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**INTERNATIONAL CYANIDE MANAGEMENT CODE  
MINING OPERATION RECERTIFICATION AUDIT  
NEWMONT CARLIN OPERATIONS**

**SUMMARY AUDIT  
REPORT**

*Submitted to:*

*International Cyanide Management Institute  
1400 I Street NW, Suite 550  
Washington, D.C. 20005*

*and*

*Newmont Carlin Operations  
1655 Mountain City Highway  
Elko, NV 89801  
United States of America*

*Submitted by:*

*ERM-West, Inc.  
136 E South Temple Street, Suite 2150  
Salt Lake City, Utah 84111*

**CARLIN OPERATIONS  
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### LOCATION AND DESCRIPTION OF OPERATION

Name of Project: Carlin Operations

Project Owner/Operator: Newmont USA Limited

Name of Responsible Manager: Gordon Mountford

Address and Contact Information: Carlin Operations, 1655 Mountain City Highway, Elko, NV 89801, United States of America

[gordon.mountford@newmont.com](mailto:gordon.mountford@newmont.com)

Newmont USA Limited (Newmont) operates the Carlin Operations consisting of the Carlin and Emigrant Mines. The two mines operate in conjunction with each other sharing staff and resources.

### Carlin Mine

The Carlin Mine is located in north-central Eureka County, Nevada, between 6 and 21 miles north of the town of Carlin and 35 to 40 miles west of Elko. Mining originally began in 1965 in the Carlin and Gold Quarry open pits, and then extended to underground mining in 1994.

Carlin is separated into the North and South Areas that are connected by a haul road and a public highway. The South Area is located in Eureka County, Nevada and consists of the following active facilities:

- The Gold Quarry open pit
- The Chukar underground mine
- Mill 5 including the reagent building, carbon in leach circuit (CIL), carbon in pulp (CIP) circuit, process laboratory, magnetic separator, and the carbon stripping circuit and regeneration kilns
- Mill 6 including the double rotating mill and roasters
- Mill 5/6 Central and West Tailings Storage Facilities (TSF) and the East Expansion (under construction) and associated slurry and reclaim pipelines
- Tailings Booster Pump Houses #1 and #2
- Caro's Acid Plant (located at the Tailings Booster Pump House #1)
- Dry Stack TSF (for tailings relocated from the James Creek TSF due to pit expansion)
- Refinery
- Metallurgical and assay laboratories
- South Area Leach (SAL) Facility – Property Pad and Non-Property Pad, including the pads, carbon in column (CIC) plant, process laboratory, ponds, and pipelines
- Overburden piles, topsoil stockpiles, access roads, and haul roads
- Support facilities such as warehouses, administration buildings, truck shops, maintenance shops, and fueling facilities

The South Area includes the following inactive or closed facilities:

- James Creek TSF (inactive and draining down, but used occasionally for upset conditions from the
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Tailings Booster Pump House #1)

- Gold Quarry Leach Facility (closed)
- Commercial Refractory Leach Facility (closed)

The circuits at the South Area include Mill 5, Mill 6, and two heap leach pads served by a single plant. Mill 5 is a pyrite floatation plant that processes sulfide and oxide ores that are ground in a sag mill and ball mills. The material is then sent to the floatation circuit where the sulfides are floated and dried for later processing in the autoclave or roaster. The oxide material remaining after floatation is sent to a set of CIL tanks for gold recovery. Mill 6 consists of a double rotating mill and a roaster; sulfide material is fed to the roaster where the sulfides are volatilized. Material leaving the roaster is sent to a set of CIL tanks at Mill 5 for processing. Tailings from both CIL circuits is combined and sent through a Caro's Acid cyanide destruction circuit before disposal in the Mill 5/6 tailing storage facility. Gold-bearing solution from the South Area Leach Facility (i.e., Property and Non-Property Pads) drains to a series of pregnant ponds. Solutions from the pregnant ponds are pumped via pipeline to carbon-in column (CIC) circuits at South Area plant. Loaded carbon is transferred to the carbon handling facility and refinery for further processing.

The North Area is located in Eureka County, Nevada and consists of the following active facilities:

- East Carlin, Gold Quarry, Blue Star, and Silver Star open pit mines
- Chukar, Leeville, Pete Bajo, Exodus, and Turf underground mines
- North Area Leach (NAL) Facility, including the pad, CIC facility, process laboratory, ponds, and pipelines
- The Leeville Water Treatment Plant
- Overburden piles, topsoil stockpiles, access roads, and haul roads
- Support facilities such as warehouses, administration buildings, truck shops, maintenance shops, and fueling facilities

The North Area includes the following inactive or closed facilities:

- Mill 4/2 TSF (inactive and draining down)
- The Post 1 Leach Pad (inactive and draining down)

The circuits at the North Area include a heap leach pad and plant. The gold-bearing solution from the North Area Leach drains to a series of pregnant ponds. Solutions from the pregnant ponds are pumped via pipeline to the CIC circuit at North Area plant. Loaded carbon is transferred to the carbon handling facility at the South Area and refinery for further processing.

The Carlin Mine experienced cyanide incidents during the previous 3-year audit cycle. These incidents have not been "significant cyanide incidents" subject to the notification requirements in Item 6 of the ICMC signatory application; they do not affect the compliance status. These incidents did not involve worker exposures to cyanide. Rather, these incidents have been minor releases of cyanide-bearing solutions to soil that have been reported to regulators.

### **Emigrant Mine**

The Emigrant Mine is located in southwest Elko County, Nevada, approximately 12 miles south of the Town of Carlin and approximately 35 miles west of Elko. The Mine is located on the eastern slopes of the Piñon Range in the Dixie Creek Basin and processing facilities are located at elevations ranging from approximately 5,700 to 6,600 feet above mean sea level.

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The Emigrant Mine consists of a single multi-phase open pit mine, a three-phase heap leach pad, a process building with a carbon-in-column (CIC) plant for extraction of gold and associated metals, a pregnant solution tank, two pregnant solution process ponds, a stormwater pond, solution collection and conveyance channels, a surface waste rock storage facility, an in-pit waste rock storage facility, diversion channels, and support facilities. The mine has an operating life of approximately 14 years and will disturb portions of an approximately 1,418-acre area. Mining began in 2012.

Run of mine ore is mined and hauled from the open pit and placed on the heap leach pad. As mining progresses, the need to crush the ore prior to placement on the leach pad may or may not be required. As the ore is hauled from the open pit, it may be mixed with cement or agglomeration aid (polymer) for agglomeration, and lime for pH control. Some ores will not need to be mixed depending on their composition.

A dilute sodium cyanide solution is applied to the ore on the heap leach pad through a system of pipes and drip emitters. This process solution dissolves the gold in the ore. The gold bearing solution, now called pregnant solution, is conveyed through solution collection pipes located at the base of the pad which outlet at the solution collection sump. From this location, pregnant solution may be conveyed directly to the plant, to the pregnant solution tank, or either of two pregnant solution ponds.

Solution collected in the tank or ponds is recovered and pumped to the CIC circuit to remove the gold from the solution and adsorb it to the activated carbon. The carbon is sent offsite to the refinery, located at the Newmont Carlin Mine, to be stripped of the gold, regenerated and then returned to the process. The carbon is re-activated in a kiln and the recovered gold dore is sent off site for further processing.

Once the process solution has passed through the CIC circuit it is called barren solution because it no longer contains high quantities of gold. Sodium cyanide is added to the barren solution and returned to the leach pad to repeat the leaching process.

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**CERTIFICATION**

Audit Company: ERM-West, Inc.  
Audit Team Leader: Brent C. Bailey, P.E., CEA  
E-mail: brent.bailey@erm.com  
Audit Dates: June 11-14, 2018

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 (ICMI) and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

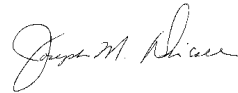
I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Institute, Mining Operations Verification Protocol (February 2018) and Auditors Guidance for Use of the Mining Operations Verification Protocol (February 2018) and using standard and accepted practices for health, safety and environmental audits.

Brent C. Bailey  
Name of Lead Auditor

  
Signature

November 16, 2018  
Date

Joe Driscoll  
Name of Auditor

  
Signature

November 16, 2018  
Date



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**SUMMARY OF FINDINGS**

**The operation is**  **in full compliance with**  
 in substantial compliance with **All Code Principles**  
 not in compliance with

The Carlin Operations were found to be in Full Compliance with the International Cyanide Management Code. The Carlin Operations have not experienced regulatory compliance problems during the previous three-year audit cycle.

**ICMI Standards of Practice**

**1.0 PRODUCTION: Encourage responsible cyanide manufacturing by purchasing from manufacturers who 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.***

**Audit Finding:**

**The operation is**  **in full compliance with**  
 in substantial compliance with **Standard of Practice 1.1**  
 not in compliance with

The operation is in full compliance with Standard of Practice 1.1. The Carlin Operations purchases 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.

**Basis for Audit Finding:**

The Carlin Operations purchases cyanide from Cyanco Company, L.L.C. (Cyanco), located in Winnemucca, Nevada, The current contract between Newmont and Cyanco was signed in 2016 and with subsequent amendments later in 2016, 2017, and 2018. Provisions of the agreement (and amendments) states "...that the part(ies) shall...comply with the cyanide code's principles and standards of practice as published and amended by the International Cyanide Management Code (ICMC)." Cyanco's production facility was initially certified as compliant by the ICMI on October 11, 2006, and fully recertified February 2, 2010, July 12, 2013, and November 22, 2016.

Newmont states that "Cyanide for the Newmont...(Carlin Operations)...has been exclusively manufactured by Cyanco...since January 1, 2015."

