

ERM-West, Inc.
102 West 500 South, Suite 650
Salt Lake City, UT 84101
Telephone: (801) 595-8400
Fax: (801) 595-8484
www.erm.com



**INTERNATIONAL CYANIDE MANAGEMENT CODE
GOLD MINING OPERATION RECERTIFICATION AUDIT
TWIN CREEKS MINE, NEVADA**

**SUMMARY AUDIT
REPORT**

Submitted to:

*Newmont Mining Corporation
Twin Creeks Mine
P.O. Box 69
Golconda, Nevada 89414*

and

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

Submitted by:

*ERM-West, Inc.
102 West 500 South, Suite 650
Salt Lake City, Utah 84101*

TABLE OF CONTENTS

Page

1. PRODUCTION: ENCOURAGE RESPONSIBLE CYANIDE MANUFACTURING BY PURCHASING FROM MANUFACTURERS WHO OPERATE IN A SAFE AND ENVIRONMENTALLY PROTECTIVE MANNER 9

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. 9

2. TRANSPORTATION: PROTECT COMMUNITIES AND THE ENVIRONMENT DURING CYANIDE TRANSPORT..... 9

Standard of Practice 2.1: Establish clear lines or responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters. 9

Standard of Practice 2.2: Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management..... 10

3. HANDLING AND STORAGE: PROTECT WORKERS AND THE ENVIRONMENT DURING CYANIDE HANDLING AND STORAGE 10

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..... 10

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. 11

4. OPERATIONS: MANAGE CYANIDE PROCESS SOLUTIONS AND WASTE STREAMS TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT 12


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. 12

Standard of Practice 4.2: Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings. 13

Standard of Practice 4.3: Implement a comprehensive water management program to protect against unintentional releases..... 13

Standard of Practice 4.4: Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions. 14

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Standard of Practice 4.5: Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water. 14

Standard of Practice 4.6: Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater...... 15

Standard of Practice 4.7: Provide spill prevention or containment measures for process tanks and pipelines. 15

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...... 16

Standard of Practice 4.9: Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality...... 16

5. DECOMMISSIONING: PROTECT COMMUNITIES AND THE ENVIRONMENT FROM CYANIDE THROUGH DEVELOPMENT AND IMPLEMENTATION OF DECOMMISSIONING PLANS FOR CYANIDE FACILITIES..... 16

Standard of Practice 5.1: Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock. 16

Standard of Practice 5.2: Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities. 17

6. WORKER SAFETY: PROTECT WORKERS’ HEALTH AND SAFETY FROM EXPOSURE TO CYANIDE..... 17

Standard of Practice 6.1: Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them. 17

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. 18

Standard of Practice 6.3: Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide...... 19

7. EMERGENCY RESPONSE: PROTECT COMMUNITIES AND THE ENVIRONMENT THROUGH THE DEVELOPMENT OF EMERGENCY RESPONSE STRATEGIES AND CAPABILITIES..... 17

Standard of Practice 7.1: Prepare detailed emergency response plans for potential cyanide releases. 17

Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process...... 17

Standard of Practice 7.3: .Designate appropriate personnel and commit necessary equipment and resources for emergency response. 18

Standard of Practice 7.4: Develop procedures for internal and external emergency notification and reporting...... 18

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...... 19

Standard of Practice 7.6: Periodically evaluate response procedures and capabilities and revise them as needed...... 19

8. TRAINING: TRAIN WORKERS AND EMERGENCY RESPONSE PERSONNEL TO MANAGE CYANIDE IN A SAFE AND ENVIRONMENTALLY PROTECTIVE MANNER 20

Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use. 20

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. 20

Standard of Practice 8.3: Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide...... 21

9. DIALOGUE: ENGAGE IN PUBLIC CONSULTATION AND DISCLOSURE. 22

Standard of Practice 9.1: Provide stakeholders the opportunity to communicate issues of concern. 22

Standard of Practice 9.2: Initiate dialogue describing cyanide management procedures and responsively address identified concerns. 23

