July 2017

CRIPPLE CREEK & VICTOR GOLD MINE, COLORADO, USA

ICMC Recertification Summary Audit Report

REPORT

Submitted to:
International Cyanide Management Institute (ICMI)
1400 I Street NW, Suite 550
Washington, District of Columbia 20005 USA

And

Newmont Mining Corporation
Cripple Creek & Victor Gold Mining Company
P.O. Box 191
100 North 3rd Street
Victor, Colorado 80860 USA

Submitted by:
Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228 USA

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Distribution:

ICMI – 1 pdf
CC&V Mine – 1 pdf

Golder Associates

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1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Mine:	CC&V Mine
Name of Mine Owner:	Newmont Mining Corporation
Name of Mine Operator:	Cripple Creek and Victor Gold Mining Company
Name of Responsible Manager:	Jack Henris, General Manager
Address:	Newmont Mining Corporation Cripple Creek & Victor Gold Mining Company PO Box 191 100 N. 3rd Street Victor, CO 80860
State/Province:	Colorado
Country:	United States
Telephone:	+1 719-689-4012
E-Mail:	John.Henris@Newmont.com

2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

2.1 Mine Location

The operation is located in Teller County, Colorado, southwest of Pikes Peak and currently employs approximately 700 personnel. It is located between the two small towns of Cripple Creek and Victor, Colorado. Cripple Creek is located 44 miles southwest of Colorado Springs near the base of Pikes Peak with a population of approximately 1000. Victor is further 5 miles southeast from Cripple Creek and has population of approximately 400.

2.2 Background

2.2.1 Anglo Gold Ashanti

In 2008, AngloGold Ashanti (Anglo) merged with Golden Cycle Corporation and became 100% owner of CC&V.

2.2.2 Newmont Mining Company

Founded in 1921 and publicly traded since 1925, Newmont is headquartered in Denver, Colorado. The company has approximately 30,000 employees and contractors, the majority of whom work at mine sites on five continents. Newmont operates core assets in North America, South America, Australia, Indonesia, and Ghana. Newmont purchased CC&V in 2015.

2.2.3 Cripple Creek and Victor Gold Mine

CC&V is 100% owned by Newmont. Newmont purchased the facility in August 2015 with the full control being handed to Newmont, officially, in January 2016.

CC&V began surface mining operations in 1976, with mining in its Cresson Project starting in 1995. The majority of ore is treated using a valley-type, heap-leach process to recover the gold. Under approved permits, mining at current production rates will continue through 2025, with gold recovery carrying on for at least another seven years, followed by final reclamation and closure. In 2016, the mine produced over 390,000 ounces of gold.

In 2015, CC&V commissioned a rod, ball, and flotation mill, which processes CC&V's higher grade, non-oxidized ore. Current production comes from two open pits. (http://www.newmont.com/operations and projects/north america/cripple creek and victor us/operation facts/default.aspx).

The major components of the processing facilities are as follows:

- Arequa Gulch Absorption, Desorption and Recovery Plant (ADR1)
- Arequa Gulch Valley Leach Facility (VLF1) (Phases 1, 2, 3, 4 and 5)
- Squaw Gulch Absorption, Desorption and Recovery Plant (ADR2)
- Squaw Gulch Valley Leach Facility (VLF2) (Phase 1)
- High Grade Mill (HGM)
- Process Solution Enhancement System (PSES) Plant

The ADR2, VLF2, HGM, and PSES system were new and have not been previously audited.

The operation has three separate gold producing facilities, ADR1, ADR2, and HGM that receive deliveries of liquid cyanide almost daily.

3.0 SUMMARY AUDIT REPORT

3.1 Auditors Findings

CC&V is:	☒ **in full compliance with** ☐ in substantial compliance with ☐ not in compliance with	**The International Cyanide Management Code**

This operation has experienced four minor cyanide incidents during the previous 3-year audit cycle, which are discussed in this report under Standard of Practice 9.3.

Audit Company: Golder Associates Inc.

Audit Team Leader: Jaclyn Ennis-John, Lead Auditor and Technical Specialist

Email: jennis-john@golder.com

Name of Other Auditors

Name, Position	Signature
Ivon Aguinaga, Technical Specialist	Ivon Aguinaga

Dates of Audit

The Recertification Audit site visit was conducted over four days between 20 and 23 March 2017.

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Gold Mine Operations and using standard and accepted practices for health, safety, and environmental audits.

CC&V Mine	Ennis-John.	July 28, 2017
Name of Facility	Signature of Lead Auditor	Date

PRINCIPLE 1 – PRODUCTION

Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that Operate in a Safe and Environmentally Protective Manner

Standard of Practice 1.1:	**Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment**	
	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 1.1**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 1.1, requiring the operation purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

During the certification period, the operation received both solid (briquettes) and liquid cyanide from three producers.

CC&V as part of Anglo purchased solid sodium cyanide from Degussa Corporation (CyPlus). Cyplus was certified as being fully compliant with the Code. The Sodium Cyanide Purchase and Sale Agreement between Anglo and Deguassa Corporation was valid during the relevant period and requires that both parties agree to comply with the Code.

CC&V, as part of Newmont, purchased solid sodium cyanide from Cyanco (Texas) and liquid sodium cyanide from Cyanco (Winnemucca, Nevada). These facilities are fully compliant with the Code. The Sodium Cyanide Purchase and Sale Agreement between CC&V and Cyanco is current.

Bills of Lading were sited confirming receipt of cyanide from Cyanco.

Cyanide was not purchased from independent distributors during this audit cycle.

PRINCIPLE 2 – TRANSPORTATION

Protect Communities and the Environment during Cyanide Transport

Standard of Practice 2.1: **Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors, and transporters.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 2.1

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 2.1, requiring that the operation establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors, and transporters.

CC&V had a written agreement with Degussa (Cyplus) that required both parties to comply with the Code. Through CC&V requiring Degussa (Cyplus) to comply with the Code, designation of the transport related responsibilities, including subcontractors, are addressed.

CC&V has a written agreement with Cyanco (the cyanide producer and transporter) requiring that the seller "shall utilize an ICMC certified motor carrier for the product delivery to the Seller." Though CC&V requiring Cyanco to utilize certified motor carrier and that the auditor has confirmed that all operations involved in the transportation are certified, designation of the transport related responsibilities, including subcontractors, are addressed.

Standard of Practice 2.2: **Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 2.2

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 2.2, requiring that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

CC&V had a written agreement with Degussa (Cyplus) that requires both parties to comply with the Code. Through CC&V requiring Degussa (Cyplus) to comply with the Code, transporters are also required to be certified with the Code.

CC&V has a written agreement with Cyanco (the cyanide producer and transporter) requiring that the seller "shall utilize an ICMC certified motor carrier for the product delivery to the Seller."

All elements of the supply chain were checked and are certified under the Code.

The operation has chain of custody records identifying all elements of the supply chain (producer and transporter) that handle the cyanide brought to its site.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect Workers and the Environment during Cyanide Handling and Storage

Standard of Practice 3.1: **Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 3.1**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 3.1; design and construct unloading, storage and mixing facilities consistent with sound accepted engineering practices, quality control/quality assurance procedures, spill prevention, and spill containment measures.

Two new cyanide offloading and storage facilities have been constructed since the 2014 recertification audit, one as part of the construction of the HGM and the other as part of the construction of ADR2. The HGM started operation in 2015 and ADR2 in March 2016. These new facilities were designed and constructed to employ a dissolution system (Cyanco solid to liquid system [SLS]) with a cyanide mixing tank and a cyanide storage tank and corresponding pump and pipe systems, in a similar manner to the existing cyanide offloading and storage facilities at ADR1. The cyanide ISO container (when delivering cyanide) sits on a curbed concrete pad, sloped to drain to a sump located within the reinforced concrete secondary containment of the mixing and storage tanks.