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**2.0 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.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 2.1**
- not in compliance with

The operation is in full compliance with Standard of Practice 2.1. The Carlin Operations have established clear lines of responsibility for safety, security release prevention, training and emergency response in written agreements with producers, distributors, and transporters.

**Basis for Audit Finding:**

Cyanco is the producer and supplier for the Carlin Operations and Cyanco uses TransWood as the only transporter of cyanide from their operation to the Carlin Operations. TransWood is a signatory to the Code and was recertified as fully compliant with the Code on January 12, 2017. As signatories to the Code, Cyanco and TransWood have been certified as conducting their operations in a manner that conforms to the Code's requirements for packaging, labeling, storage, transportation, unloading, safety, security, training, and emergency response. The contract between Newmont (Carlin Operations) and Cyanco requires Cyanco to utilize an ICMC certified transporter for product delivery.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 2.2**
- not in compliance with

The operation is in full compliance with Standard of Practice 2.2. The Carlin Operation requires cyanide transporters to implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

**Basis for Audit Finding:**

The purchase and sales agreement between the Carlin Operations and Cyanco (effective from January 1, 2016 to December 31, 2020) states that Cyanco shall utilize an ICMI transporter. Cyanco uses TransWood as the only transporter of cyanide from their operation to the Carlin Operations. TransWood is a signatory to the Code and was most recent recertified as fully compliant with the Code on January 12, 2017.

Bills of lading for cyanide delivered to the Carlin Operations demonstrate that the cyanide was produced by

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Cyanco and transported by TransWood. Neither Cyanco nor TransWood use interim storage facilities. TransWood is the only transporter used by Cyanco to transport cyanide from their facility.

**3.0 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.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 3.1**
- not in compliance with

The operation is in full compliance with Standard of Practice 3.1. The Carlin Operations have designed and constructed unloading, storage and mixing facilities consistent with sound accepted engineering practices, quality control/quality assurance procedures, spill prevention, and spill containment measures.

**Basis for Audit Finding:**

The Carlin Operations have offload and storage facilities for cyanide at the:

Carlin Mine:

- NAL carbon columns (active). A single 13,000-gallon tank located outdoors.
- SAL carbon columns (active). A single 13,000-gallon tank located outdoors.
- Mill 5 (active). Two 20,000-gallon tanks located inside the Mill 5 reagent building.
- SAL Non-Property Phase I Pregnant Pond (inactive). Two 11,000-gallon tanks located outdoors. These tanks have been on long-term standby, however one tank has been filled to allow for cyanide use in this area if a management decision is made activate it.

Emigrant Mine:

- CIC Plant. Two 17,800 gallons tanks each within a single secondary containment located outdoors.

These facilities were designed and constructed in accordance with sound and accepted engineering practices. No changes or modifications have been made since the initial audits and subsequence recertification audits, except new reinforced concrete offload pads at the North Area Leach (NAL) and the South Area Leach (SAL) Non-Property Phase I Pregnant Pond.

The Carlin and Emigrant Mines' unloading and storage facilities are located outside, except for the two 20,000-gallon tanks located inside the Mill 5 reagent building at the Carlin Mine. The Carlin Mine NAL, SAL, and SAL Non-Property Phase 1 Pregnant Pond offload and storage areas are all located within fenced and locked areas; and the Mill 5 storage area is located within the mill and a rollup door restricts access to the tanks. At the Emigrant Mine, the unloading and storage facilities are not within their own fenced areas, but they are located within the fenced and secured areas of the mine where public access is restricted.

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These facilities are not located near any offices or places where workers might congregate. The cyanide storage tanks are located apart from foods, animal feeds, explosives, tobacco products and no smoking is allowed. The Carlin Operations are located in an arid area and there is no surface water in the vicinity.

The NAL, SAL, SAL Non-Property Phase I Pregnant Pond, and the Emigrant cyanide storage tanks are located outside with adequate ventilation. The two cyanide storage tanks at the Carlin Mine, Mill 5 are located inside with an exhaust fan and a bay door to the outside for ventilation.

The Carlin Operations' offload areas have concrete pads for the trucks carrying liquid cyanide. These pads are constructed with cast-in-place reinforced concrete to prevent seepage to the subsurface. They are sloped to sumps to collect any possible spillage or to adjacent process ponds.

The Carlin Mine, Mill 5 cyanide storage area is located away from the acid storage tank and within a separate concrete containment. The cyanide tanks at the SAL, NAL, and SAL Non-Property Phase I Pregnant Pond are located within their own containments, and although flocculant and caustic are located nearby, these are compatible materials with cyanide. The Emigrant Mine cyanide storage tank has an adjacent antiscalant tank with a separate secondary containment. The cyanide tank secondary containment has a dedicated sump and piping that report to the process and commingling of solutions from the two containments is unlikely.

The Carlin Operations' cyanide storage tanks have ultrasonic level indicators and high level alarms. High-level alarms are signaled by alarms in the control room and flashing amber lights at the off-load areas. In addition, the Carlin Operations have implemented a standard procedure to prevent overfilling during offloading. The operators verify 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. The cyanide delivery driver is required to verify the tank levels prior to offloading. Tank levels before and after cyanide unloading are documented in the Cyanco's bills of lading. The reliability and the functionality of the level alarms are maintained through a preventive maintenance program for cyanide storage tanks at Mill 5 and the NAL. The reliability and the functionality of the level alarms for the SAL, SAL Non-property, and Emigrant cyanide storage tanks is maintained through checks of tank levels during daily inspections, periodic testing and monitoring by the operations, and checks during the offloads. Immediate attention and repair is given for an improper functioning high-level alarm.

The secondary containments for the Carlin Operations' cyanide storage tanks are constructed of cast-in-place reinforced concrete that have been constructed with competent barriers to prevent leakage. The containments consist of concrete tank pedestals, concrete floors, and concrete walls. They are equipped with sumps, pumps, and automatic controls to return liquids to process circuits.

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

**Audit Finding:**

- |                         |                                     |  |
|-------------------------|-------------------------------------|--|
|                         | <input checked="" type="checkbox"/> | <b>in full compliance with</b>                                 |
| <b>The operation is</b> | <input type="checkbox"/>            | in substantial compliance with <b>Standard of Practice 3.2</b> |
|                         | <input type="checkbox"/>            | not in compliance with   |

The operation is in full compliance with Standard of Practice 3.2. The Carlin Operations operate unloading

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storage and mixing facilities using inspections, preventative maintenance, and contingency plans to prevent or contain releases and control and respond to worker exposures.

### **Basis for Audit Finding:**

The Carlin Operations only uses liquid cyanide delivered in tanker trucks; no drums or wooden crates are involved. The liquid is transferred from the tankers to the storage tanks and there are no empty cyanide containers that could be used for any other purpose. Other than empty trucks that return to the vendor there are no empty containers to return to the vendor and there are no empty containers - drums, bags, or liners that need to be rinsed; and there are no drums, crates, or pallets that need to be disposed.

Cyanco/TransWood's offloading procedure requires the driver to monitor and control the entire offload operation. Their procedure discusses responses to any leaks or spillage. At the end of the offload the driver is required to inspect the truck by walking completely around the tractor-trailer before moving. If there is any spillage or residue on the outside of the truck, off-load piping, or pad, the driver washes it off where the material is collected in the pad sump. The Carlin Operations' Checklists prompt checking for drips and spills and cleanup if they are identified. Before departure, the TransWood drivers close all valves on the tanker trucks and secure them for return to Cyanco.

The Carlin Operations have developed and implemented procedures for cyanide offloading that covers the responsibilities for the truck drivers, the operators, control rooms, and supervisors. Along with the reagent offloading Standard Operating Procedures (SOP) they have Reagent Offloading Checklists that are used by the Operations' Operators monitoring the offloads. The Checklists provide a summary of the items described in the Reagent Offloading SOPs. Also, the Carlin Operations have copies onsite of Cyanco's Cyanide Sodium Delivery Procedure. The Cyanco/TransWood procedure details step by step the offload procedure. The Operations' Operators are familiar with the Cyanco/TransWood delivery and emergency shut off procedures. The bills of lading document the pH of the liquid cyanide and the before and after tank levels; the Operator signs the form to authorize the offload.

Handling or stacking cyanide containers is not required at the Carlin Operations, i.e. cyanide is delivered as a liquid in tanker trucks.

The use of liquid cyanide from the supplier eliminates the need to mix the reagent. Any spills or leaks related to an offload and onto the pads are either captured in sumps then pumped to adjacent process facilities or they flow to the adjacent process ponds. Operators or anyone observing a spill is required to notify a supervisor who will in turn call for an emergency response, if needed. If there is spillage onto soils then the soil remediation procedure is implemented.

The Carlin Operations require appropriate personal protective equipment for the transporter during the connection, off-load, and disconnection. Observation by Carlin Operators is required during the connection at the start of the offloading process, and then during the disconnection. Offloading does not occur until the Operators are there to observe and document the procedure. Both the transporter and Operator check to confirm that the storage tanks have sufficient capacity for the offload; the tank level is recorded on the bill of lading. The Operators are trained in the transporter requirements for personal protective equipment, off-load procedures, and emergency shut off measures. The Operators have radios for communication with the control rooms in the event of an emergency. The control room operators have cameras and video terminals to observe the cyanide tankers during the offloading.

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**4.0 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 utilizing contingency planning and inspection and preventive maintenance procedures.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.1**
- not in compliance with

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

**Basis for Audit Finding:**

The Nevada Water Pollution Control Permits authorize the Carlin Operations to construct, operate, and close the operations in accordance with the requirements and conditions of the permit, which includes specific requirements for the cyanide facilities. These requirements and conditions are based on information provided to the Nevada Department of Environmental Protection (NDEP) by the Operations describing the facilities and operating methods.