Standard of Practice 9.3: Make appropriate operational and environmental information regarding cyanide available to stakeholders. 23

Name of Project: Twin Creeks Mine

Project Owner / Operator: Twin Creeks Mine is operated by Newmont Mining Corporation (Newmont)

Name of Responsible Manager: Mark Evatz, General Manager

Address and Contact Information: Twin Creeks Mine
P.O. Box 69
Golconda, Nevada 89414

Phone – 775-635-6632
Fax – 775-635-4723
Email – Mark.Evatz@Newmont.com

Audit Dates: August 12 – 15, 2013

Location and History

The Twin Creeks Mine (Twin Creeks) is located in Humboldt County, Nevada, United States of America (USA), approximately 35 miles north of the town of Golconda. Twin Creeks is located on both patented and unpatented land. The unpatented land is managed by the US Department of Interior, Bureau of Land Management. Twin Creeks consists of two active open pits, overburden piles, topsoil stockpiles, tailings impoundments, heap leach facilities, including sulfide and oxide milling circuit process buildings, heap leach gold recovery circuits, administration buildings, maintenance facilities, and access and haul roads. Mining originally began in 1986 in the northern part of the project area, known as the Chimney Creek Mine. In 1989, the Rabbit Creek Mine in the southern portion of the project area began mining. In 1993, Chimney Creek and Rabbit Creek Mines were combined and renamed Twin Creeks to pursue development of a large sulfide deposit. Newmont merged with the owner of the Twin Creeks operation and became the owner and operator of the mine in 1997.


Description of Operation

Twin Creeks is an open pit precious metals mine with two process circuits:

- 1) An oxide and sulfide ore milling circuit utilizing the carbon-in-leach (CIL) process; and,
- 2) A heap leach processing with a carbon-in-column (CIC) circuit.

Sulfide ore is milled in the Sage Mill and then conveyed to the autoclave for rapid oxidation of the sulfide minerals. The oxide ore is milled in the Juniper Mill, combined with the Sage Mill Ore, and conveyed to the CIL Circuit. Tailings are neutralized with carbo's acid for cyanide destruction before disposal in the Juniper Tailings Storage Facility (TSF). The Juniper/Sage Mills at Twin Creeks receive ore for processing from the Twin Creeks pit, as well as the Carlin and Turquoise Ridge mines. The mills also receive concentrate and ores from foreign sources. Twin Creeks has a closed tailing storage facility and mill in the southern portion of the project area referred to as the Pinon Mill and TSF. The Pinon Mill was inactive at the time of the audit except for the CIC circuit in the mill building. The Pinon TSF has been decommissioned by removal of process water from the surface and placing a vegetated cover over the impoundment. Accordingly, the Pinon TSF was not included in the initial International Cyanide Management Code (ICMC or Code) verification audit in 2007 or in this recertification audit in 2013.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)


August 12 - 15, 2013
Audit Dates

The Twin Creeks heap leach circuit consists of a Test Pad and three heap leach facilities in the northern portion of the project area (Izzenhood/L8, Snowstorm, and Sonoma) and one heap leach facility (using Hydro-Jex technology) in the southern portion of the project area (Osgood). The heap leach facilities and associated ponds are permitted as zero-discharge facilities. The heaps drain to a series of intermediate and pregnant ponds. Solutions from the pregnant ponds are pumped to the gold recovery circuit (carbon reactivation, carbon stripping, Merrill Crowe precipitation). The process fluid management systems include:

- Leach pads (Snowstorm (phases N1 and N2), Sonoma (phases N3-N5), Izzenhood/L8 (phases S1-S5) and the Test pad);
- Synthetic-lined and leak detection S4/S5 solution transfer sump with dedicated leak detection Leak Control and Recovery System (LCRS) sump and evacuation port;
- Hydro-Jex injection system (Osgood Pad);
- Barren solution ponds (North and South);
- Pregnant solution ponds;
- Intermediate solution ponds;
- Events ponds (major, minor and N5);
- Solution recovery tanks;
- Juniper TSF;
- Underdrainage collection tank;
- Tailings reclaim solution pond;
- Reagent storage facilities;
- Transfer pipes, ditches, valves, and pumps used in conveyance, control or detection of process fluids between process components;
- Liner systems, leak detection systems, monitoring devices and secondary containments; and
- Process recovery buildings (Juniper and Piñon Mills) including all tanks, basins, sumps, pumps and piping necessary to interconnect the components within the buildings.