The new cyanide offloading and storage facilities at ADR2 and the HGM are designed and constructed in accordance with sound and accepted engineering practices. The auditors reviewed design, as built and QA/QC documentation for the earthworks, tanks foundations, liner installations, and tank and pipe installations of these facilities to verify compliance. Documentation reviewed by the auditors was stamped by professional engineers or project managers from CC&V who oversaw the construction of these facilities.

In June 2016, the piping systems of the cyanide offloading facility at ADR1, ADR2, and the HGM were modified to also receive liquid cyanide. These modifications were designed, supplied, and installed by Cyanco, the cyanide supplier. No other modifications have been made to these facilities since the 2014 recertification audit. The auditors observed that these facilities at ADR1 were in good condition and had been regularly maintained. Since January 2017, CC&V has only been receiving liquid cyanide.

The cyanide offloading and storage areas at ADR1, ADR2, and the HGM are located away from offices and areas where workers may congregate. The nearest communities (Victor and Cripple Creek) are located approximately two miles from these facilities. No surface water bodies are nearby. The cyanide offloading and storage areas at ADR1, ADR2, and the HGM are all located within the security perimeter of the mine. As indicated in the 2014 recertification audit report, two ISO containers remain on site. These containers are parked next to the PSES Plant within a geomembrane-lined area, also within the security perimeter of the mine. These containers are maintained on site in case of a delivery related contingency and have their valves locked. Only authorized people can access the gated mine entrance areas. The entrance areas are with 24-hour security to restrict public access. In addition, the access point to the secondary containment of the cyanide mixing and storage tanks are chained and locked. Also, all the cyanide high strength distribution lines to the process areas have valves that are properly locked out. The cyanide offloading and storage areas are located outside with adequate ventilation.

Cyanide is offloaded on concrete pads, underlain by a linear low-density polyethylene (LLDPE) geomembrane liner at ADR1, ADR2, and the HGM. The offload pads are sloped to drain to the secondary containment of the mixing and storage tanks. CC&V has constructed the secondary containments for all of the cyanide mixing and storage tanks out of cast in place reinforced concrete. In addition, the secondary containments are underlain by a LLDPE geomembrane liner acting as a tertiary containment system. The secondary containments have a sump with a dedicated automatic pump at the three process areas to return any spilled material collected in the secondary containments to the cyanide storage tanks. The ADR1 geomembrane liner is sloped to VLF1, and the ADR2 and HGM geomembrane liner is sloped to VLF2. The cyanide offload pads and secondary containments provide adequate containment for the recovery of cyanide liquid spills. The auditors observed the cyanide offload pads and secondary containments of the cyanide mixing and storage tanks to be in good condition.

CC&V has installed level indicators and high-level alarms to prevent the overfilling of the cyanide mixing and storage tanks at ADR1, ADR2, and the HGM. Interlock system with automatic shut off valves that prevents overfilling of the tanks have been installed at the ADR2 and HGM tanks. No changes or modifications have been made to the ADR1 cyanide mixing and storage tanks since the 2014 recertification audit. The auditors observed screen shots in the control room to verify that the level sensors were working. In addition, the auditors reviewed completed monthly preventative maintenance records for tank level indicators and level alarms for the recertification period. CC&V has also implemented procedures to prevent overfilling. The CC&V reagent operator verifies that the tank levels are low enough to receive the expected delivery. In addition, the cyanide supplier, Cyanco, has remote telemetry monitoring of the cyanide tank levels to track cyanide usage and inventory, allowing them to dispatch cyanide loads when needed. Tank levels before and after cyanide offloading are documented on checklists, as well as on the Cyanco bills of lading.

All the cyanide mixing and storage tanks are located apart from foods, animal feeds, acids, strong oxidizers, and explosives; smoking is prohibited and signed accordingly. The cyanide mixing and storage tanks at ADR1, ADR2, and the HGM are located within their own containments.

Standard of Practice 3.2: **Operate unloading storage and mixing facilities using inspections, preventative maintenance, and contingency plans to prevent or contain releases and control and respond to worker exposures.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 3.2**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 3.2; operate unloading storage and mixing facilities using inspections, preventative maintenance, and contingency plans to prevent or contain releases and control and respond to worker exposures.

Cyanide is delivered in fully enclosed steel ISO containers. The liquid cyanide is transferred from the ISO containers to the cyanide mixing and storage tanks. The ISO containers are used only for the delivery (and mixing of the cyanide when the Cyanco SLS process was in use); therefore, no empty cyanide containers require disposal or treatment. The empty ISO containers are returned to Cyanco immediately after the offloading is completed.

The Procedures for Cyanide Truck Unloading: Solid Product requires that a triple rinse of the ISO container be conducted once the transfer of the cyanide is completed. The CC&V reagent operator must also inspect the ISO container with the driver to ensure that the load has been completely dissolved. The driver signs and dates a “Certificate of Cleanliness” certifying that the ISO container has been triple rinsed with fresh water. Estimated residue left in trailer is documented on the “NaCN Batch Record” checklist and signed by the driver and the CC&V reagent operator. In the case of the offloading of liquid cyanide, the Procedures for Cyanide Truck Unloading: Liquid Product requires that a general inspection of the ISO container is conducted of the top and sides of the ISO containers to ensure that spillage or leaks have not occurred during the offloading and disconnecting activities. This inspection is documented on the “NaCN Batch Record” checklist and signed by the driver and the CC&V reagent operator. The auditors observed an offload of liquid cyanide at ADR1 and revised completed “NaCN Batch Record” checklists and Certificate of Cleanliness” reports for the recertification period to verify that these procedures were followed as required.

CC&V has a procedure entitled “Cyanide Spillage” that defines response and actions to be taken to respond, clean up, and remediate cyanide spills during offloading.

The Procedures for Cyanide Truck Unloading: Liquid Product and for Cyanide Truck Unloading: Solid detail step by step the offload procedures for Liquid cyanide and the SLS system, including the operation of all valves and couplings.

CC&V has developed Procedure 2 for Personal Protective Equipment that specifies the appropriate personal protective equipment (PPE) for the driver and the reagent operator during the offload. The PPE consists of a chemical suit with rubber boots, Neoprene/Nitrile/Butyl gloves, face shield, and a portable HCN monitor. The Procedures for Cyanide Truck Unloading: Liquid Product and for Cyanide Truck Unloading: Solids require the use of the buddy system when hooking up and unhooking the ISO Container. The auditors observed during the offload at ADR1 that the CC&V reagent operator watched the driver during connections and disconnections.

PRINCIPLE 4 – OPERATIONS

Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Standard of Practice 4.1: **Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 4.1**

☐ not in compliance with

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.1; implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.

The CC&V operations are currently composed of the HGM, ADR1, VLF1, ADR2, VLF2, the PSES Plant, the External Storage Pond (ESP) and associated concrete and lined secondary containment structures, process solution transfer pipes, valves, and pumps. CC&V has developed and implemented written operating procedures describing the standard of practice necessary for the safe and environmentally sound operation of these cyanide facilities, including the specific measures needed for compliance with the Code and regulatory requirements.

The new cyanide facilities constructed since the 2014 recertification audit report include: 1) the HGM that consists of grinding, flotation CIP circuits with final gold recovery to improve gold recovery from some of the site's higher grade ore deposits; 2) ADR2 that consists of reagent grade cyanide mixing and storage facilities, four carbon trains, an acid wash circuit, a carbon strip and regeneration circuit, and an electrowinning circuit and refinery. Barren solution is conveyed to VLF2, 3) VLF2 (Phase 1) that added approximately 63 acres of heap leach facilities to the CC&V operations, and 4) the PSES Plant, designed and constructed to improve gold recovery by removing metal precipitate solids in the VLF process solution and allowing a more sustainable and even distribution of barren solution onto the VLF.