Additionally there are operating plans and manuals for the Carlin Operations such as the Fluid Management Plan - South Area Leach Project, Plan of Operations for the Emigrant Project, and the Fact Sheet for the North Area Leach Project. The Fluid Management Plans cover the Operations' water management strategies for process facilities including any upset, malfunction or failure of the management fluid system. These plans include remedial actions for deficiencies discovered during routine inspections and monitoring, as well as reporting requirements.

The Carlin Operations have developed Standard Operating Procedures (SOP) and Standard Task Procedures (STP). The SOPs and STPs describe the operation of the process and reagent facilities and define the practices for safety and environmental protection. These documents are under a document control program and the most up to date versions are available on the mine's intranet system. Example SOPs and STPs for cyanide facilities and related operations include:

- Cyanide Spill Response and Cleanup SOP, Leach Operations, August 17, 2015
- Cleaning Cyanide Salts, Carlin Operations, NA-CAR-PRO-SOP-1034, August 6, 2017
- Confined Space Training Checklist, Carlin Process, NA-CAR-PROC-LIST-1141, December 15, 2014

The Carlin Operations have developed a series of forms for daily, weekly, monthly, and quarterly inspections. Each inspection describes frequency, responsible department, and required documentation (some of which are required by the Water Pollution Control Permit [WPCP] Fluid Management Plans). Employees conduct daily, monthly, and quarterly inspections. These inspections cover the mills (process equipment), secondary containments, pipelines, the tailings facility, the heap leach pads (tops and toes), ponds, and the cyanide offload/storage facilities. The Inspections address safety and environmental concerns, leak detection systems, pH and cyanide, totalizers and flumes, and pond levels.

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- The wall thickness of the cyanide storage tanks is measured annually using ultrasonic methods to evaluate structural integrity.
- The plant shift inspections include visual evaluation of the containments for cracks, presence of fluids, functioning drains, and locked valves.
- Daily inspections include the leak detection systems for the TSF, the SAL (including the Non-Property Area), the NAL and the Emigrant Mine. This includes the leak detection systems for the heap leach facilities as well as the associated process pond. Each of the identified areas has separate inspections, i.e. there are separate inspections for the TSF and each of the HLFs. The shift Operator Report Forms and monthly Cyanide Inspections include visual evaluation for the pipelines, pumps, and valves to evaluate deterioration, damage, or leakage..
- Carlin Mine: The plant shift inspections include visual evaluation of the plant pipelines, pumps and valves for deterioration and leaking. Emigrant Mine: The daily CIC Plant and heap leach facility (HLF) inspections include visual evaluation of pipelines, pumps, and valves for deterioration and leaking.

In addition, the Carlin Operations inspect stormwater controls and Best Management Practices (BMPs) after storms.

The Carlin Operations have developed specific inspection forms and SOPs to support the consistent collection of information. The Operations document inspections using forms and reports that include the name of the inspector, date, and a comments column where deficiencies are noted. The inspections are used to develop work orders for equipment and facility repairs and maintenance. The inspections are sufficient to assure and document that the systems are operating within design parameters

The Operations utilizes the SAP (Strategic Enterprise Management) system for identifying, assigning responsibility, scheduling, and tracking the completion of the preventive maintenance activities. SAP identifies activities for regular preventive maintenance and includes information on the task requirements and completion. Carlin has implemented a preventative maintenance (PM) program to ensure equipment and devices function for safe cyanide management. The SAP software used to manage maintenance allows placing priority levels for activities.

The Carlin Operations utilize a management of change (MOC) program that is part of the Integrated Management of Systems (IMS) (based on Microsoft SharePoint program) located on the Newmont Intranet site to identify when the site's operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures. It consists of forms requiring a description of the proposed project, reasons for the project, and potential risks to human health and safety and the environment. The initial form has a field for entry of the email addresses of departmental personnel that are needed for review, comment, and approval. Email addresses of personnel from the Health and Safety and Environmental departments were included in the examples reviewed during the audit.

Temporary Closure Plans include contingency procedures for temporary or seasonal closure due to economic conditions, failure of leaching facilities, labor disputes, litigation, regulatory actions, supply issues, and Acts of God (e.g., earthquakes, floods). The plans include both operating and monitoring procedures in the event of temporary or seasonal closure.

The Carlin Operations have eight fixed diesel generators to operate the critical components at the cyanide facilities in the event of a power outage. The Operation performs monthly and quarterly startup tests. The generators receive maintenance quarterly, with service and repairs by an outside contractor, if needed

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.2**
- not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 4.2. The Operations have introduced and implemented management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

**Basis for Audit Finding:**

The Carlin Mine, Mill 5 and Mill 6 may receive ore for processing from four open pits (i.e., East Carlin, Gold Quarry, Blue Star, and Silver Star) and four underground mines (i.e., Chukar, Leeville, Pete Bajo, and Exodus). The Carlin Mine has performed metallurgical tests (e.g., bottle roll) on various ores and sources during the 2018 recertification period to evaluate and confirm the previously established cyanide application targets. The Mine works continually to control cyanide additions at the Mill 5 and Mill 6 CIL circuits by manually sampling and laboratory analysis of the points described in the Mill 5 and Mill 6 CIL SOP. Operators sample six locations three times per shift (i.e., every 4 hours) and an internal laboratory measures the free cyanide concentration and the cyanide feed rates are adjusted to meet the targets.

The Emigrant Mine conducts column tests to evaluate cyanide application rates and gold recovery. They also monitor the cyanide in the pregnant solution from the HLP to optimize cyanide application. They control cyanide addition by sampling the Barren and Pregnant solutions on each shift.

***Standard of Practice 4.3: Implement a comprehensive water management program to protect against unintentional releases.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.3**
- not in compliance with

The operation is in full compliance with Standard of Practice 4.3. The Carlin Operations have implemented comprehensive water management programs to protect against unintentional releases.

**Basis for Audit Finding:**

The Carlin Operations have developed water balance models that are comprehensive and probabilistic. They have developed four water balances to cover the NAL, SAL, Mill 5/6 TSF and the Emigrant Mine. All four of these water balances use the GoldSim model, a dynamic systems model that probabilistically evaluates various scenarios considering stochastic distributions for key input parameters, such as:



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- Leach solution application to the leach pad(s) and the application of tailings to the TSF,
- Design storm events based on historical data and the calculation of probabilities of future events. The water balances evaluate the impact of a specific design event on the systems and maintaining the integrity of the ponds and impoundment, i.e., without over topping them.
- Monthly precipitation rates
- Diversion the up gradient flow away from the cyanide related facilities, i.e., the mills, TSF, and heap leach pads, which is typically negligible. Run-on is excluded from the Carlin Operations' water balances.
- The effects of potential freezing and thawing conditions on the accumulation of precipitation are not included because of the climatic conditions at the site(s), i.e. freezing and thawing are of short duration in the area.
- Other than losses to evaporation, system water losses include dust control, which is measured and recorded, and entrained water in the ore and tails.

The models have been developed to simulate power outages of various durations or pump failures. The models can predict situations and conditions that would result in possible releases to the environment.

The Carlin Operations inspect and monitor the ponds and impoundments to prevent overtopping in accordance with the Fluid Management Plans and procedures for pond level control and power outages. The Fluid Management Plans provide capacities, operating levels, and freeboard for the ponds and impoundments, as well as the required monitoring activities.

The ponds and impoundments are designed and operated to comply with the NDEP and Nevada State Engineer requirements. While freeboard requirements are regulated, the water balance models are used to calculate the necessary pond volumes for specific design storm events. The water balance models have been developed as forecasting tools to analyze extreme events and changes in operations and process water needs. Metallurgists regularly meet with the Operations Staff in Solution Management Meetings to discuss the results of monitoring in relation to the outputs from the water balance models.

The Carlin Operations measure precipitation at the Gold Quarry Meteorological Station, the North Area Meteorological Station, and at the Emigrant Springs meteorological station located near the west of the oxide heap leach facility. Also, there is precipitation data from the weather station at the Regional Airport in Elko, Nevada. The water balance models are updated with precipitation data and input from the inspection reports. Information from the water balance outputs is conveyed to the Operations via regular meeting with the Metallurgists who maintain the water balance

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

**Audit Finding:**

- |                         |                                     |  |
|-------------------------|-------------------------------------|--|
|                         | <input checked="" type="checkbox"/> | <b>in full compliance with</b>                                 |
| <b>The operation is</b> | <input type="checkbox"/>            | in substantial compliance with <b>Standard of Practice 4.4</b> |
|                         | <input type="checkbox"/>            | not in compliance with   |

The Carlin Operations are in full compliance with Standard of Practice 4.4 that implements measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

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### Basis for Audit Finding:

The Carlin Operations has implemented the following measures to restrict wildlife and livestock access to open waters:

- Barbed wire fence around the mine perimeters.
- Chain-link fences around all process ponds associated with the Carlin Mine North Area Leach and South Area Leach. These are 8 feet high to prevent access from deer and antelope with a tighter weave mesh at the bottom to prevent small mammal access.
- Chain-linked wire fence with a tighter weave mesh at the bottom has been installed around the underdrain ponds for the Carlin Mine Mill 5/6 TSF.
- Birdballs on the surface of the Carlin Mine Mill 6 Catch Pond. The Mill 5 Catch Pond (a small concrete pond) is kept clean to discourage wildlife use.
- The stormwater ponds are kept dry except in wet conditions to reduce the potential to attract wildlife and birds.
- An 8-foot high chain link fence with a tighter weave at the bottom, around the plant and ponds. (Emigrant)
- Pad and ponds are connected via pipelines, rather than open channels, to eliminate open water during conveyance. (Emigrant)

There are no open process solution channels requiring measures to restrict wildlife access.