The Twin Creeks open pit includes active dewatering operations. Water removed from the subsurface in the dewatering wells is discharged according to permits issued by the NDEP to a surface drainage after an arsenic treatment process. Water quality monitoring confirmed that the dewatering circuit is separate and distinct from the cyanide processing circuit.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Twin Creeks receives liquid sodium cyanide from Cyanco (located in Winnemucca, Nevada) in specially engineered tanker trucks. The sodium cyanide is delivered by TransWood Inc. (TransWood). Both Cyanco and TransWood are signatory to the Code and have been certified as compliant with the Code by third-party auditors. Twin Creeks stores and manages sodium cyanide solutions in engineered tanks, pipelines and lined ponds that have had appropriate quality control and quality assurance. Twin Creeks' employees are trained in cyanide hazards and first aid, first response, emergency response, and specific operational task training. Twin Creeks' facilities are fenced to preclude wildlife and livestock from entering cyanide process areas. Twin Creeks conducts daily, weekly, and monthly inspections to assure that facilities are functioning as designed and to monitor process solutions. Preventive maintenance programs are in place to assure the continuous operations. Twin Creeks has approved closure and reclamation plans along with financial assurance to complete the appropriate management of cyanide solutions and solids, and the decontamination of cyanide pipelines and equipment. The plans have sufficient detail to support the ICMC compliance and cost estimation.


Twin Creeks has identified potential cyanide exposure scenarios and developed plans and Standard Operating Procedures (SOPs) to eliminate, reduce and control exposure to cyanide. Operating plans and individual task specific SOPs provide details for safe storage, handling and distribution of sodium cyanide liquid; safe operation of cyanide equipment; Personal Protective Equipment (PPE) requirements; and inspection requirements.

Twin Creeks made formalized arrangement with the Humboldt General Hospital to provide medical assistance to workers exposed to cyanide. Twin Creeks has emergency response and mine rescue teams trained in firefighting, confined space, cyanide spill response and decontamination, cyanide awareness, use of response equipment and first aid for cyanide poisoning. Every shift has trained first aid personnel at the mine to respond to cyanide related incidents. Cyanide related spills will be reported to the corresponding regulatory agencies within specified regulatory time frames.

The International Cyanide Management Institute (ICMI) certified Twin Creeks on April 2, 2007. Since the initial certification audit the following new main activities have occurred at Twin Creeks:

- 2007: Twin Creeks was certified by the ICMI. Hydro-Jex research was started on the Osgood pads. The Izzenhood/L8 Heap Leach Phases 4 and 5 were expanded and raises at the Juniper TSF were started. A third cyanide storage tank (East Tank) was added to the Sage/Juniper cyanide storage area. The initial audit included the concrete works for this third tank. The Izzenhood/L-8 Minor Events Pond sump was upgraded. The final closure cover on the Pinon Tailings was completed. No leaching of the Sonoma leach pads.
- 2008: Milling, conventional heap leach and Hydro-Jex research continued. The D & E trains of the carbon columns at Osgood leach pad were installed. No leaching of the Sonoma leach pads.
- 2009: Twin Creeks switched from hydrogen peroxide to Caro's Acid cyanide destruction system at the Juniper/Sage Mill to treat the tailings at the mill. The Nevada Division of Environmental Protection (NDEP) approved the Hydro-Jex system for the Osgood Pad. The Juniper TSF Cell 3 expansion was started. No leaching of the Sonoma leach pads.
- 2010: The Osgood CIC tanks of the C train were rinsed and taken out of service. The site was recertified by ICMI in August 2010.
- 2011: Cells 1 and 2 of the tailings impoundment were built out, and Cell 3 was completed up to Stage 5 at an elevation of 5,040 ft above mean sea level (amsl).