The procedures include process descriptions, operating tasks, inspections, maintenance and shut down procedures. The procedures have been updated, as needed, to reflect changes in procedures and new cyanide facilities/process during the recertification period. Verification of the written procedures included review of the procedures and plans, as well as interviews.

CC&V has various procedures, permit documents, and plans that identify the assumptions on the facility design and also include contingency actions for various scenarios related to cyanide. For example, the Procedure 25 for Water Balance Management describes the parameters required for safe operation of the Process Solution Storage Areas (PSSAs) including their maximum operating levels, action levels, reporting levels and total volume levels. The Permit M 1980 244 for Mine Life Extension 2 includes the design storm events and geotechnical considerations taken into account for the design of the VLF areas and for the water balance. In addition, the Permit M-1980-244 for Mine Life Extension 2 (under Section 14.6) includes procedures for cyanide management in the event of temporary cessation of the mine. These procedures consider circulation of solutions, and monitoring and maintenance of the water balances associated with the VLFs. The Discharge Permit Number CO0043648 authorizes discharges from Outfall 005B (from the ESP to Arequa Gulch) to prevent an overflow od the VLF facilities in case of upset conditions only, prior treatment of the WAD cyanide in the ESP. The Discharge Permit provides discharge limitations, including daily maximum and minimum numerical values for WAD cyanide, and monitoring requirements. The operating procedures for the process areas cover the operational requirements for all tanks, valves, pipes, and other equipment with regard to elements such as tonnages, densities, pH, and cyanide concentrations.

CC&V uses the Newmont corporate procedures for management of change to evaluate changes in processes, materials, equipment, systems, programs, or resources and control their implementation. The proposed change is evaluated using a risk assessment. Required controls to reduce any potential risks associated with the proposed change are assigned to specific staff with target completion dates and described in an action plan. For high or extreme changes, the approvers include the safety and environmental managers. The approved change is communicated to workers and training is provided, if necessary, prior to the change implementation. The auditors reviewed examples of completed management of change forms and risk assessments to verify compliance.

Inspections of the cyanide facilities are conducted on a shift, weekly, monthly, quarterly, and annually basis. These inspections are sufficient to assure and document that the cyanide facilities are functioning within the design parameters. The operational safety walkthrough inspections for the ADR1, ADR2 and HGM and PSES areas cover the condition of tanks, pumps, valves, pipes secondary containments, HCN sensors and safety showers and eye stations. The operational safety walkthrough inspections for the two VLF areas cover the condition of the PSSA pumps and the ESP. In addition, maintenance people conduct monthly inspections of the tanks, sumps, pumps, secondary containments and others. CC&V conducts non-destructive testing (NDT) on the reagent strength cyanide tanks and all cyanide process tanks. The solution reports for ADR1, ADR2 and the Mill daily leach round report for the HGM cover elements such as tonnages, densities, pH and cyanide concentrations and pond levels to assure the facilities are operating within design parameters. CC&V monitors the leak collection systems at the PSSAs of the VLFs and the ESP as well as the leak collection systems and underdrains at the VLF ore placement areas on a weekly basis. Operations also conducts inspections of the leak collection systems every shift. Stormwater ditches and sedimentation traps are inspected quarterly by the Environmental Department. The auditors reviewed completed examples of the inspection forms to verify compliance. The auditors also observed that the cyanide facilities were generally in good condition, without leaks, salts, or other issues that would be related to inefficient inspections.

CC&V has implemented a maintenance program via the SAP software that includes both preventative (scheduled) maintenance and corrective (unscheduled) maintenance. The maintenance program includes the elements necessary for cyanide safety management including fixed HCN monitors, pH meters, NDT on cyanide solution tanks, tank level indicators and interlock systems, pond level indicators, sump level indicators, tanks and pumps, backup generators and others. The auditors reviewed examples of completed maintenance records from the SAP system from 2014 to March 2017 to verify that the preventive and corrective maintenance programs were implemented as required during the recertification period. The nature and date of corrective actions are documented in the inspection forms or through the SAP records. The auditors randomly picked a couple of deficiencies noted on inspection forms for the recertification audit, and the maintenance staff were able to pull up the records in SAP to verify the completion date, the name of the staff involved, and the time it took to complete.

CC&V has 11 fixed backup generators to operate the critical components at the cyanide facilities in the event of a power outage. In addition, of the generators, CC&V has designed the PSSAs of VLF1 and VLF2 to contain a 12-hour draindown volume due to power loss. The auditors observed these generators to verify they exist and are in good condition (visually) during the site visit. The auditors reviewed closed maintenance work orders related to the generators to verify compliance.

Standard of Practice 4.2: **Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 4.2**

☐ not in compliance with

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.2; introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

CC&V has performed metallurgical tests on the various ore types and sources to determine the optimal cyanide addition rates to the HGM. The HGM design criteria document indicates that the cyanide targets (pounds per ton [lb/t] free cyanide) are: 2 lb/t at the first leach tank and 1 lb/t at the last leach tank. No changes in ore characteristics have occurred since 2014 and therefore these targets are still current.

CC&V has evaluated control strategies for cyanide additions and currently implements a manual sampling strategy at the HGM. The manual strategy consists of conducting titration tests at four locations every four hours at the mill. The auditors reviewed examples of completed mill daily leach round reports as well as interview metallurgical personnel to confirm that the strategy was being used during the recertification period.

Standard of Practice 4.3:	**Implement a comprehensive water management program to protect against unintentional releases.**	
	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 4.3**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.3; implement a comprehensive water management program to protect against unintentional releases.

CC&V has updated the water balance model evaluated during the 2014 recertification audit to incorporate the new cyanide facilities (i.e., the HGM, ADR2, and VLF2) into the model. The current water balance is a probabilistic model, updated by Ecological Resource Consultants, Inc. in November 2015 using GoldSim. In addition, CC&V has developed an operational water balance in Excel to track the day-to-day operations. The auditors observed that the operational model and reviewed a technical memorandum summarizing the approach used for the development of the GoldSim model and the model results to verify compliance.

The water balance models are comprehensive in that they include: solution application rates and leach cycles; tonnage loaded, make up water; precipitation and evaporation; undiverted run on; maximum pumping rates and pond capacities; ore moisture contents; a 100 year 24 hour storm of 3.5 inches and a drain down volume resulting from 12 hours of power loss for the PSSAs. The model does not include power outage for the HGM because the effects would be negligible given that the HGM would simply shutdown in case of a power failure. The model conservatively considers no other solution losses than evaporation and ore moisture uptake. Freezing and thawing are of short duration in the mine area and therefore they effect is negligible and not considered. No solutions are treated for discharge. Groundwater is prevented from interacting with leach solutions by the liner systems. The GoldSim model is probabilistic since it was developed based on a stochastic analysis in GoldSim that represents input variables with distributions.

Operating procedures incorporate inspection and monitoring activities to implement water balance and prevent overtopping of the PSSAs and the ESP. CC&V has pond level indicators installed at all ponds and monitor pond levels every shift. Pond levels are automatically downloaded and integrated into the operational water balance model. Pond levels are also documented in the ADR solution reports. As indicated in the Permit M 1980 244, Cresson Project Mine Life Extension 2 and evaluated during the GoldSim model update in 2015, the PSSAs have adequate storage to hold the summation of the mine’s operating volume, along with the greater value of either the solution accumulation due to seasonal climatic variation at a 95% confidence level or the 100 year, 24 hour storm volume plus a drain down volume resulting from the 12 hours of power loss. As a criterion for evaluating adequacy of storage in each facility, five feet of freeboard is required to be maintained in each PSSA based on the model results. CC&V has developed an operating criterion for the PSSAs to maintain operating solution levels in each PSSA at 80 percent capacity or less, providing this way more than the recommended freeboard of 5 feet in each PSSA. The auditors reviewed examples of completed ADR solution reports and graphs of pond levels for the entire recertification period to confirm that the pond level monitoring and inspections were conducted and evaluated as required, and that that the maximum operating volume level was not exceeded throughout the recertification period. Only one exceedance of the total pond occurred in May 2015 at the VLF1 PSSA Phase 1 due to an expected rainfall event. Solution from PSSA Phase 1 overflowed into PSSA Phase 2, but no overflow from PSSA Phase 2 into the ESP occurred.