The Carlin Mine Mill 5/6 TSF West Tailing Expansion is the facility with the most open waters with cyanide-related solutions, i.e., the supernatant pool. Wildlife access to the supernatant pond is controlled by use of propane cannons and distress call and by hazing from an airboat during the active season for waterfowl (i.e., April to October).

The Carlin Operations have generally maintained weak acid dissociable (WAD) cyanide concentrations in open water, in ponds and impoundments below 50 ppm WAD cyanide during the 2018 recertification period. Time series graphs of WAD cyanide concentrations in the supernatant pools for the Mill 5/6 TSF and West Expansion show concentrations generally less than 20 ppm and always less than 50 ppm during the recertification period. WAD cyanide concentrations in the spigot discharge to the tailings impoundment were usually below 50 ppm but there were a considerable number above 50 ppm, which generated action steps by the Carlin Mine that included improvements to the Caro's Acid Cyanide Destruction System. Data collected on the spigot flows following completion of the improvements show consistent values below 50 ppm.

The Carlin Operations have Industrial Artificial Pond permits with the Nevada Department of Wildlife (NDOW) where they are required by law to maintain concentrations in open waters to prevent any cyanide mortality. Under the provisions of these permits the operation is required to conduct mortality monitoring and report all wildlife mortalities. The Operations do not dispose of wildlife carcasses until authorized by NDOW. Quarterly reports to the agency indicate zero to four mortalities of small mammals and/or birds. NDOW did not require any testing for the reported mortalities.

The Carlin Operations include active heap leach facilities (HLF) where leach solutions are applied in a manner that avoids significant ponding on the leach surfaces. Leach solution is applied with drip emitters on the top surface and with wobblers or drip emitters on the side slopes. In conjunction with this, the Carlin Operations have a SOP for the HLFs to limit ponding and describes measures that are to be taken to limit the potential for wildlife exposure.

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

**Audit Finding:**

- in full compliance with**
- The operation is**       in substantial compliance with      **Standard of Practice 4.5**
- not in compliance with

The operation is in full compliance with Standard of Practice 4.5. The Carlin Operations have implemented comprehensive water management programs to protect against unintentional releases.

**Basis for Audit Finding:**

The Carlin Operations do not discharge cyanide solutions to surface waters. The Operations operate with zero discharge of process solutions. The Mines are located in an arid climate with only the ephemeral James Creek Diversion at the Carlin Mine (and the Carlin Mine has installed special protections) on the properties. Inspections and monitoring is conducted to verify that there is no seepage entering surface drainages. No impact to the beneficial uses of surface or groundwater has occurred as verified by sampling monitoring wells.

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

**Audit Finding:**

- in full compliance with**
- The operation is**       in substantial compliance with      **Standard of Practice 4.6**
- not in compliance with

The operation is in full compliance with Standard of Practice 4.6. The Carlin Operations have implemented measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

**Basis for Audit Finding:**

The Carlin Operations have utilized facility designs and construction practices to protect groundwater below and down gradient of the operations. Many of these requirements along with requirements for operating the facilities are included in the Water Pollution Control Permits (WPCPs). In accordance with these permits, the Carlin Operations implement inspection and monitoring programs to ensure water management and leak detection systems are functioning properly, and that water quality is being protected. For example, process facilities are constructed with concrete floors, walled concrete containment with collection sumps, pipelines located above ground with secondary containment. The process ponds and stormwater ponds are double-lined, each with separate leakage collection and recovery system (LCRS) and solution evacuation system. Heap Leach Facilities (HLF) are generally constructed (from top to bottom) with geotextile, a drainage layer, underdrain solution collection piping, protective layer, 80 mil high-density polyethylene (HDPE) liner, compacted clay, and compacted subgrade.

More specifically, the Mill 5/6 TSF West Expansion supernatant pond is constructed on the upstream face with a

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double-sided geonet/geotextile as a leachate collection and recovery system overlain with an 80 mil HDPE liner. Outside the pool area, the upstream embankment face is covered with an 80-mil HDPE liner. The tailings and reclaim pipelines are HDPE and contained within HDPE lined channels.

Water quality records from 2013 through 1<sup>st</sup> Quarter 2018 show that the Carlin Operations have not adversely impacted the beneficial uses of the groundwater at compliance points down gradient of the facilities. The beneficial use for groundwater downgradient of the Carlin Operations, as designated by the State of Nevada, is agricultural and livestock use and the standard is 0.2 ppm WAD cyanide.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.7**
- not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 4.7 where they provide spill prevention or containment measures for process tanks and pipelines.

**Basis for Audit Finding:**

The Carlin Operations have spill prevention and containment measures for the all of the cyanide-related storage and process tanks and vessels at Mill 5/6, Tailings Booster Pump House #1, NAL, SAL, and the Emigrant Mine.

The cyanide unloading areas at Carlin Mill 5, SAL and NAL have secondary containments. The unloading area at Mill 5 has a curbed, concrete apron to contain small spills, which drains to a sump for return of solution to the process circuit. The SAL unloading area has a concrete apron to contain small spills, which drains to a sump for return of solution to the process circuit. The NAL and SAL Non Property offload areas have been upgraded with reinforced concrete pads that will divert any spillage to the adjacent process ponds. All Carlin Mill 5/6 processing components are located within process buildings with concrete floors and stemwalls or on a peripheral bermed or walled concrete containment with collection sumps.

The Carlin Mill 5/6 yard and vehicle access areas include paving to facilitate drainage, catchment ponds, and underground piping in secondary containment pipes. The grading allows direct runoff from the southeast portion of the Mill 5 yard and access lanes to the existing HDPE-lined Mill 6 Catch Pond.

The Carlin Operations have procedures in place to prevent discharges of any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area to the environment. There are automated collection sumps in the containment areas to pump any cyanide solution to the process circuits.

The Carlin Operations have developed two procedures for cleaning secondary containments at the Mill 5/6 and NAL/SAL. These procedures define the process by which spills collected in secondary containment areas are managed. They describe washing spillage back into the process circuit and the use of mobile equipment, if needed, to ensure the spillage is cleaned off the surface of the secondary containment in a timely manner.

The Emigrant Mine includes secondary containment measures for the cyanide storage tanks, process columns, barren tank, and pregnant tank. The process ponds act as tertiary containment for the CIC building. The process columns and barren tank are located within the CIC building which was built with a reinforced concrete floor, curbed walls, inward sloping ramps at the doors, and three sumps to return solutions to the process circuit. The

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Emigrant Mine returns all water, whether precipitation or process solutions, in the containments to the process circuit; no water is discharged to the environment. The Emigrant Mine offload containment is sloped to a sump equipped with a pump and automated controls to pumped-out to the sumps to a process tank.

The secondary containments for the Carlin Operations’ cyanide tanks and process facilities are sized to contain a volume greater than that of the largest tank located within the containment and any piping draining back to the tank plus runoff from the design storm event.

The cyanide process tanks at Carlin Operations all have concrete or synthetic-lined secondary containment with the exception of the Carlin Mill 5 Thickener. A spill from the Thickener would run over pavement to the concrete lined Mill 5 Emergency Catch Pond. If the spill exceeded the capacity of this catch pond, the spill would be discharged via an overflow pipe to a clay lined Sediment Control Basin located immediately downstream. The capacity of the Mill 5 Emergency Catch Pond is insufficient to contain the entire volume of the thickener and therefore a major spill would report to the Sediment Control Basin. In the event of a spill reaching the clay lined Sediment Control Basin, the Carlin Mine would implement the SOP entitled, “Mill 5 Thickener Emergency Spill Response SOP”. This procedure states that cleanup will take place immediately using guzzler trucks, gas powered pumps, loaders, track hoes and backhoes as necessary. Contaminated soils will be excavated and placed on the leach pads or back into the process circuit.

The Emigrant Mine has provided secondary containment for the cyanide storage tanks, process columns, barren tank, and pregnant tank with the process ponds acting as tertiary containment for the CIC building. There are no tanks without secondary containment.

The Carlin Operations have constructed all pipelines with spill prevention and/or containment measures to collect leaks and prevent releases. Pipelines are constructed as pipe-in-pipe, within lined ditches, and/or with flow deviation sensors and pressure sensors with alarms. Alarms are monitored at the control rooms. The operations have adequate concrete spill containment to minimize seepage. In addition, pipelines and containments are visually inspected every shift. There are three locations where solution pipelines cross the ephemeral James Creek Diversion and the Carlin Mine has installed special protection measures.

The Emigrant Mine was designed and constructed with the plant, ponds, and pad where there are no long runs of piping. Most of the piping is within the lined footprint of the heap leach pad. The short runs of piping between the pad and ponds, as well as between the plant and ponds, are all contained with HDPE lined ditches as secondary containment

The Carlin Operations use carbon steel for cyanide tanks and process tanks; carbon steel and HDPE pipelines for process solutions; HDPE pipelines for tailings and reclaim solutions; and stainless steel and carbon steel pipelines for reagent grade cyanide. These materials for cyanide tanks and pipelines are compatible with cyanide and high pH conditions.

***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**
- The operation is**  in substantial compliance with **Standard of Practice 4.8**
- not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 4.8. The Operations have implemented

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quality control/quality assurance (QA/QC) procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

**Basis for Audit Finding:**

The Carlin Operations have employed quality control/quality assurance (QA/QC) programs in the construction of the cyanide facilities, new facilities, and modifications to existing facilities.