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

- 2011: A cutoff trench with a pumping system designed to collect flow from Juniper Tailings Impoundment was constructed. The cutoff trench and pumping system convey all fluid to the Underdrain Collection Pond. The Engineering Design Change (EDC) was approved in April 2011 by NDEP and construction completed in May 2011. An additional monitoring well, GW-10, was added downgradient of the trench and pond as well.
- 2011/2012: A second EDC was approved by the NDEP in October 2011 to add a seepage collection well and a second cutoff trench northwest of the first was constructed, expanding the area of collection and providing additional data on the source of the seepage. Construction was completed in January 2012. An additional monitoring well, east of the piezometer conduit collection sump, in the area of geotechnical well BH11A-02 was installed in May 2012.
- 2013: Active leaching of Osgood leach pad was discontinued in January 2013. The system continues to operate without additional cyanide addition.

Auditors: Glenn Keays, M.Sc., EP(CEA), Lead Auditor
Brent Bailey, PE, CEA, Gold Mining Technical Expert

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


The Twin Creeks operation was found to be in Full Compliance with the International Cyanide Management Code; and this operation has not experienced compliance problems during the previous three-year audit cycle.

Audit Company: **ERM-West, Inc.**
Audit Team Leader: **Glenn Keays**
E-mail: glenn.keays@erm.com

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 Code Verification Protocol for Gold Mine Operations and using standard and accepted practices for health, safety and environmental audits.

<u>Glenn Keays</u>		<u>October 31, 2013</u>
Name of Auditor	Signature of Lead Auditor	Date

<u>Brent C. Bailey</u>		<u>October 31, 2013</u>
Name of Auditor	Signature Auditor	Date

<u>Twin Creeks Mine</u>		<u>August 12 - 15, 2013</u>
Name of Facility	Signature of Lead Auditor (Glenn Keays)	Audit Dates

1. 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.*

in full compliance with

The operation is in substantial compliance with **Standard of Practice 1.1**

not in compliance with

Basis for Audit Finding: Twin Creeks has committed to only purchase cyanide from a producer which is compliant with the International Cyanide Management Code (ICMC or the Code). Twin Creeks has sodium cyanide supply contracts with Cyanco, Inc. (Cyanco). Cyanco is signatory to the ICMC and has provided third-party independent Audit Summary Reports confirming full compliance with the ICMC's Cyanide Production Principles and Standards of Practice. Cyanco was re-certified in full compliance with the Code on July 12, 2013.

2. TRANSPORTATION: Protect communities and the environment during cyanide transport

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 2.1**


not in compliance with

Basis for Audit Finding: Twin Creeks has a sodium cyanide supply contract with Cyanco, which specifies that Twin Creeks takes ownership of the product at the time of delivery into their cyanide storage tanks. The contract between Twin Creeks and Cyanco specifically identifies the ICMC certification requirements as a provision. Cyanco is a signatory producer to the Code and has Transwood Inc. (Transwood) as the only transporter of cyanide from their production facility to Twin Creeks. There are no interim storages from the Cyanco plant to the mine.

Cyanco and TransWood are both signatories to the ICMC and were both re-certified by a third party audit as fully compliant with the ICMC on July 12, 2013. As ICMC certified companies, both demonstrated that they have clear lines of responsibility for safety, security, release prevention, training and emergency response. Cyanco and TransWood do not use subcontractors.