Precipitation data have been collected from 3 meteorological stations that represent site conditions (a historic station referred to as the Victor station with a data record from February 1966 through February 1976, a station established by CC&V on site near Bateman Creek with a data record since 1994, and most recently the Rigi station with a data record since 1999). During the recertification period, design assumptions were reviewed based on collected precipitation data in the area. Precipitation data from the historic station at Victor from 1966 through 2012 was used for the 2015 update of the GoldSim model. Precipitation data collected at these three stations is also used for the regular updates of the operational model.

Standard of Practice 4.4: **Implement measures to protect birds, other wildlife, and livestock from adverse effects of cyanide process solutions.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 4.4**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.4; implement measures to protect birds, other wildlife, and livestock from adverse effects of cyanide process solutions.

CCC&V has implemented measures to control bird, wildlife, and livestock access to process areas. No open waters whether the WAD cyanide concentration is greater than 50 mg/L are present at CC&V operations since all the PSSAs are subsurface per design. There is a small stormwater pond, located on VLF2 downgradient from the HGM building, and a small stormwater trench, located between ADR2 and the toe of VLF2. These two facilities only receive stormwater but have been covered with HPDE bird balls as a preventive measure in case solution would enter these structures during an extreme contingency condition in these process areas. The ESP, located at the southern (downgradient) side of VLF1, is not an operational pond, but process solution would be introduced to this pond during an extreme upset condition at the VLF1 PSSA. This pond only contains enough precipitation/freshwater to help maintain the pond bottom liner. No solution has been stored in this pond during the recertification period. The auditors reviewed analytical results from 2014 to 2016 for the ESP to confirm this.

CC&V has installed a fence around most of the property to prevent livestock access. The ESP is completed fenced.

CC&V has not experienced significant wildlife mortality during the recertification period. Three wildlife mortalities have occurred at different times during the recertification period and only one of them was related to cyanide during an upset condition. The auditors, therefore, consider each instance to be isolated. CC&V notified CPW of these mortalities as required in the Wildlife Protection Plan. The auditors reviewed the Cintellate report for these mortalities to verify compliance.

CC&V uses buried drip emitters to apply leach solution to the tops of the heaps to minimize freezing and ponding. Drip lines on the sides of heaps remain on the slope surface, where the potential for ponding is low due to the steep slopes. Overspray is effectively eliminated with the drip emitters. CC&V has developed procedures for control of ponding on the leach pads. These procedures described corrective measures to be applied to areas of standing process solution, which are defined as a surface area larger than 3 feet by 3 feet. Corrective measures include to level and rip the area as soon as possible, and employing fencing, bird balls, and/or netting where standing process solution cannot be avoided. The auditors did not observe ponding at the time of the site visit to confirm that operating procedures to prevent ponding are being implemented.

Standard of Practice 4.5: **Implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 4.5**

☐ not in compliance with

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.5; implement a comprehensive water management program to protect against unintentional releases.

CC&V operates with zero discharge of process solutions and no discharge of cyanide solutions to surface waters have occurred during the recertification period. Under the Discharge Permit Number CO0043648, CC&V is authorized to discharge from two outfalls: 1) Outfall 001A: discharge to the Arequa Gulch from the sedimentation pond (i.e., water from the VLF1 underdrain system), and 2) Outfall 005B: discharge of treated process water from the ESP to the Arequa Gulch if extraordinary storm events cause the ESP capacity to be exceeded. The auditors reviewed DMR reports for the certification period to confirm no discharge of cyanide solutions to surface waters.

CC&V does not have any indirect discharge of cyanide solutions to surface waters. CC&V operates with zero discharge of process solutions. CC&V monitors for cyanide in compliance points downstream from the cyanide process facilities at Stations AG 2.0, GV 02, GV 03, T 02, and WCSW 01. Analytical data from 2014 to 2016 from these stations showed that free cyanide concentrations are <0.010 mg/L (i.e., below laboratory detection limit). Therefore, no impact to beneficial uses has occurred.

Standard of Practice 4.6: **Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 4.6**

☐ not in compliance with

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.6; implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

CC&V has implemented measures to protect groundwater below and downgradient of the operation. Measures include:

- VLF facilities with zero discharge. The ore storage liner system of the VLFs consist of soil liner placed on a prepared subgrade and overlain by geomembrane, which is then overlain by a pipe drain system embedded in drainage cover fill material. The liner system within the PSSAs consists of soil liner, overlain by geomembrane, overlain by solution collection fill material, overlain by geomembrane, which is then overlain by drainage cover fill material. Additionally, the VLFs are equipped with leak detection and collection systems.
- All cyanide tanks and pipes have been designed with secondary containments such as concrete or lined containments. In addition, the entire perimeter of the cyanide facilities is lined with a geomembrane.
- CC&V conducts weekly inspections of the leak collection systems and VLF underdrains to ensure that the facility is functioning as designed and protective of the environment. Additionally, CC&V has installed several monitoring well immediately downgradient of the cyanide process facilities to monitor groundwater.

The regulatory numerical standard for cyanide in groundwater, applicable to CC&V, is 0.20 mg/L WAD cyanide based on five quarters of baseline data. CC&V currently monitors groundwater quality at 18 compliance wells surrounding the operation on a quarterly basis. Five groundwater compliance points were added to the monitoring network with the addition of the HGM, ADR2, and VLF2 to the CC&V operations. The auditor reviewed quarterly groundwater monitoring data from 2014 to 2016. Over this period, WAD cyanide concentrations at all 18 compliance wells were less than the detection limit (<0.01 mg/L).

Standard of Practice 4.7: **Provide spill prevention or containment measures for process tanks and pipelines.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.7**

☐ not in compliance with

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.7; provide spill prevention or containment measures for process tanks and pipelines.

CC&V has spill containment measures for all of the cyanide related storage and process tanks. No changes or modifications have been made to the secondary containments of ADR1 for cyanide storage tanks, process tanks, and process columns since the 2014 recertification audit. The 2014 recertification audit indicate that all cyanide storage and process tanks at ADR1 are provided with concrete and/or lined secondary containment. A geomembrane liner, keyed to the VLF1 liner system, underlies the entire ADR1, including the Cyanide Offload/Storage Facility. The liner serves as tertiary containment for the concrete secondary containment facilities. The auditors observed that these containments were still in good condition and suitable for use.

Regarding the new cyanide facilities, the secondary containments of the HGM, ADR2, and PSES area for cyanide storage tanks, process tanks, and/or process columns have also been all designed and constructed with secondary containment measures. At the HGM, all cyanide tanks and process solution tanks have reinforced concrete secondary containment. The HGM building is also lined with a LLDPE geomembrane that serves as tertiary containment. At ADR2, all cyanide tanks and process solution tanks have reinforced concrete secondary containment. The barren solution tank is located outside the ADR2 building within the LLDPE geomembrane lined area. The liner serves as tertiary containment for the concrete secondary containment. At the PSES Plant, all process solution tanks have reinforced concrete secondary containment and/or lined containments. The tanks located outside the PSES building such as the clarifier, thickener and stabilization tanks are within the LLDPE geomembrane lined area. The liner serves as tertiary containment for the concrete secondary containment inside the building.