During the 2015 to 2018 audit cycle, the Carlin Operations constructed or made the following changes:

- Construction of reinforced concrete pads for the NAL and SAL Non Property offload areas.
- Mill 5/6 Asphalt – Asphalt placement with upgraded gutters and sumps.
- Mill 2/5 Asphalt Pavement – Included adding asphalt to at the Mill 2/5 complex to four additional areas that were not previously paved. April 2016
- Mill 4/2 TSF Pipeline Modifications, North Area Leach. Completed December 2015.
- Mill 5/6 Tailings Pipeline Corridor Haul Road Crossing (As-Built Drawings August, 2016)
- Caro’s Addition Upgrade, Completed in May 2018

Also there was on going construction of the Mill 5/6 TSF East Extension where there have been pond and pipeline relocations. The East Extension TSF and related facilities were not being used as a cyanide facility during the 2018 Recertification Audit.

The Carlin Operations have implemented QA/QC programs that address the suitability of materials, adequacy of soil compaction for earthworks, and installation of geomembrane liners. In general, the record of construction reports describe the parties involved, schedule, QA/QC activities, design modifications, and as-built drawings. The reports end with the engineer’s opinion stating the project was constructed in general accordance with the approved design and specifications, and as such meets the design intent.

Qualified personnel have been prepared the Carlin Operations’ QA/QC documents. These documents have been prepared by Nevada- registered Professional Engineers and subsequently approved by the NV Department of Environmental Protection, Bureau of Mining Regulation & Reclamation.

The Carlin Operations have retained the QA/QC documents described in the previous audits in the mines’ records. This was confirmed by interviews with Carlin Operations personnel.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 4.9**
- not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 4.9. The Operations have implemented monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

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### Basis for Audit Finding:

The Carlin Operations have developed written procedures for water sampling and wildlife monitoring. Additionally, there is a procedure discussing wildlife monitoring and reporting requirements. The document entitled “Carlin Operations Water Sampling and Monitoring Standard Operating Procedure” describes procedures for site inspection related to sampling, field quality control, field data, collection and preservation of samples, chain of custody, well sampling equipment, and data management. The procedures cover sampling for groundwater and surface water.

Appropriately qualified personnel have developed the procedures for water sampling and monitoring. The procedures are updated periodically by samplers with 20 years of experience, and reviewed by senior environmental managers with backgrounds in hydrology/geology and environment.

The Carlin Operations’ sampling and monitoring plans along with the WPCPs specify how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions, and cyanide species to be analyzed. The sampling and monitoring plan specifies how samples are to be collected, sample containerization, preservation, shipping, and handling, and chain-of-custody procedures.

The Carlin Operations document sampling conditions on field logs that accompany each sample. The log includes the date, the sampler, weather conditions, sampling method, field parameters, purge volume (for wells), sample volume, sample preservation, and a pre-assigned lot and serial number assigned by the analytical laboratory. A comments section is used to document abnormal sampling condition.

The Carlin Mine has no indirect or direct discharges to the normally dry washes, however, they monitor for cyanide in ephemeral runoff in the James Creek Diversion through the South Area and in the intermittent Rodeo Creek through the North Area. They also collect samples from both upstream and downstream of the site. There are no perennial surface waters in the vicinity of the Carlin Mine.

The Emigrant Mine does not have any direct or indirect discharge of cyanide solutions to surface waters. They operate with zero discharge of process solutions. Monitoring of an intermittent stream (below Emigrant Spring), upstream and downstream of the cyanide facilities, is conducted on a quarterly schedule.

The Operations also monitor groundwater from monitoring wells down gradient of cyanide facilities.

The Carlin Mine inspects the TSF supernatant pool and reclaim pond daily for the presence of wildlife and mortality, if any. The Emigrant Mine inspects for wildlife mortalities on a daily basis and records the inspection results on log sheets and inspection forms. The Operations train operators on proper methods for reporting and handling mortalities.

The Carlin Operations conduct monitoring at frequencies adequate to characterize the groundwater and wildlife.

### 5.0 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.***

### Audit Finding:

in full compliance with

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Carlin Operations  
Name of Facility

  
Signature of Lead Auditor (Brent C. Bailey)

June 11-14, 2018  
Audit Dates

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**The operation is**                  in substantial compliance with    **Standard of Practice 5.1**  
         not in compliance with

The Operations are in full compliance with Standard of Practice 5.1. The Carlin Operations have plans and implementation procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

**Basis for Audit Finding:**

The Carlin Operations have prepared regulatory closure plans for the various operational units defined by the WPCPs. These plans cover open pits, waste rock disposal facilities, heap leach facilities, mills, tailings facilities, slurry and reclaim water pipelines, power distribution systems, mine dewatering and water treatment facilities, haul roads, mine and mill maintenance shops, administration and office buildings, and ancillary and support facilities. Generally, cyanide facilities include process ponds, Heap Leach Pads, tailings impoundments, buildings and foundations. Additionally, the plans address process fluid stabilization facilities and their associated process ponds.

The plans include tentative closure schedules based on knowledge of the current mining plans.

The Carlin Operations review their decommissioning plans and procedures and update them periodically. They are required by the Nevada Department of Environmental Protection to update the reclamation plans and costs at least every three years or as facilities change.

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

**Audit Finding:**

     **in full compliance with**

**The operation is**                  in substantial compliance with    **Standard of Practice 5.2**  
         not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 5.2. The Operations have established assurance mechanisms capable of fully funding cyanide related decommissioning activities.

**Basis for Audit Finding:**

The Carlin Operations have developed cost estimates for full funding of third party implementation of reclamation and decommissioning activities described in the reclamation plans. Cost estimates utilize the “Standardized Reclamation Cost Estimator” (SRCE), a cost-estimating model developed by the Nevada Division of Environmental Protection and the Bureau of Land Management. The cost estimates include third party unit costs (Bacon-Davis wage rates), local equipment rental rates, costs for engineering design, contingency, insurance, performance bond, contractor profit, agency indirect costs, and costs for third party administration. The reclamation costs cover all costs for decommissioning, closure, and reclamation activities for the mines including those for the cyanide facilities.

All of the Carlin Operations except the NAL are either on or partially on federal lands administered by the BLM and are subject to their financial assurance requirements. The NAL is located on private land is subject to the



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financial assurance requirements of the State of Nevada.

The Carlin Operations review and update the reclamation plans and cost estimates when facilities are changed, or at least every three years, as required by State of Nevada regulations.

The Carlin Operations have established financial assurance mechanisms approved by the Bureau of Land Management (BLM) Nevada State Office (NSO) and/or the State of Nevada throughout the recertification period.

**6.0 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 eliminate, reduce and control them.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 6.1**
- not in compliance with

The Carlin Operations are in full compliance with Standard of Practice 6.1. The Operations have identified potential cyanide exposure scenarios and have taken measures as necessary to eliminate, reduce, and control them.

**Basis for Audit Finding:**

The Carlin Operations has developed SOPs and plans that describe the management and operation of the cyanide facilities located in the mine. These plans and SOPs cover the safe operation of all of the cyanide facilities located in the Mill 5/6, NAL, SAL, and Emigrant areas. The SOPs are updated on a regular basis.

The SOPs and plans are detailed for the risks involved with each task (including offloading; storage; process activities related to cyanide including operation of the tailings storage facilities and heap leach facilities; entry into confined spaces; and equipment decontamination) and adequately describe safe work practices. The SOPs detail task specific personal protective equipment (PPE) requirements, as applicable, and the required procedures to follow to appropriately conduct the cyanide related tasks. They also address work inspections for cyanide related tasks.

The Carlin Operations utilize a management of change (MOC) program that is part of the Integrated Management of Systems (IMS) (based on Microsoft SharePoint program) located on the Newmont Intranet site to identify when the site's operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures. It consists of forms requiring a description of the proposed project, reasons for the project, and potential risks to human health and safety and the environment. The initial form has a field for entry of the email addresses of departmental personnel that are needed for review, comment, and approval. Email addresses of personnel from the Health and Safety and Environmental departments were included in the examples reviewed during the audit.

The Carlin Operations solicits worker input in developing and evaluating health and safety procedures described in their procedures via: (1) direct communication between supervisors and operators, (2) the continuous safety improvement program that allows employees to provide safety suggestions and concerns to their supervisors, (3)

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meetings conducted at the process areas (such as daily meetings and training refresher sessions), and (4) the daily workplace inspections.

***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.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 6.2**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 6.2 that requires the site to operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

**Basis for Audit Finding:**

The Carlin Mine, Mill 5 and Mill 6 CIL Operating Procedure states that the operator should “maintain the pH at 9.2 to 9.6 for the 6-side thickener and 10.5 to 10.8 for the 5-side thickener”. The Oxide Leach Manual states that “the pH is kept between 9.3 and 9.5 to keep cyanide from off-gassing” in the barren system. The Emigrant Area Leach (EAL) Heap Leach Pad and Carbon Adsorption Circuit Operation SOP states that the pH range through the carbon columns is 9.5 to 10.5. Time series graphs of the cyanide levels are maintained by the Operations.

The Carlin Operations have posted warning signs in areas where cyanide is used to alert workers that cyanide is present and smoking, open flames, and eating and drinking are not allowed (except in designated areas). This includes doors and entryways to the plants and that hydrogen cyanide alarms are set at yellow alert (for investigation) and red alert (for evacuation) and other areas such as the Carlin Mine TSF. Additionally, the Carlin Operations have signs located at numerous locations at the Mill 5/6, SAL CIC, NAL CIC, the Tailings Booster Pump House #1, the Emigrant CIC building, and other critical locations stating that cyanide is being used and that PPE is required. At both the Carlin and Emigrant Mines signage is provided along the access roads to the HLFs and the TSFs and along the pipelines to the TSF. Signage is in place at both the Carlin and Emigrant Mines cyanide off-load areas and cyanide storage tanks. Pipes carrying cyanide are marked and the direction of flow is indicated with arrows on the pipe. In addition, to the signage for the Emigrant Mine processing plant, there is cyanide signage for the pregnant and barren solution ponds, and for both the barren solution and pregnant solution pipelines to and from the HLF. The number, types, and locations of the signage provide the necessary warnings about the use of cyanide in the various areas.

