487491
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541.	Centurion 2	NMC 1102376	489022
542.	Centurion 3	NMC 1102377	489023
543.	Centurion 4	NMC 1102378	489024

544.	Centurion 5	NMC 1102379	489025
545.	Centurion 6	NMC 1102380	489026
546.	Centurion 7	NMC 1102381	489027
547.	Centurion 8	NMC 1102382	489028
548.	Centurion 9	NMC 1102383	489029
549.	Centurion 10	NMC 1102384	489030
550.	Centurion 11	NMC 1102385	489031
551.	Centurion 12	NMC 1102386	489032
552.	Centurion 13	NMC 1102387	489033
553.	Centurion 14	NMC 1102388	489034
554.	Centurion 15	NMC 1102389	489035
555.	Centurion 16	NMC 1102390	489036
556.	Centurion 17	NMC 1102391	489037
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558.	Centurion 19	NMC 1102393	489039
559.	Centurion 20	NMC 1102394	489040
560.	Centurion 21	NMC 1102395	489041
561.	Centurion 22	NMC 1102396	489042
562.	Centurion 23	NMC 1102397	489043
563.	Centurion 24	NMC 1102398	489044
564.	Centurion 25	NMC 1102399	489045
565.	Centurion 26	NMC 1102400	489046
566.	Centurion 27	NMC 1102401	489047
567.	Centurion 28	NMC 1102402	489048
568.	Centurion 29	NMC 1102403	489049
569.	Centurion 30	NMC 1102404	489050
570.	Centurion 31	NMC 1102405	489051
571.	Centurion 32	NMC 1102406	489052
572.	Centurion 33	NMC 1102407	489053
573.	Centurion 34	NMC 1102408	489054
574.	Centurion 35	NMC 1102409	489055
575.	Centurion 36	NMC 1102410	489056
576.	Centurion 37	NMC 1102411	489057
577.	Centurion 38	NMC 1102412	489058
578.	Centurion 39	NMC 1102413	489059
579.	Centurion 40	NMC 1102414	489060
580.	Blockade 1	NMC 1102852	489507
581.	Blockade 2	NMC 1102853	489508
582.	Blockade 3	NMC 1102854	489509
583.	Blockade 4	NMC 1102855	489510
584.	Blockade 5	NMC 1102856	489511
585.	Blockade 6	NMC 1102857	489512
586.	Blockade 7	NMC 1102858	489513
587.	Blockade 8	NMC 1102859	489514
588.	Blockade 9	NMC 1102860	489515
589.	Blockade 10	NMC 1102861	489516

590.	Blockade 11	NMC 1102862	489517
591.	Blockade 12	NMC 1102863	489518
592.	Blockade 13	NMC 1102864	489519
593.	Blockade 14	NMC 1102865	489520
594.	Blockade 15	NMC 1102866	489521
595.	Blockade 16	NMC 1102867	489522
596.	Blockade 17	NMC 1102868	489523
597.	Blockade 18	NMC 1102869	489524
598.	Blockade 19	NMC 1102870	489525
599.	Blockade 20	NMC 1102871	489526
600.	Maverick 1	NMC 1102872	489527
601.	Maverick 2	NMC 1102873	489528
602.	Maverick 3	NMC 1102874	489529
603.	Maverick 4	NMC 1102875	489530
604.	Maverick 5	NMC 1102876	489531
605.	Maverick 6	NMC 1102877	489532
606.	Maverick 7	NMC 1102878	489533
607.	Maverick 8	NMC 1102879	489534
608.	Maverick 9	NMC 1102880	489535
609.	Maverick 10	NMC 1102881	489536
610.	Maverick 11	NMC 1102882	489537
611.	Maverick 12	NMC 1102883	489538
612.	Maverick 13	NMC 1102884	489539
613.	Maverick 14	NMC 1102885	489540
614.	Maverick 15	NMC 1102886	489541
615.	Maverick 16	NMC 1102887	489542
616.	Maverick 17	NMC 1102888	489543
617.	Maverick 18	NMC 1102889	489544
618.	Maverick 19	NMC 1102890	489545
619.	Maverick 20	NMC 1102891	489546
620.	Crown Hills No.7	NMC 39574	42-510
621.	Crown Hills No. 8	NMC 39593	42-511
622.	Crown Hills No. 9	NMC 39594	42-512
623.	Crown Hills No. 10	NMC 39595	42-513
624.	HMS 4	NMC 140862	106-179
625.	HMS 4A	NMC 1034800	461-292
626.	HMS 5	NMC 140863	106-180
627.	HMS 6	NMC 140864	106-181
628.	HMS 84	NMC 140941	106-258
629.	HMS 85	NMC 140942	106-259
630.	HMS 86	NMC 140943	106-260
631.	HMS 87	NMC 140944	106-261
632.	IDA #12	NMC 364282	177-124
633.	IDA #13	NMC 364283	177-125
634.	IDA #14	NMC 364284	177-126
635.	IDA #15	NMC 364285	177-127