CC&V has adequately sized spill containment measures for all new cyanide and process solution tanks at HGM, ADR2, and PSES Plant. The auditors reviewed volume calculations to verify compliance. CC&V has adequately sized spill containment measures for all cyanide and process solution tanks at ADR1, as accepted in the 2014 recertification audit and previous audits. No changes to the ADR2 secondary containments have occurred since the 2014 rectification audit.

CC&V has implemented procedures to prevent discharge to the environment of any cyanide solution or cyanide contaminated water that is collected in the secondary containment area. Measures include concrete floor sumps with dedicated pumps to return any cyanide solution to the process circuits. In the case of outside tanks with lined secondary containment area, any cyanide solution spilled from these tanks will be collected in the lined secondary containment area, sloped to drain to the VLF liner systems for solution recovery.

CC&V has constructed all cyanide and process solution pipelines at within concrete or geomembrane lined secondary containment. As described in the 2014 recertification audit report, the nearest perennial stream is Cripple Creek, located approximately two miles south of the operation and therefore, no areas exist where cyanide pipelines present a risk to surface water.

Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions. Concerning tanks and pipelines of ADR1 and VLF1, the 2014 recertification audit report states that "CC&V uses carbon steel, stainless steel, HDPE, and polyvinyl chloride ("PVC") piping materials and piping system components. All cyanide process tanks are constructed of carbon steel." Regarding tanks and pipelines for the new cyanide facilities (i.e., the HGM, ADR2, PSES Plant, and VLF2), all cyanide pipelines were constructed of carbon steel and HDPE. Cyanide tanks were constructed of carbon steel. The auditors reviewed design, as built and QA/QC documentation to verify compliance.

Standard of Practice 4.8: **Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 4.8**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.8; implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

The existence and contents of the construction QA/QC programs implemented for the cyanide facilities, constructed and in operation at the time of the 2007 initial certification audit and the 2010 and 2014 recertification audits, were evaluated and found compliant during those audits.

QA/QC programs have also been implemented during construction of the cyanide facilities that are new since the previous recertification audit. The auditors reviewed record of construction reports, which include as built drawings, QA/QC completion reports, QA/QC testing results, and Commission Packages.

CC&V has implemented QA/QC programs that address the suitability of materials, adequacy of soil compaction for earthworks, and installation of geomembrane liners. QA/QC documentation describe the parties involved, QA/QC activities and testing, design modifications, and as built drawings.

CC&V has retained design, as-built, and construction QA/QC records for all cyanide facilities on site (including new and existing cyanide facilities). The auditors spot checked the list of evidence from the 2014, 2010 and 2007 audits against the hard and electronic copies on site to verify documents were retained.

Appropriately qualified personnel reviewed and approved the construction projects completed during the recertification period including professional engineers and CC&V project Superintendent and QA/QC. QA/QC reports, signed and stamped by professional engineers, state that the projects were constructed in general accordance with the approved design and specifications, as such meets the design intent.

Standard of Practice 4.9: **Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface, and groundwater quality.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 4.9**
	☐ not in compliance with	

Summarize the basis for this finding:

The operation is in FULL COMPLIANCE with Standard of Practice 4.9; implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface, and groundwater quality.

CC&V has developed written procedures for water sampling and wildlife monitoring. The document entitled "Environmental Sampling Protocol Guide" and the Sample Prep & Shipping Summary specify the details of how samples should be taken, decontamination of sampling equipment, sample preservation techniques, shipping instructions, chain of custody procedures, chain of custody, sample shipment considerations, and sample labelling. The 2017 January Sampling Schedule describes the surface water and monitoring stations and the monitoring frequency. Permit M 1980 244, Cresson Project Mine Life Extension 2, and the analytical request form include monitoring parameters for ground water and surface water including the cyanide species to be analyzed. The Procedure 30 for Leach Pad Tasks and the Wildlife Protection Plan include preventative measures for protecting wildlife (e.g., addressing ponding at the VLF areas) as well as procedures for wildlife fatality monitoring and reporting.

The Environmental Sampling Protocol Guide was developed using EPA protocols and by the CC&V Environmental Resources Manager and the CC&V Environmental Compliance Control Administer, appropriately qualified personnel.

CC&V monitors groundwater and surface water on a quarterly frequency as required by Permit M 1980 244, Cresson Project Mine Life Extension 2. In addition, CC&V monitors the leak collection systems at the PSSAs of the VLFs and the ESP as well as the leak collection systems and underdrains at the VLF ore placement areas on a weekly basis. Operations also conducts inspections of the leak collection systems every shift. CC&V monitors wildlife on a daily basis. These frequencies are adequate to characterize the media being monitored.

The auditors reviewed examples of field forms and chain of custody forms, water analytical data, completed wildlife mortality reports, and monitoring procedures to verify compliance.

PRINCIPLE 5 – DECOMMISSIONING

Protect Communities and the Environment from Cyanide through Development and Implementation of Decommissioning Plans for Cyanide Facilities

Standard of Practice 5.1: **Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife, and livestock.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 5.1**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 5.1, requiring that a decommissioning plan is developed and implemented for effective closure of cyanide facilities to protect human health, wildlife, and livestock.

The operation has developed written procedures related to the decommissioning of cyanide facilities.

The operation has a Mine Land Reclamation Permit that contains decommissioning procedures that are revised with each permit amendment. Each amendment address new constructions and alterations to site therefore the cyanide facilities are addressed in each amendment. The permit references previous approved rinsing criteria for WAD cyanide.

There is a schedule in Volume 1 of the Permit Amendment that contains a general schedule of activities for each area, including details on reclamation as well as a table providing more details on duration.

Each Newmont operation has a Closure Reclamation Life of Mine spreadsheet that includes closure/decommissioning information for each facility/landform, including cyanide facilities.

A yearly cost for closure/decommissioning is listed for each facility in this spreadsheet, which is based on closure scheduling. The operation does review its decommissioning procedures during the life of the operation. Each time a Permit Amendment is submitted the operation undertakes a review of the reclamation and closure procedures listed. In addition, part of the annual review of the closure costs includes a review of the activity schedule.

Standard of Practice 5.2: **Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 5.2**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 5.2, requiring that operation establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

The Operation has developed a cost estimate to fully fund third party implementation of the cyanide related decommissioning measures.

The Operation uses the Closure Reclamation Life of Mine Spreadsheet, which includes costings for revegetation and stabilization as well as cyanide facilities. This spreadsheet is reviewed annually as part of the business processes.

The costings are based on a schedule and also undergo a consultant's review each time an Amendment application is submitted.

The Division of Reclamation, Mining and Safety (DRMS), approves all cost models as part of the permitting approvals process. The review was last completed in 2015 for Amendment 11, as well as in 2008, 2010, and 2011.

The DRMS implements a performance bond system. This system is the full liability that is calculated for reclamation of all major project facilities and for reclamation of affected acreage for ancillary activities.

A revised closure and reclamation financial warranty estimate is submitted with each Amendment application to the DRMS. The DRMS then reviews the current and revises liability and requires the proponent to adjust the bond amounts held accordingly.

The Auditor reviewed the revised bond amount provided to CC&V from DRMS based on the Amendment 11 application. The amount that is required to be held is more than the cost estimated in Closure Reclamation Life of Mine Spread Sheet, adequately covering the costs of cyanide decommission activities.

PRINCIPLE 6 – WORKER SAFETY

Protect Workers' Health and Safety from Exposure to Cyanide

Standard of Practice 6.1:	**Identify potential cyanide exposure scenarios and take measures as necessary to eliminated, reduce and control them.**	
	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 6.1**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 6.1 requiring an operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce, and control them.

The operation has developed procedures describing how cyanide related tasks such unloading, mixing, plant operations, entry into confined spaces, and equipment decontamination prior to maintenance should be conducted to minimize worker exposure.