The Carlin Operations have installed fixed hydrogen cyanide (HCN) monitors in the areas where workers may be exposed to cyanide to measure HCN concentrations. The fixed HCN monitors with warning red lights at 4.0 ppm (Notify Control Room and Investigate/Remediate) and an audible alarm at 10 ppm (Evacuate) are installed at critical locations in Mill 5, NAL, SAL, the Tailings Booster Pump House #1 and the Emigrant CIC building. In addition, explanatory signage is present in critical locations to remind workers of the response to alarms.

The high risk areas have been previously established and have been confirmed by surveys conducted with portable HCN meters in the Mill 5/6, NAL and SAL, March 2017; and Emigrant November 2014. The survey results have confirmed the areas of potential exposure to cyanide previously identified as well as the no need to install additional fixed HCN monitors.

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The Operations have hand-held HCN monitors that are available for workers to use when operating equipment at Mill 5/6, NAL, SAL, and Emigrant as well as for maintenance work and for confined space entry.

The Carlin Operations test, calibrate, maintain the HCN monitoring equipment as prescribed by the manufacturer. The hand-held HCN monitors are bump tested each time they are placed on a docking station and calibrated monthly on the docking station. All employees are trained to place the unit on the docking station prior to use. The docking stations are located in a variety of locations close to point of use.

The Carlin Operations have signs located on the Mill 5/6, SAL CIC, NAL CIC, the Tailings Booster Pump House #1, the Emigrant CIC building, and other critical locations stating that cyanide is being used and that PPE is required. Other areas of the facility, such as the offloading areas, are also provided with signs indicating the presence of cyanide and that PPE is required. Signs have also been placed in critical locations reminding workers of HCN, the different fixed monitor alarms, and the required response. Smoking, eating and drinking are only allowed in designated areas.

Showers, low-pressure eyewash stations and non-acidic sodium bicarbonate fire extinguishers for the Carlin Operations are located at strategic locations throughout the Mill 5/6, NAL, SAL, the Tailings Booster Pump House #1, and the Emigrant Mine. The showers and eye wash stations are inspected daily as part of daily operator inspections. They are also checked by process maintenance under process work orders on a regular basis.

Area operators inspect fire extinguishers monthly (pin, handle, hose and pressure). The fire extinguishers are equipped with inspection tags that are dated when inspected. They are also inspected daily as part of daily operator inspections. The contractor, State Fire, conducts annual inspections

The Carlin Operations maintain Safety Data Sheets (SDS) on the Newmont intranet system. The SDSs are available to all staff at any computer terminal. In addition, cyanide first aid procedures are located with each of the cyanide antidote kits. Also, SDSs are located at the offloading areas. The SDS and first aid procedures are in English, the language of the local workforce.

The Carlin Operations utilize the Accident and Incident Reporting and Investigation Procedure for accidents. It details the actions to be followed in the event of a cyanide exposure and states they are “to prevent the recurrence of accidents and incidents by ensuring thorough and effective investigations take place and corrective actions are implemented”. Additionally, Newmont introduced a program called Cintellate in 2010 for investigating incidents. The program includes risk review, actual risk and potential risk. It details corrective actions and who is responsible for implementing the corrective actions.

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

**Audit Finding:**

- |                         |                                     |  |
|-------------------------|-------------------------------------|--|
|                         | <input checked="" type="checkbox"/> | <b>in full compliance with</b>                                 |
| <b>The operation is</b> | <input type="checkbox"/>            | in substantial compliance with <b>Standard of Practice 6.3</b> |
|                         | <input type="checkbox"/>            | not in compliance with   |

The Carlin Operations are in Full Compliance with Standard of Practice 6.3 that requires the operation to develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

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### Basis for Audit Finding:

The Carlin Operations provide the necessary equipment for response to cyanide exposure and the communication means to coordinate their use. Water in the form of eye wash stations and emergency showers are located throughout the facility. Cyanide antidote kits are located in critical locations around the facility, including the Mill 5/6, SAL, NAL, Tailings Booster Pump House #1, and the Emigrant Process Area. The amyl nitrite is kept in a small refrigerators and it was confirmed that all antidote kits are stored at the correct temperature (temperature is checked on a regular basis) and that the antidotes have not expired. Oxygen is stored adjacent to the amyl nitrite. Oxygen and resuscitators are also held in the site's ambulances and the control rooms. Most employees are issued with a radio that is the recommended method for notifying the control rooms that an incident has occurred. Other methods available include land lines and mobile telephone

The Carlin Operations' Health, Safety, and Security (HS&S) personnel inspected the cyanide antidote kits monthly. The showers and eye wash stations are inspected daily as part of daily operator inspections. The Mine Emergency Response Team (MERT) members also inspect the ambulances weekly and complete a State of Nevada Health Division Inspection Form – Ambulance.

The Carlin Surface Emergency Response Plan (ERP) contains emergency response procedures, information, and instructions for cyanide exposures. The Cyanide Medical Emergency SOP details the procedures for the administration of the amyl nitrite and the oxygen in case of a cyanide exposure. These two documents apply to all the Carlin Operations.

The Carlin Operations have MERT and First Responders, three licensed ambulances, two fire trucks, and two HazMat trailers to provide first aid or medical assistance to workers exposed to cyanide. All staff working with cyanide are trained in emergency response to cyanide exposure and in administering cyanide antidote. In addition, MERT members are trained in first aid related to cyanide, cardio pulmonary resuscitation, use of automated external defibrillator, HazMat, firefighting, self-contained breathing apparatus (SCBAs), extrication, confined space, rope access/steep angel rope rescue and others. The Carlin and Emigrant Mines both have at least one HazMat trained MERT member per crew on site.

In the event of a cyanide accident involving personal injury or cyanide exposure, Carlin Operations' employees will administer the necessary first aid and will dispatch the patient in an ambulance to Northeastern Nevada Regional Hospital in Elko, approximately 40 minutes from the mine. If necessary, Carlin Operations can use Summit Air Ambulance to fly the patient to hospital.

The Carlin Operations have a formalized arrangement with the Northeastern Nevada Regional Hospital in Elko. Correspondence from Carlin Operations to the CEO of the hospital confirmed that the hospital is aware of the use of cyanide at Carlin and that the hospital has adequate resources (staff and equipment) to respond effectively. The hospital also confirmed that they have a copy of the SDS for sodium cyanide. This formalized arrangement has been confirmed as part of the renewal process for the Agreement to Operate Basic Life Support, granted to Carlin by the State of Nevada, Division of Public and Behavioral Health, Emergency Medical Systems.

The Carlin Operations periodically conduct cyanide emergency drills to test response procedures for cyanide exposure and release scenarios. The drills have had different scenarios and have included both environmental releases and cyanide exposures. Meetings following the mock drills are held to review, evaluate, and document findings. Participants include the general foreman of the area, the foreman, HS&S, emergency response personnel, and operations. The Carlin MERT members participate in the Emigrant drills, however, the Emigrant MERT members do not normally participate in the Carlin drills because there are enough team members at the Carlin Mine to take care of those emergencies. The Carlin and Emigrant MERT members train together on a periodic basis. The Carlin MERT members respond to emergencies at the Emigrant Mine.

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**7.0 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.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 7.1**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.1 that asks if the operations have prepared detailed emergency response plans for potential cyanide releases.

**Basis for Audit Finding:**

The Carlin Operations have prepared an Emergency Response Plan (ERP) and other response procedures (e.g., Cyanide Spill Response and Cleanup SOP) for responding to cyanide releases at both the Carlin and Emigrant Mines. The Section of the ERP entitled “Emergency Response Procedures Leaks, Spills, or Releases” addresses releases of cyanide during process operations and also spills from the TransWood delivery truck. The Cyanide Spill Response and Cleanup SOP includes specific procedures for response and cleanup for cyanide releases. The plans consider the following:

- Catastrophic release of hydrogen cyanide gas from storage or process facilities is addressed in the Section of the ERP entitled “Sodium Cyanide (Liquid): 30% Solution”.
- The Section of the ERP entitled “Sodium Cyanide (Liquid): 30% Solution” includes a subsection entitled “Tractor/Trailer Spills”.
- The ERP has a section called “Tanks and Pipelines” which details what to do of an event during offloading.
- The ERP describes responses and actions to be taken in the event of a fire and includes the following sections “Mine Structure Fire, Range Fire, Mobile Equipment Fire, LPG/Natural Gas Fire, and Explosive Fires” and explosions are covered in the section “Premature Blast or Unplanned Explosions”.
- Pipe, valve and tank ruptures are addressed in the section of the ERP called “Tanks and Pipelines”.
- Procedures to control possible releases from ponds and impoundments are described in the section of the ERP entitled “Overtopping of Ponds and Tailings Impoundment” and in the Emergency Action Plans that are produced for each of the ponds/tailings facilities at the Carlin Operations.
- The Carlin Operations Emergency Response Plan (ERP) covers the Carlin Mine as well as the Emigrant Mine operations and includes a section entitled “Utility Emergency Shutdown” which details how to shut down equipment and who is responsible for doing so in the event of a power outage and details the power failure back-up systems. Additionally, the Emergency Generated Power SOP addresses procedures to follow for a power outage at the SAL, NAL, and Emigrant operations.
- Uncontrolled seepage is addressed in the Mill 5/6, NAL, SAL, and Emigrant Fluid Management Plans (under the section called Remedial Actions).
- Failure of the tailings impoundments and heap leach facilities are addressed in the ERP section “Overtopping of Ponds and Tailings Impoundment” and in the Emergency Action Plans for each of the ponds and tailings facilities at the Carlin Operations.