636.	IDA #16	NMC 364286	177-128
637.	IDA #17	NMC 364287	177-129
638.	IDA #18	NMC 364288	177-130
639.	IDA #19	NMC 364289	177-131
640.	IDA #20	NMC 364290	177-132
641.	IDA #21	NMC 364291	177-133
642.	IDA #22	NMC 364292	177-134
643.	IDA #23	NMC 364293	177-135
644.	IDA #25	NMC 364295	177-137
645.	Porcupine 1	NMC 371072	180-24
646.	Porcupine 2	NMC 371073	180-25
647.	Porcupine 3	NMC 371074	180-26
648.	Porcupine No. 4	NMC 371075	267-568
649.	Porcupine 5	NMC 371076	180-28
650.	Porcupine No. 6	NMC 371077	267-569
651.	Porcupine 7	NMC 371078	180-30
652.	Porcupine No. 8	NMC 371079	267-570
653.	Porcupine No. 9	NMC 371080	267-571
654.	Porcupine No. 10	NMC 371081	267-572
655.	Porcupine No. 11	NMC 371082	267-573
656.	Porcupine 28	NMC 662873	267-567
657.	SDB-1	NMC 349508	173-127
658.	SDB-2	NMC 349509	173-128
659.	SDB-3	NMC 349510	173-129
660.	SDB-4	NMC 349511	173-130
661.	SDB-5	NMC 349512	173-131
662.	SDB-6	NMC 349513	173-132
663.	SHO #3	NMC 364363	177-205
664.	SHO #4	NMC 364364	177-206
665.	SHO 4A	NMC 1034798	461-290
666.	SHO #5	NMC 364365	177-207
667.	SHO 5A	NMC 1034799	461-291
668.	SHO #6	NMC 364366	177-208
669.	SHO #7	NMC 364367	177-209
670.	SHO #8	NMC 364368	177-210
671.	SHO #9	NMC 364369	177-211
672.	SHO #10	NMC 364370	177-212
673.	SHO #11	NMC 364371	177-213
674.	SHO #12	NMC 364372	177-214
675.	SHO #24	NMC 364384	177-226
676.	SHO #26	NMC 364386	177-228
677.	SHO #28	NMC 364388	177-230
678.	SHO #30	NMC 364390	177-232
679.	SHO #32	NMC 364392	177-234
680.	SHO #34	NMC 364394	177-236
681.	SHO 60	NMC 1034792	461-284