The operation has developed a set of 32 procedures "Cyanide Code Procedures – CC&V" which provides training in specific areas where employees are exposed to cyanide. Each of the 32 procedures are allocated to one work area where exposure may occur, including: All, ADR1 and ADR2 operators; HG Mill Operators; Assay Lab/Met Lab Technicians; Maintenance Personnel; Leach Pad Operators; Admin Personnel; and CN Drivers.

The procedures reviewed require personnel to don appropriate PPE and to conduct pre work inspections. Procedure 2. Personal Protective Equipment is a training requirement for all work areas. It details the specific PPE to use in standard conditions as well as in spill cleanup/HCN/CN detox conditions. Additionally, other procedures refer the reader to Procedure 2 where and when required.

The requirement for PPE is also signposted around the work areas.

Pre work inspections are completed each shift for each work area.

The operation has procedures to review proposed process and operational changes and modifications for their potential impacts on worker health and safety, and incorporate the necessary worker protection measures.

CC&V uses the Newmont corporate procedure for management of change as well as the Corporate Management of Change Procedure/Guidance. The purpose of these procedures is to ensure that new or modified projects, processes, materials, equipment, systems, programs, or resources are evaluated and controlled before being implemented. The approved change is communicated to workers and training is provided, if necessary, prior to the change implementation.

The auditors reviewed examples of completed management of change forms and risk assessments since Newmont becomes the operator of CC&V in late 2015 to verify compliance.

The operation does solicit and y considers worker input in developing and evaluating health and safety procedures. CC&V has several processes where worker input is solicited. CC&V has an SOS program, See it, Own it, Solve it. In addition to the SOS program, there are short daily safety meetings and monthly safety meetings. Both meetings allow workers to provide input into the procedures and safety onsite.

Standard of Practice 6.2:	**Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.**	
	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 6.2**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 6.2 requiring the operation operate and monitor cyanide facilities to protect worker health and safety and periodically evaluates the effectiveness of health and safety measures.

The operation has determined the appropriate pH for limiting the evolution of HCN gas during mixing and production activities. The operations procedures detail the importance of maintaining the solutions above pH 10 to minimize the potential for HCN gas formation. The pH levels are monitored in the control room and samples are taken with a pH monitor to confirm instrumentation is working effectively.

The operation uses a combination of fixed and personal monitors for HCN level monitoring. A fixed HCN detection system, SensAlert, is in place at the operation. The monitors are located at the ADR1, ARD2, PSES, and the HG Mill. The operation also utilizes portable gas monitors, MX6 multi gas detectors, which are used the measure HCN in the person's immediate environment. They are available for use in the ADR control rooms, PSES control room, Process Laboratory, Crusher control room, Millwright shop and in the warehouse. Both the fixed and portable units alarm at 4.7 ppm low and 10.0 ppm high.

CC&V has identified activities and areas where the exposure to harmful concentrations of cyanide is possible. For such activities, the operation has operating procedure, Procedure 2 for Personal Protective Equipment in place that state the PPE requirements for key activities in both standard conditions and spill cleanup/HCN/CN detox conditions. Example of conditions where a portable HCN monitor is required include, Solution > 1%, Truck Unloading, Solution Precipitate, Dry Process and H2O2 CN Detox. Example of where SCBA is required is HCN Gas > 10ppm.

The operation has a procedure that dictates what personnel must do when the HCN monitor alarm sounds. The HCN monitors, both static and personal, are set to alarm at 4.7 ppm and 10 ppm. The operation has dictated the actions to be taken in the event of an alarm including actions to re-enter the area.

Portable and fixed HCN monitors are maintained, tested, and calibrated as per manufacturer requirements. All fixed monitors are calibrated monthly as part of the preventative maintenance program and there is a relevant Cyanide Code Procedure. All portable monitors are calibrated when docked through an online system. Calibration records and preventative maintenance records were sighted by the Auditor.

Warning signs in English have been placed where cyanide is used, advising workers that cyanide is present. There is also a specific procedure detailing the required PPE for activities in standard and spill conditions. No smoking signs are posted throughout the operational areas.

Showers, low-pressure eyewash stations, and dry powder fire extinguishers are strategically located throughout the operation in the cyanide areas. The showers and eyewash stations are checked daily and monthly and the fire extinguishers monthly.

The operations labelled cyanide tanks and lines and clearly indicated by strategically placed signage that cyanide is present. Additionally, Danger Cyanide signage is located at the entrances to all facilities where cyanide is present.

Safety Date Sheets (SDS), first aid procedures, and informational materials on cyanide safety were available in the language of the workforce in areas where cyanide is managed. SDSs (as part of the ERP) are located in each of the control rooms and intranet. First aid materials and information on cyanide safety is included in the Cyanide Code Procedures that a copy is kept in every control room, with each foreman, and also on the intranet.

Procedures are in place to investigate and evaluate cyanide exposure incidents to determine if the operations programs and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need revising. CC&V has an incident reporting and investigation procedure used for all incidents and an electronic database for recording the incidents and investigations.

Standard of Practice 6.3: **Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 6.3**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 6.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation does have water, oxygen, a resuscitator, antidote kits, and a means of the communication in the event of an emergency readily available.

The operation has necessary response and communication equipment readily available for use at cyanide unloading, storage and mixing locations including radio, Cyanokits, and emergency oxygen supply. PPE and safety showers are also available.

Communication in the event of an emergency is primarily via radio with mobile phone (backup). Alarms in the plant areas indicate when to evacuate the area.

The operation does inspect its first aid equipment regularly to ensure that it is available when needed. Cyanide antidotes are stored as directed by their manufacturer. The operation has three cyanide antidote kits (Cyanokits) on site (Mill, ADR1, and ADR2). The kits are stored in the air-conditioned control rooms along with oxygen. They are both checked regularly by mine response team members as part of their monthly inspections. The operation has established a program of inspections for medical equipment and first aid supplies on a rotational basis and includes the ambulance and medical clinic.

The operation has developed specific written emergency response plans or procedures to respond to cyanide exposures. The procedure provides specific guidance to all employees what to do in the event of an emergency related to cyanide exposure. All personnel are required to be trained in this procedure. It covers emergency calling, PPE, removal of victim to safe area, removal of clothing, showering, provision of oxygen, and how to clear the area. The auditor interviewed several personnel onsite about the emergency process and they responded correctly.

There is further specific guidance and training provided to all Mine Rescue Team (MRT) personnel.

The operation does have its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide. The MRT are the primary responders to an emergency, however all processing personnel are instructed in the actions to take in the event of a cyanide exposure. The MRT has the capability to provide basic cyanide first aid including decontamination and the administering of oxygen. At least two MRT personnel are on site at all times that can undertake this role.

Three MRT personnel, including the Emergency Response Coordinator, have completed sufficient training and are qualified to administer IV and therefore the Cyanokit. The auditor was advised that a fourth is being trained.

The South West Teller County Emergency Medical Service (Ambulance) is located in Cripple Creek CO about 5 to 7 mins away. They have paramedics available 24/7 who can administer the antidote if needed. They are also provide patient transfer.

A Medical Emergency Response Vehicle contains general first aid and rescue equipment. First aid related to cyanide exposure, e.g., cyanide antidote kit and oxygen is locate at the three locations where a likely exposure will occur (ADR1, ADR2, and Mill).

The operation has agreements with local facilities and will be able to utilize the local ambulance service to transport patients to these facilities. The operation is confident that the medical facility is aware of their need to treat patients for cyanide exposure and has the appropriately qualified staff and equipment to deal with an exposure.