As part of TransWood and Cyanco's ICMC certification, the requirements of this Standard of Practice were addressed in order that they achieve full compliance with the Code. Therefore, Twin Creeks is in full compliance because its producer and transporter are ICMI certified.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Standard of Practice 2.2:

Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

in full compliance with

The operation is in substantial compliance with **Standard of Practice 2.2**

not in compliance with

Basis for Audit Finding: Newmont's supply contract is with Cyanco and requires Cyanco and its transportation personnel, distributors and contract transporters (Transwood) to comply with all applicable Code Principles, Standards of Practice, performance goals, audit recommendation and certification requirements applicable to the transportation to Twin Creeks, including the specific compliance matters set out in the *ICMI Cyanide Transportation Verification Protocol*. Cyanco is a signatory company to the Code and certified as compliant with the Code. The primary transporter Transwood is signatory to the Code and has been certified by a third party independent auditor as compliant with the ICMC with appropriate emergency response plans, capabilities and adequate cyanide management control. Twin Creeks has records documenting the ordering of cyanide and the bills of lading.

3. HANDLING AND STORAGE: Protect workers and the environment during cyanide handling and storage

Standard of Practice 3.1:

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 3.1**

not in compliance with

Basis for Audit Finding: Cyanide facilities (offload and storage) at Twin Creeks have been designed and constructed in accordance with Cyanco guidelines, applicable Nevada regulations and sound and accepted engineering practices. The design and construction of the cyanide offload and storage facilities have been completed appropriately as documented in construction as-built reports prepared and stamped by Nevada Professional Engineers. The cyanide offload and storage facility quality control and assurance procedures and documentation include an as-built report noting foundation compaction and concrete reinforcement and verification of piping and tank materials. The cyanide storage tanks and offload areas are located outside and provide appropriate ventilation. The cyanide storage tanks are within concrete containment to contain releases and precipitation. The cyanide offload pads are constructed of cast-in-place reinforced concrete to prevent seepage to the subsurface. The North Dump Leach (Snowstorm) and Sage/Juniper cyanide unload pads are curbed. The Pinon Mill cyanide unload pad is completed on a concrete pad without curbing but with drainage to the mill containment. As also covered under Standard of Practice 4.7, the containment areas are constructed for spill prevention and sized to contain volumes greater than the single largest tank.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

The unloading and storage areas are located away from public access. There are no surface water bodies or groundwater supply wells nearby (Kelly Creek is the closest water body, which is approximately 3 miles away). Twin Creeks has specific emergency procedures for notifying and evacuating potentially exposed individuals and response and remediation.

The liquid cyanide storage tanks have high-level alarms and level indicators. Secondary containment for the cyanide storage tanks are constructed of materials that provide a competent barrier to leakage. Twin Creeks has a method to prevent the overfilling of each of the cyanide storage tanks. The cyanide storage tanks have ultrasonic level indicators and alarms. The cyanide storage area for Juniper and Sage Mills is located outside and includes a Hydrogen Cyanide (HCN) monitor located between two of the tanks. The cyanide storage tank at the North Dump Leach area is stored outside with adequate ventilation and in an area with low traffic. The Pinon Mill cyanide storage area includes an outside unload storage tank and an inside cyanide distribution tank. The mill building has three HCN monitors and includes available ventilation when required. The cyanide storage containment areas are designed to contain 110% volume of the single largest tank. As-built documentation indicated that the cyanide storage tanks received quality assurance tests including annual non-destructive testing. The design package includes foundation, concrete, and steel specifications.

Twin Creeks has an inspection and preventative maintenance program for identification and patching of cracks. Cracks and other voids in the concrete are patched with epoxy or coated. Review of the containments indicated that they are maintained.

Twin Creeks' process areas are within the fenced complex of the Twin Creeks operations. There are no unsecured valves that would allow direct access to the liquid cyanide. The delivery of liquid cyanide is performed in specially engineered tanker trucks.


Cyanide is stored separately from incompatible materials such as acids, strong oxidizers and explosives.