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- Failure of cyanide destruction system is addressed in the Caro’s Acid Operating Procedures. In the event of an emergency, the Caro’s Acid Cyanide Treatment Plant would be run on back-up power.

The cyanide supplier (Cyanco) and transporter (TransWood) take primary responsibility for cyanide spills up to the point of unloading at the site. The Carlin Operations would provide necessary assistance in coordination with Cyanco as indicated in the ERP under the section called “Tractor/Trailer Spills”. This section indicates that if a spill from a trailer should occur on Carlin Operations’ property, they would help Cyanco in emergency response.

The Carlin Operations’ ERP addresses specific response actions including evacuation, use of antidotes, release containment, and mitigation or cleanup. The section called “Evacuation Procedures” addresses evacuation of the mine including assembly points and accounting for personnel. The ERP also includes procedures for notification of communities, in the event of an emergency that may affect any communities or require community notification.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 7.2**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.2 that asks if the operations involve site personnel and stakeholders in the planning process.

**Basis for Audit Finding:**

The Carlin Operations solicits input of its workforce and local response agencies (e.g., local hospital, the Elko County ambulance and Summit Air) in the emergency response planning through internal safety meetings and training sessions, mock drills and meetings associated with the Elko County Local Emergency Planning Committee (LEPC).

Worker input in developing and evaluating health and safety procedures is via direct communication between supervisors and operators and during daily meetings and training sessions. In addition, process staff and the MERT have participated in the cyanide-related mock drill conducted in mock drills conducted from 2013 through 2018.

The Carlin Operations discusses the use and risks associated with accidental cyanide releases with potentially affected communities in the following ways:

- Community breakfasts in Elko: The use of cyanide at the facility and emergency response has been discussed during community breakfast meetings held by Newmont and attended by members of the local communities. These meetings have included talks given by Cyanco (the cyanide producer).
- Mine tours: Organized groups (e.g., schools, universities) schedule tours in advance.
- Public comment for new or modified permits.

LEPC meetings: Newmont is a signatory to a Mutual Aid Agreement that is organized by the Elko County LEPC. Representatives from the Carlin MERT attend LEPC quarterly meetings and the Medical Emergency

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Response Team (MERT) provides HazMat and firefighting assistance to the county, as required. The Carlin Operations have participated in both tabletop drills and full scale drills organized by LEPC.

The Carlin Operations have a formalized arrangement with the Northeastern Nevada Regional Hospital in Elko (for cyanide exposure treatment, if needed).

The Carlin Operations engages with local stakeholders via the membership of mine staff on the Elko County LEPC, Community breakfasts in Elko and others. The LEPC membership includes representatives from all state and county emergency response bodies as well as other non-government members.

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

**Audit Finding:**

- in full compliance with**
- The operation is**                            in substantial compliance with        **Standard of Practice 7.3**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.3. The Operations have designated appropriate personnel and committed necessary equipment and resources for emergency response.

**Basis for Audit Finding:**

The Carlin Operations have designated personnel and committed equipment to implement their ERP:

- The ERP defines the individuals in charge of an emergency situation. It defines Newmont’s Rapid Response System and responsibilities for key individuals
- The Carlin Surface Mine Rescue Contact Sheet details the emergency response teams by crew available at the site. The Contact Sheet includes individuals from both the Carlin and Emigrant MERTs.
- The ERP has a section titled “Off-Site Support, Training and Drills” that describes the annual training program for the emergency response personnel. It details that all employees will receive training on pertinent sections of the ERP.
- The ERP includes a section titled “Emergency Notification and Call Out Process”. This process includes procedures for contacting Emergency Medical Technicians and the MERT. The ERP states “Security will dispatch the Emergency Response Teams and will be able to assist emergency response personnel if required.” The Carlin Surface Mine Rescue Contact Sheet, which is held by Security and the HS&S Department, details the MERT members by crew and contains their 24-hour contact information. The Emergency Contact Call Checklist details contact information for Carlin’s management and Emergency Coordinators.
- The ERP defines the specific duties and responsibilities of the coordinators and MERT members including key individuals and all employees.
- The emergency response equipment is contained in the Emergency HazMat Trailer inventory and in the different equipment checklists used for the equipment inspection.
- All emergency vehicles and HazMat trailers are inspected weekly or every time they are used for training purposes.



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- The section of the ERP called “Medical Emergencies/Accidents” describes the role of the outside responders.

The Carlin Operations have a formalized arrangement with the Northeastern Nevada Regional Hospital in Elko for cyanide exposure treatment, if needed. The ERP includes the Sheriff Dispatch contact number to contact Summit Air as well as the air ambulance landing requirements and coordinates.

Newmont has participated in both tabletop drills and full scale drills organized by LEPC, such as a drill involving all LEPC members (including the Elko County ambulance and Summit Air).

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 7.4**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.4. The Operations have developed procedures for internal and external emergency notification and reporting.

**Basis for Audit Finding:**

The Carlin Operations’ ERP details procedures for notifying management, regulatory agencies, and outside response providers (i.e. the hospital, the ambulance, and Summit Air). The Emergency Contact Call Checklist contains the contact information for the mine management, local hospital, ambulance, Summit Air, regulatory agencies, other mining companies, and others. The ERP contains procedures to notify local communities. This would be done through the county commission or LEPC. The ERP also describes procedures to communicate with the media in case of an emergency.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 7.5**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.5. The Operations have incorporated into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

**Basis for Audit Finding:**

The Carlin Operations have described specific remediation measures for cyanide releases as follows:



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- The Carlin Operations have written procedures to contain, recover and clean-up liquid cyanide spills. These procedures are described in the ERP and in the Cyanide Spill Response and Cleanup SOP. Procedures require that containment structures such as berms or dikes or other immediate measures will be taken to stop the release until the necessary equipment and personnel can be mobilized to clean up the release. Cyanide releases will be disposed of on the heap leach pad or as indicated by the Environmental Department. Spilled cyanide solution within the mill building or CIC buildings will be returned to the process circuit from the floor sumps. The ERP requires the monitoring of the affected area after cleaning. The ERP describes the final cyanide concentration (< 0.2 ppm WAD cyanide) that will be allowed in residual soil as evidence the release has been completely cleaned up.
- The ERP requires the monitoring of the affected area after cleaning.
- Spill cleanup materials will be placed on the heap leach pad or in a location indicated by the Environmental Department.
- The water supply wells are located up gradient of the cyanide facilities. In the unlikely event of an incident that could affect the water supply, the Carlin Operations would only use bottled drinking water.

The Carlin Operations' ERP and the Cyanide Spill Response and Cleanup SOP state that "no chemicals such as hypochlorite, ferrous and hydrogen peroxide will be used to detox a cyanide spill".

The Carlin Operations' ERP requires sampling to identify the potentially contaminated areas. All cyanide, contaminated soil with WAD cyanide  $\geq 0.2$  ppm must be excavated. Spill sites must be monitored to validate cleanup.

The Carlin Operations Water Sampling and Monitoring Standard Operating Procedure details water sampling procedures including sampler duties, field quality control, field data, collection and preservation of samples, chain of custody procedures, well sampling equipment and data management.

***Standard of Practice 7.6: Periodically evaluate response procedures and capabilities and revise them as needed.***

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 7.6**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 7.6. The Operations periodically evaluate response procedures and capabilities and revises them as needed.

**Basis for Audit Finding:**

The Carlin Operations review the ERP at least annually, and more often if required after incidents, mock drills, or audits. The current version of the ERP is dated March 2018. The introduction section of the ERP requires that reviews be conducted following any incident when it was necessary to implement the ERP, to determine if the planned response procedures were adequate or require revision.

The Operations participated in mock drills in 2016 and 2017. After each mock drill, a meeting is undertaken and

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the findings are evaluated and documented. This is done in the form of a meeting that takes place on a separate day after the mock drill. It includes the general foreman of the area, the foreman, HS&S, mine rescue and operations.

The Carlin Operations review the ERP at least annually, and more often if required after incidents, mock drills, or audits. The introduction section of the ERP requires that reviews be conducted following any incident when it was necessary to implement the ERP, to determine if the planned response procedures were adequate or require revision. No cyanide related emergency has occurred at Carlin during the recertification period. No action involving the review of the ERP has been identified in the mock drills. The Carlin Operations have reviewed and revised the ERP in 2017 and 2018 in order to improve emergency response actions described in the plan.

**8.0 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.***

**Audit Finding:**

**in full compliance with**

**The operation is**  in substantial compliance with **Standard of Practice 8.1**

not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 8.1. The Operations train workers to understand the hazards associated with cyanide use.

**Basis for Audit Finding:**

Carlin Operations’ employees are trained in cyanide hazard recognition as part of their Mine Safety and Health Administration (MSHA) New Hire, Annual Refresher, and site-specific training. Staff assigned to the plant or tailings facilities, where cyanide is an integral part of the operation, are trained on the safe use and handling of cyanide through a “process specific training module”. Visitors receive an information handbook that mentions the possible presence of cyanide in ponds and facilities; however, Carlin Operations’ staff escort visitors to ensure their safety. Contractors working in areas where cyanide is present attend a Cyanide New Hire training presentation before commencing work.