Mock emergency drills conducted are periodically to test response procedures for various cyanide exposure scenarios, and lessons learned from the drills are incorporated into response planning. The operation has undertaken a number of worker exposure exercises in addition to the routine skills training undertaken by the MRT. The operation undertakes a drill at least six monthly that includes either the Mill, ADR1 or ADR2 and the MRT. The recording of the drill includes a summary of the drill (positives and negatives, corrective actions). All drills are unannounced. Roundtable Scenarios (CC&V coordinated meeting to discuss the ERP and responders role) have been conducted with outside responders to ensure they are prepared to assist in a cyanide emergency. Attendees at these scenarios included those parties allocated a role in the ERP, e.g., Cyanco, Teller County Emergency Services.

PRINCIPLE 7 – EMERGENCY RESPONSE

Protect Communities and the Environment through the Development of Emergency Response Strategies and Capabilities

Standard of Practice 7.1: **Prepare detailed emergency response plans for potential cyanide releases.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 7.1**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation uses several emergency documents to address potential releases of cyanide, the key document being the ERP. These documents combined provide guidance for responding to cyanide emergencies.

The ERP does consider the potential cyanide failure scenarios appropriate for its site-specific environmental and operating circumstances. The ERP outlines general responses to cyanide releases and also has specific response information for different scenarios identified as being specific to this site.

The information provided details the response actions of MRT personnel and considers on site transportation emergencies. The ERP does describe specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures.

Standard of Practice 7.2: **Involve site personnel and stakeholders in the planning process.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 7.2**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.2 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has involved its workforce and stakeholders, including potentially affect communities, in the cyanide emergency response planning process. This was undertaken continually through several methods.

The operation has in place mechanisms to consult with its workforce who are the main stakeholders for cyanide related emergencies. Additionally, the workforce are involved in the planning process through the participation in drills and the discussions that occur after the event as well as training presentations on the ERP.

The community and outside stakeholders are involved in a number of ways, including Roundtable Scenarios (CC&V coordinated meeting to discuss the ERP and responders role) Attendees at these scenarios included those parties allocated a role in the ERP, e.g., Cyanco, Teller County Emergency Services.

Additionally, the Emergency Response Coordinator's attendance at the Teller County EMS Council, LEPC, and Teller County Chiefs meetings provided additional clarification on their expected responses to cyanide emergencies as well as CC&V's responsibilities.

The operation engages its workforce through mock exercises and through Health and Safety Management System Meetings where revisions to procedures and plans are discussed.

The ERP was revised during the audit period, and evidence was provided that the updated document was communicated to the workforce.

Standard of Practice 7.3: **Designate appropriate personnel and commit necessary equipment and resources for emergency response.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.3**

☐ not in compliance with

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The elements of the ERP and procedures do:

- Designate primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the plan and identifies emergency response teams. Emergency Response Team Members list is located with Security and senior personnel. This list is updated when needed and identifies the lead MRT members, Trainer/Coordinator and Team Captains.
- Require appropriate training for emergency responders. The ERP and the *North America Mine Rescue Team Procedure* details the minimum training requirements for Mine Rescue Team members.
- Include call-out procedures and 24-hour contact information for the coordinators and response team members. Appendix A of the ERP contains information regarding who to call in an emergency and lists numbers for key personnel. Additionally the Emergency Response Team Members list contains key numbers.
- Specify the duties and responsibilities of the coordinators and team members. Section 4.2 of the ERP details the responsible roles and positions holders. It provides details on the role of Emergency Response Trainer/Coordinator; Emergency Team Captains and Emergency response Team. In addition to this, the *North American Mine Rescue Team Procedure* provides addition clarification on roles and responsibilities.
- List emergency response equipment, including personal protection gear, available along transportation routes and/or on site. No written procedures exist, but an informal process is in place where each MRT member is required to undertake inspections. Completed inspections were reviewed by the Auditor.
- Describes the role of outside responders, medical facilities, and communities in the emergency response procedures.

Outside responders are delegated a role in emergency response in the ERP including, treatment, transport and onsite response. Representatives from facilities have participated in drills and desktop exercises as well as providing a written commitment to assist in an emergency.

Standard of Practice 7.4: **Develop procedures for internal and external emergency notification and reporting.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 7.41

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.4 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation's emergency documentation includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.

The ERP details the Communication and Emergency Notification and callout process. Notification of and numbers for contacting management, regulatory agencies, outside responders and medical facilities are detailed. Appendix A and B contain key contact numbers. Contact numbers for the MRT is included in the Emergency Response Teams Sheet.

CC&V would implement the Newmont Rapid Response incident management in the event of a serious incident. Cyanide emergencies are always classified high in this system. This system details the procedures for notifying outside stakeholders, including any affected communities.

For incidents outside the gates of the operation, Cyanco would be involved and would lead the incident response process.

Standard of Practice 7.5: **Incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 7.5

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.5 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has a specific procedure that provides information related to Remediation and Monitoring Measures for Cyanide Spills and Releases. This procedure addresses specific responses that related back to those listed in the ERP.

The procedure provides the following guidance:

- Any pools or puddles of pumpable solution will be pumped to one of the ADR facilities or into the Mill circuit, whichever is closer. All Affected soil will be placed on the VLF in consultation with environmental and processing personnel. All contaminated soils will be excavated in large scopes and will be removed in layers and disposed of until all contaminated soil has been removed and soil sampling indicates that the freshly exposed earth is below the 0.20-ppm WAD CN limit.
- The procedure states that the rare event that the only option for cleanup and remediation is neutralization, CC&V stores calcium hypochlorite in several different locations throughout the mine site. Detailed information on storage locations of Calcium Hypochlorite and the use of calcium hypochlorite can be found in CC&V's Cyanide Code Procedures document, Procedure 4.

- Decontamination and washing of tools and equipment used in incident response will be in an area where wash water will enter one of the ADR sumps or the HGM sump. It advises to thoroughly wash all PVC and rubber PPE, shovels, Loader bucket, tires etc. with process water initially, then rinse with fresh water. Following completion of the recovery operation and removal of wet weather PPE, the disposable overalls shall be burnt with the persons burning standing upwind.
- Monitoring of soils and groundwater, including details regarding soil sampling, sampling locations and what to do if groundwater is observed above 0.20 ppm WAD. Cleanup of the release is completed when the analysis results are <0.20 ppm WAD CN.

Provision of an alternate drinking water supply is not addressed as no drinking water supplies are in proximity to the operation.

Standard of Practice 7.6:	**Periodically evaluate response procedures and capabilities and revise them as needed.**	
	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 7.6**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 7.6 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation does review and evaluate the cyanide related elements of its emergency response plan for adequacy on a regular basis. The ERP requires regular audits of the plan to keep the plan current as well as reviewing the plan annually or after emergencies. Ownership by Newmont commenced in January 2016 and the ERP was updated in December 2016 and again in January and May 2017.

The operation conducted a number of cyanide exposure drills as part of its emergency response plan evaluation during the audit period including spill response, worker rescue, and fire. The mock drills are conducted at varying scales and debrief reports are compiled following each exercise.

The operation undertakes a drill at least six monthly that includes either the Mill, ADR1 or ADR2 and the MRT. The drill report includes a summary of the drill (positives and negatives, corrective actions). All drills are unannounced.

Provisions are in place to evaluate and revise the emergency response plan after any cyanide related emergency requiring its implementation. The plan requires members of the operation to conduct a formal investigation of the incident including identification of immediate and root causes, corrective actions and communication of the findings. The operation has not needed to implement the plan during the audit period.

PRINCIPLE 8 – TRAINING

Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner

Standard of Practice 8.1: **Train workers to understand the hazards associated with cyanide use.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 8.1**

☐ not in compliance with

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 8.1 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation provides training for employees and contractors who encounter cyanide. Inductions include Cyanide Awareness Training (NaCN Handle with Care) and Annual Refresher Training, which includes cyanide awareness and associated hazard identification. All employees have to complete this training. The Auditor reviewed the April 2017 refresher training package as well as attendee sheets.