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.*

- in full compliance with**
- The operation is** in substantial compliance with **Standard of Practice 3.2**
- not in compliance with

Basis for Audit Finding: Twin Creeks has developed and implemented a Cyanide Off-Loading SOP that covers the responsibilities for the transporter and the site personnel. Twin Creeks uses only liquid cyanide and there are no empty cyanide containers that require disposal. Twin Creeks has developed and implemented procedures to prevent exposures and releases during cyanide unloading and covers the responsibilities for the transporter and the site personnel. Twin Creeks requires appropriate PPE and observation by an operator during the off-load connection and disconnection. The audit team observed an offload by Transwood and both the Twin Creeks' escort and the delivery driver followed procedures.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Any liquid spills or leaks within the concrete containment for the cyanide storage tank are automatically pumped from the sump back into the process circuit. Spills on the offload pad would gravity drain to a sump and then be pumped out with a portable pump and returned to the process circuit. Visual inspection of the Twin Creeks containments indicated good housekeeping practices.

4. OPERATIONS: Manage cyanide process solutions and waste streams to protect human health and the environment

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


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

Basis for Audit Finding: Twin Creeks has developed and implemented operating plans for cyanide facilities, such as grinding, leaching and carbon, tailings and water, refining, and utilities and reagents. Twin Creeks also has two Fluid Management System Operating Plans, one for the north area and the other for the south area. These Fluid Management Plans contain emergency response actions for power outages, natural disasters, spills, and other upset conditions. Twin Creeks also has a Stormwater Pollution Prevention Plan (SWPPP) that describes the stormwater control system, defines Best Management Practices (BMPs), and specifies procedures and inspections. Some of the BMPs are related to cyanide facilities. The plan was last revised in April 2013.

In addition, Twin Creeks has developed and implemented SOPs that address protection of human health and the environment for the operation of cyanide heap leach processing and the cyanide carbon-in-leach circuit for the two mills. SOPs address all the cyanide management tasks such as unloading and storage of cyanide; operation of the CIL and CIC systems; and operation of cyanide destruct circuit for tailings disposal.

Twin Creeks conducts daily, weekly, monthly, and quarterly inspections of tailings storage facilities, heap leach facilities, mills, ponds, pipelines, secondary containments, and offload/storage facilities. Inspection results are documented and corrective actions identified. Twin Creeks has backup generators to ensure that essential process equipment and systems operate. Twin Creeks has inspections that include regular testing of the backup power generators. Twin Creeks uses a computer based preventive maintenance system, SAP, to identify, issue work orders and document all preventive maintenance activities and corrective actions. Twin Creeks completes a change management procedure when facilities or activities are modified.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 4.2**

not in compliance with

Basis for Audit Finding: The Juniper/Sage Mill at Twin Creeks receives ore for processing from the Twin Creeks pit, Carlin and Turquoise Ridge mines. This mill also receives concentrate and ores from foreign sources. The Pinon Mill at Twin Creeks is inactive, and therefore cyanide optimization is inapplicable for that facility.

Twin Creeks performs pre-acceptance optimization evaluations for ores and concentrates from new sources. Twin Creeks has implemented cyanide addition controls. Cyanide concentrations and pH are manually measured by titration every three hours and the cyanide setpoint adjusted accordingly. Twin Creeks replaced the hydrogen peroxide cyanide destruction system in 2009 with a Caro's Acid Plant; both systems limit cyanide concentrations in tailings discharged to the Juniper Tailings Storage Facility.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 4.3**

not in compliance with

Basis for Audit Finding: Twin Creeks has developed, and maintained, a comprehensive web-based probabilistic water balance that addresses the uncertainty and variability of climatic data to prevent overtopping. New facilities and expansions have been added to the water balance in a timely manner. In fall 2012, the water balance model transitioned to GoldSim.