The Cyanide New Hire Training includes the following topics:

- Cyanide Safety Datasheet information
- International Cyanide Management Code (including why is Newmont adopting the Code)
- Employee safety
- Protecting the environment and wildlife (heap pad design/construction, industrial artificial pond permits, leak detection, ground water monitoring wells, water pollution control permits)
- Liquid sodium cyanide
- Process overview including location of the cyanide offloading
- Cyanide presence in nature and physical and chemical characteristics

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- Safe handling
- Chemical hygiene
- Maintenance procedures
- Detoxifying cyanide
- Personal protective equipment
- Safety shower/eyewash
- Types of sodium cyanide related health hazards
- Poisoning symptoms, including routes of exposure
- First aid for cyanide overexposure
- Escape packs

The Carlin Operations conduct cyanide hazard recognition refresher training annually via the “Cyanide Safety Annual Refresher Training” presentation that has a similar content to the Cyanide Safety New Hire presentation. Following the presentation or module all employees take a test to ensure they have understood the information presented. The Carlin Operations maintain records of employee safety training including training on cyanide subjects.

**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.**

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 8.2**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 8.2. The Operations train appropriate personnel to operate the facilities according to systems and procedures that protect human health, the community, and the environment.

**Basis for Audit Finding:**

Carlin Operations’ employees assigned to specific areas where cyanide is an integral part of the operation, such as unloading, processing, and maintenance activities are trained on the safe use and handling of cyanide following the Eastern Nevada Process Operations Technicians System and Hourly Progression System. Training methods use on the job training, process SOPs and instruction on the proper use of the equipment. Each employee is required to take a competency knowledge check, involving a detailed written and oral test, prior to being signed off on an individual task. A record is maintained demonstrating the level of training the employee has received.

The Carlin Operations provide training necessary for each job involving cyanide management included topics related to cyanide exposures and releases for each circuit and level. Training materials include:

- Standard operating procedures (SOPs)

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- Standard task procedures (STPs)
- Plant operating manuals

Cyanide-related topics include correct use of personal protective equipment; response to cyanide alarms; use of cyanide antidote kits; use of portable HCN monitors; use of fire extinguishers; eyewashes, and showers; ability to access SDSs and Emergency Response Procedures; safe work practices for working with cyanide; proper pH and HCN levels; reporting of wildlife mortalities; cyanide control limits and strategies for tailings; and others.

Supervisors and/or previously qualified operators provide task training at the Carlin Operations. The shift supervisors and training coordinators approve an operators' process circuit checklist when all training for a particular circuit or when a level is complete.

Carlin Operations' employees are trained annually on usage procedures and hazards associated with cyanide. Training and instruction is also included periodically at the weekly safety meetings. A record is maintained of the training given to all employees.

As mentioned above, the Carlin Operations use written and oral examinations, supervisor questioning, and observation to evaluate the effectiveness of the training provided and employee's knowledge of cyanide issues and safety measures. The Operations maintain records of training for each employee throughout the entire period of their employment. The records include the names of the employees and the trainers, the date of training, the topics covered, and any test results..

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

**Audit Finding:**

- |                         |                                     |  |
|-------------------------|-------------------------------------|--|
|                         | <input checked="" type="checkbox"/> | <b>in full compliance with</b>                                 |
| <b>The operation is</b> | <input type="checkbox"/>            | in substantial compliance with <b>Standard of Practice 8.3</b> |
|                         | <input type="checkbox"/>            | not in compliance with   |

The Carlin Operations are in Full Compliance with Standard of Practice 8.3. The Operations train appropriate workers and personnel to respond to exposures and environmental releases of cyanide.

**Basis for Audit Finding:**

All Carlin Operations employees working with cyanide are trained to be first responders in the event of an emergency. Training elements include training on the emergency response plan, first aid procedures, and locations of emergency response equipment. This is part of the annual refresher training that is given to all employees who may come into contact with cyanide.

In addition, the MERT team receives additional training. They receive a Cyanide Safety presentation that includes locations where cyanide is used, how to find the SDS, going through the SDS in detail, emergency response procedures, plan and resources, the 'Mayday' procedures, cyanide exposure symptoms, and first aid treatment. Also they are trained on the procedures and guidelines outlined in the ERP including the response to a cyanide spill, release, or emergency.

Training for emergency response personnel includes sessions with personnel from both the Carlin and Emigrant

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Mines. The Carlin MERT participate in the Emigrant drills, however, the Emigrant MERT does not normally participate in the Carlin drills because there are enough MERT members at the Carlin Mine to take care of those emergencies. The Carlin MERT responds to emergencies at the Emigrant Mine

The Carlin Operations have made off-site Emergency Responders, such as community members, local responders and medical providers, familiar with those elements of the Emergency Response Plan related to cyanide. The Operations are a signatory to a Mutual Aid Agreement that is organized by the Elko County LEPC. Representatives from the Operations attend LEPC quarterly meetings and the Carlin MERT provides HazMat and firefighting assistance to the County as required. In addition, a number of employees are also part-time reserve firefighters in the local communities of Elko, Carlin, and Spring Creek.

The “Cyanide Safety Annual Refresher Training” presentation is given annually to all employees involved in the use of cyanide.

The Carlin Operations periodically conduct simulated cyanide emergency drills for training purposes. The drills have had different scenarios and have included both environmental releases and cyanide exposures. The cyanide emergency drills are evaluated from a training perspective to determine if personnel have the knowledge and skills required for effective response. Training procedures are revised if deficiencies are identified. Training records are retained, documenting the employee training on cyanide use and safety. The records include the names of the employees and the trainers, the date of training, the topics covered, and any test results demonstrating an understanding of the training materials.

**9.0 DIALOGUE: Engage in public consultation and disclosure.**

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

**Audit Finding:**

- in full compliance with**
- The operation is**       in substantial compliance with **Standard of Practice 9.1**
- not in compliance with

The Carlin Operations are in Full Compliance with Standard of Practice 9.1. The Operations provide stakeholders the opportunity to communicate issues of concern.

**Basis for Audit Finding:**

The Carlin Operations provide opportunities for stakeholder and public input by having an “open door” policy and providing various methods for unscheduled contact:

- Phone numbers and e-mail addresses are listed in the local newspaper (Elko Daily Free Press) as part of the “Newmont Notes” series of articles.
- Posters and contact information are available at the Elko Chamber of Commerce.
- The Newmont.com website.

The Operations provide opportunities for stakeholder and public input by providing various methods for scheduled contact:

- Quarterly Community Breakfasts in Elko with community leaders

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- Mine tours. Organized groups (e.g., schools, universities) schedule tours in advance.
- Public comment periods for permits.

The Operations log all public and stakeholder concerns on an issues register to ensure that concerns are tracked and responded to.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 9.2**
- not in compliance with

Carlin Operations are in Full Compliance with Standard of Practice 9.2. The Operations initiate dialogue describing cyanide management procedures and actively address identified concerns.

**Basis for Audit Finding:**

The Carlin Operations provide opportunities to interact with stakeholders and provides them with cyanide-related information as follows:

- Community breakfasts held in Elko are attended by representatives from the City of Elko, City of Carlin and Eureka County, the local tribes, Nevada Cattleman’s Association, Elko County Commission, Forest Service, the regional hospital, the regional development agency, local colleges, the Elko fire department, Elko Sheriff, Elko Police Department, Bureau of Land Management, local businesses, and Newmont.
- Mine tours. Organized groups (e.g., schools, universities) schedule tours in advance. In 2017 there were 39 organized tours of the Carlin mine. In 2018 at the time of the recertification, 181 people had toured the Carlin Mine.
- Public comment periods for permits.
- “Newmont Notes”. The Carlin Operations also distributes cyanide-related information via its series of articles “Newmont Notes” in the Elko newspaper.
- “Beyond the Mine” website includes web pages on Cyanide Management, How Cyanide Is Used, Cyanide Safety Management, and Annual Cyanide Management Reviews, along with Key Data.

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

**Audit Finding:**

- in full compliance with**
- The operation is**  in substantial compliance with **Standard of Practice 9.3**
- not in compliance with

## CARLIN OPERATIONS ICMC RECERTIFICATION AUDIT – SUMMARY REPORT

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The Carlin Operations are in full compliance with Standard of Practice 9.3. The Operations make appropriate operational and environmental information regarding cyanide available to stakeholders.

### **Basis for Audit Finding:**

The Carlin Operations have developed written descriptions of the mine's operations and cyanide management. These written descriptions are in the form of handouts, PowerPoint presentations, and a website. The Operations have also developed a visual/oral description in the form of a DVD on how gold is produced. The leaflets "Carlin Mill 5" and "Carlin Mill 6" have a detailed Process Flow Sheets. The information is available to the public and stakeholders via tours, open houses, public meetings, community breakfasts, and websites.

The Carlin Operations are covered by Water Pollution Control Permits that are accompanied by Fact Sheets describing the use and management of cyanide at the site. These public documents are available from the Carlin Operations or from the Nevada Department of Environmental Protection

Approximately 88% of the people in Eureka County have a high school education, indicating that a high percentage of the population is literate. (US Census Bureau, State & County QuickFacts)

The Carlin Operations makes information publically available on cyanide releases or exposure incidents primarily via the website "Beyond the Mine", which reported one incident in 2017. This was related to an incident classified as an Immediately Reportable Incident – defined by the Nevada Department of Environmental Protection as those over 500 gallons of cyanide and require reporting within 24 hours of the incident occurring. The Carlin Operations had only the one Immediately Reportable Incident from 2016 to the first half of 2018.

There were four other incidents classified as Cyanide Events, These releases were due to a variety of reasons but mostly equipment failures and were discovered in various ways such as automatic alarms, workers in the vicinity, etc. The Carlin Operations investigated these incidents and identified causes and influencing factors. Remedial measures were put in place and completion reports submitted to the regulators.

The releases were attributable to different factors, rather than a single a single repeating condition, and therefore do not reflect a breakdown in a particular underlying management system. The releases were noticed by operators or by control room operators via automatic alarms. None of these suggest an underlying inattentiveness to releases. All incidents were reviewed in detail for the recertification process.