Additionally, foremen from each working area run through the Cyanide Code Procedures and discuss updates/reviews and key messages yearly. This is completed as part of the Health and Safety Management System Meeting.

Training records have been retained. The operation keeps hard copies and some work areas maintain an electronic database. A review of training records for personnel across processing and maintenance revealed that records are maintained.

Standard of Practice 8.2: **Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.**

☒ **in full compliance with**

CC&V is: ☐ in substantial compliance with **Standard of Practice 8.2**

☐ not in compliance with

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 8.2 requiring an operation train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation does train workers to perform their normal production tasks, including unloading, mixing, production, and maintenance with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases.

New starters complete a general induction that provides information on safety and the environment including hazard and risk assessment tools (JHA, etc.).

Once inductions are completed personnel move to task specific training. For ADR1 and 2 new starters they begin at the 'low risk areas' (crusher) before progressing to ADR. When they start they focus on the "all" required cyanide procedures and then progress to area and role specific cyanide procedures. For Mill new starters they begin at the filter area and then progress to higher risk areas. All new starters work in a buddy system in each new area before being signed off as ready to work alone and ready to move onto new skill. The Supervisor will sign off on each of the procedures.

The procedures contain step-by-step instructions on how to perform each task, as well as pertinent health, safety and environment information.

Personnel are not permitted to work unsupervised until they have been deemed competent on the tasks and the supervisor is satisfied they understand the task and work area. The training and signoff by the supervisor is supported by the 5000 23 Mine Safety and Health Administration (MSHA) Certificate of Training Form. This form provides a means for mine operators to record and certify Part 48 mandatory training received by miners. It is a requirement that only a competent trainer signs off on completed training.

Foremen from each working area run through the Cyanide Code Procedures discuss updates/reviews and key messages with their teams yearly. This is completed as part of the Health and Safety Management System Meeting.

The Emergency Response Coordinator conducts the refresher cyanide awareness training, which includes knowledge assessment and practical evaluation. The on the job training follows a buddy system which includes observation and demonstration as part of the assessment process. The supervisors informed the Auditor that they verbally and visually confirms that the operator is competent in the role before signing of that they have completed each individual cyanide procedure.

Hard copy files of training records are kept with each area Foreman. Some records are also being tracked on the online SAP system. A review of a random sample of training files of personnel from ADR 1 and 2, Mill and Maintenance showed that records are retained.

Standard of Practice 8.3: **Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.**

	☒ **in full compliance with**	
CC&V is:	☐ in substantial compliance with	**Standard of Practice 8.3**
	☐ not in compliance with	

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 8.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

Cyanide unloading, mixing, production and maintenance personnel are trained in the procedures to be followed if cyanide is released. All personnel working are trained in the Cyanide Code Procedure 3 (Emergency Response Procedure); Procedure 4 (Cyanide Spillage) as well as the ERP. All personnel also receive instruction and training on emergency response and raising the alarm. The primary response actions for personnel are to raise the alarm and evacuate the area. The auditor confirmed this through interviews with personnel.

The MRT members will be called to respond to an incident. They are trained in the process in the ERP and have undertaken specific MRT training scenarios as well as participating in operation wide drills. Site personnel, including unloading, mixing, production and maintenance workers, are trained in decontamination and first aid procedures and take part in routine drills to test and improve their response skills.

The MRT are the primary responders and undertake regular skills training. The MRT have regular training in both the theory and practical aspects of emergency response. General response to chemical incidents is covered through external hazardous materials training and site-specific training and equipment use is undertaken through practical training and mock exercises.

Outside responders do have a role in providing support in an emergency and the operation has made offsite emergency responders familiar with their roles. The role of the outside responders and medical facilities is communicated and clarified in the desktop exercises (roundtables) and the Emergency Coordinators attendance at community/stakeholder meetings. . Communication between the Emergency Response Coordinator and facilities has been provided confirming their acceptance to assist in an emergency.

Refresher training on cyanide management is provided to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. The Operation provides Cyanide Awareness Induction as well as an annual refresher, which all personnel complete.

The operation undertakes a drill at least six monthly that includes either the Mill, ADR1 or ADR2 and the MRT. The recording of the drill includes a summary of the drill (positives and negatives, corrective actions). All drills are unannounced. A review of the drills completed showed they included worker exposure and a spill (environmental release). Cyanide emergency drills are evaluated from a training perspective to determine if personnel have the knowledge and skills required for effective response. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. Learnings from the drill are communicated during safety meetings.

Records retained throughout an individual’s employment documenting the training they receive. The records include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials. Hard copy files of training records are kept with each area Foreman. Some records are also being tracked on the online SAP system. The Emergency Response Coordinator scans and keeps all electronic copies of training certificates as well as tracking their expiry on a spreadsheet. This allows him to track each EMT member’s level of training and therefore what role they can have in an emergency incident. A review of a sample of training files of personnel from ADR 1 and 2, Mill, Maintenance, and MRT members showed that records are retained.

PRINCIPLE 9 – DIALOGUE

Engage in Public Consultation and Disclosure

Standard of Practice 9.1: **Provide stakeholders the opportunity to communicate issues of concern.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 9.1

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 9.1 requiring an operation to provide opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

The operation undertakes a large amount of community consultation and activities that provide its external stakeholders opportunities to communicate issues of concern regarding the management of cyanide. These avenues include the Visitor Centre in Cripple Creek, an open door policy, quarterly community breakfasts, monthly city meetings, membership in the Chamber of Commerce a Facebook page, and open houses. Internal stakeholders have many avenues open to communicate concerns, including regular health and safety meetings.

Standard of Practice 9.2: **Initiate dialogue describing cyanide management procedures and responsively address identified concerns.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 9.2

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 9.2 requiring an operation to initiate dialogue describing cyanide management procedures and responsively addressing identified concerns.

CC&V has created opportunities for the operation to interact with stakeholders and provide them with information regarding cyanide management practices and procedures. These opportunities include the Visitor Centre in Cripple Creek, an open door policy, quarterly community breakfasts, monthly city meetings, membership in the Chamber of Commerce a Facebook page, open houses, mine tours, and fact sheets. Internal stakeholders have many avenues open to communicate concerns, including regular health and safety meetings and newsletters.

Standard of Practice 9.3: **Make appropriate operational and environmental information regarding cyanide available to stakeholders.**

CC&V is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

Standard of Practice 9.3

Summarize the basis for this finding:

CC&V is in FULL COMPLIANCE with Standard of Practice 9.3 requiring an operation make appropriate operational and environmental information regarding cyanide to stakeholders.

CC&V has developed written descriptions, fact sheets and site brochures of how their activities are conducted and how cyanide is managed. These are available to employees and local communities and interested parties through the tours and visitors centers. CC&V also disseminates information in verbally via meetings, open houses, and mine tours. The operation has the mechanisms to make information publicly available on the cyanide release or exposure incidents.

Newmont's website Beyond the Mine includes a sustainability report, which reports on Cyanide management including incidents and code summary data. This data provides information to the public on incidents and releases.

CC&V are required to report any actual or potential cyanide releases or exposure incidents to regulators as part of their licensing requirements.

The Environmental Coordinator provided additional information on the spills that were reported to the regulating body and listed on the website. These spills were not classified as a cyanide related event.

Report Signature Page

GOLDER ASSOCIATES INC.

Jaclyn Ennis-John
Lead Auditor, Gold Mining & Transport Technical Specialist

Ivon Aguinaga
Gold Mining Technical Specialist

JEJ/IA/rjg

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For more information, visit golder.com

Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 44 1628 851851
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228 USA
Tel: (303) 980-0540
Fax: (303) 985-2080

Golder Associates