682.	SV 146	NMC 925039	407-352	
683.	SV 216	NMC 925109	407-422	
684.	SV 217	NMC 925110	407-423	
685.	SV 218	NMC 925111	407-424	
686.	SV 219	NMC 925112	407-425	
687.	SV 220	NMC 925113	407-426	
688.	SV 327	NMC 925200	407-513	
689.	SV 328	NMC 925201	407-514	
690.	SV 329	NMC 925202	407-514A	
691.	SV 330	NMC 925203	407-515	
692.	SV 331	NMC 925204	407-516	
693.	SV 332	NMC 925205	407-517	
694.	SV 333	NMC 925206	407-518	
695.	SV 334	NMC 925207	407-519	
696.	SV 335	NMC 925208	407-520	
697.	SV 336	NMC 925209	407-521	
698.	SV 341	NMC 925214	407-526	
699.	SV 342	NMC 925215	407-527	
700.	SV 343	NMC 925216	407-528	
701.	SV 344	NMC 925217	407-529	
702.	SV 345	NMC 925218	407-530	
703.	SV 346	NMC 925219	407-531	
704.	SV 347	NMC 925220	407-532	
705.	SV 348	NMC 925221	407-533	
706.	SV 349	NMC 925222	407-534	
707.	SV 350	NMC 925223	407-535	
708.	SV 351	NMC 925224	407-536	
709.	SV 352	NMC 925225	407-537	
710.	SV 353	NMC 925226	407-538	
711.	SV 354	NMC 925227	407-539	
712.	SV 355	NMC 925228	407-540	
713.	SVB 16	NMC 1062742	477-249	
714.	SVB 17	NMC 1062743	477-250	
715.	SVB 20	NMC 1096900	500-755	
716.	SVB 21	NMC 1096901	500-756	
717.	SVB 22	NMC 1096902	500-757	
718.	SVB 32	NMC 1096912	500-767	
719.	SVB 33	NMC 1096913	500-768	
720.	Duffy #5	NMC 965332	427-745	Leased
721.	Duffy #6	NMC 965333	427-746	Leased
722.	Duffy #7	NMC 965334	427-747	Leased
723.	Duffy #8	NMC 965335	427-748	Leased
724.	SV 315	NMC 925188	407-501	Leased
725.	SV 316	NMC 925189	407-502	Leased
726.	SV 317	NMC 925190	407-503	Leased
727.	SV 318	NMC 925191	407-504	Leased

728.	SV 337	NMC 925210	407-522	Leased
729.	SV 338	NMC 925211	407-523	Leased
730.	SV 339	NMC 925212	407-524	Leased
731.	SV 440	NMC 925213	407-525	Leased
732.	Freedom #2	NMC 780754	325-50	Leased
733.	SHO 61A	NMC 1119847	494710	
734.	SHO 66	NMC 1119848	494711	

II. Federal Patented Lode Claims:

№	Claim Name	Federal Patent №	Assessor's Parcel №
1.	Akron Quartz Mine	959332	15-020-37
2.	Baltimore	886486	15-020-36
3.	Canyon	469396	15-020-30
4.	Canyon No. 1	469396	15-020-30
5.	Crown Hills	537044	15-020-35
6.	Crown Point No. 1	537044	15-020-35
7.	Crown Wedge Fraction	537044	15-020-35
8.	Dorothea	959332	15-020-37
9.	Iditarod	959332	15-020-37
10.	Joplin No. 1	886486	15-020-36
11.	Joplin No. 2	886486	15-020-36
12.	Joplin No. 3	886486	15-020-36
13.	Joplin No. 4	886486	15-020-36
14.	Joplin No. 5	886486	15-020-36
15.	Joplin No. 6	886486	15-020-36
16.	Joplin Fraction	886486	15-020-36
17.	Packard No. 1	959332	15-020-37
18.	Packard No. 2	959332	15-020-37
19.	Packard No. 3	959332	15-020-37
20.	Packard Fraction	959332	15-020-37
21.	West Slope	1112519	15-020-35

III. Real Property Owned:

The Surface Estate, together with rock, sand, clay, gravel, and placer minerals only, in and to the following parcels of land: Assessor's Parcel Number (APN): 015-460-01, 015-460-02, 015-460-04, 015-050-32.

The Surface Estate and Mineral Estate in the following parcels of land: Assessor's Parcel Number (APN): 015-020-24, 015-020-13, 015-430-01, 015-430-02, 015-430-03, 015-430-04, 015-430-05, 015-430-06, 015-430-07, 015-430-08, 015-020-18, 015-020-

28, 015-020-39, 015-020-38, 015-020-16, 015-020-17, 015-020-21, 015-020-20, 015-020-19, 015-020-23, 015-020-22.