Twin Creeks has two weather stations and measures and records precipitation data for incorporation into the model and operational planning. Pond levels and freeboard from inspections are incorporated into the water balance model to evaluate potential overtopping. Process facility inspection procedures and data collection programs have been implemented to update the water balance model on a regular basis. Schlumberger Water Services undertook a review of the water balance on November 8, 2012. Overall, the model calibration indicates that it is appropriately simulating monthly precipitation and evaporation values and trends for Twin Creeks.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 4.4**

not in compliance with

Basis for Audit Finding: Twin Creeks has installed measures to restrict wildlife and livestock access to containments with cyanide-containing process solutions. These measures consist of a livestock perimeter fence around the entire property; wildlife fencing around process ponds; and either pond netting or bird balls in the process ponds themselves. Until 2009, Twin Creeks used a hydrogen peroxide cyanide destruction system to limit cyanide levels in the tailings below levels lethal to wildlife. In 2009, Twin Creeks installed a Caro's Acid plant for the same purpose and decommissioned the hydrogen peroxide system. In addition, the tailings impoundment supernatant pond is equipped with propane fired air cannons used as a hazing technique on the tailings impoundment if WAD cyanide levels exceed 50 ppm.. Twin Creeks has personnel trained and ready to support bird hazing and rescue if required on the tailings impoundment. Additional cannons may be placed in operation, or the frequency of the cannon blasting will be adjusted as necessary. Twin Creeks has developed and implemented programs to prevent and control ponding of solution on the surface of the heap leach surfaces during application and to prevent overspraying of the lined areas (e.g. using drip emitters rather than nozzles, therefore, avoiding overspray issues). At flumes along the perimeter of the heap leach facilities, gravel cover of solutions or netting is used to prevent wildlife contact. No wildlife mortalities were associated with cyanide ingestion at the Juniper tailings impoundment.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 4.5**

not in compliance with

Basis for Audit Finding: Twin Creeks is designed and operated for zero-discharge of process fluids. Operation performance history, design criteria and the project water balance indicate that facilities operation is consistent with the zero-discharge requirements. Inspections, spill prevention, and emergency response plans have been developed to comply with the zero-discharge operating requirements.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

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


Basis for Audit Finding: The regional groundwater generally meets the beneficial use for a drinking water source, with the exception of arsenic concentrations. Nevertheless, the cyanide facilities at Twin Creeks are designed and operated to protect groundwater. The heap leach facilities contain composite liner systems consisting of compacted low-permeability soil liner overlain by geomembrane liners. Conveyances are double lined (i.e., pipe-in-pipe or pipe-in-liner). The solution ponds contain double geomembrane liners with leak detection and leak collection systems. The offloading and cyanide storage tanks have coated concrete containments. The Juniper Tailings Storage Facility is underlain by low permeability layer (seal zone soils) and a drain gravel layer with perforated pipes to collect seepage. The tailings embankments have clay core at the lower levels and High Density Polyethylene (HDPE) liner where the supernatant pond contacts the embankment. The embankments also have a seepage collection system. The tailings storage facility is operated to promote evaporation, limit head on the underlying liner, and develop consolidated tailings. Excess water is decanted off the impoundment surface and conveyed to a HDPE double-lined reclaim pond. The groundwater quality monitoring data indicates that the beneficial groundwater uses have been protected.

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

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

Basis for Audit Finding: The Twin Creeks operation has secondary curbed concrete containments for all cyanide storage and processing areas. Other secondary containments include pipe-in-pipe and geomembrane-lined channels. The secondary containments in the cyanide unload and storage areas have been designed to contain at least 110 % of the largest tank leakage and a design storm event. Secondary containment in the process areas has automated pumping systems for management of tank leakage. SOPs have been developed to address management of spill response and clean-up within the containments. Review of the facilities and records indicated that all tanks, piping and containments are constructed of materials appropriate for handling high pH cyanide solutions. Review of maintenance records indicated that the containments were properly inspected and maintained.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

Basis for Audit Finding: The construction of the heap leach and tailings expansions has been verified by qualified engineering companies and includes detailed Quality Control /Quality Assurance (QC/QA) data collection and documentation. The QC/QA documents indicate that the construction was completed according to engineering standards and specifications. The installation of tanks, valves and piping was undertaken in-house, but Twin Creeks then commissioned independent QC/QA of the completed work. Twin Creeks has retained all QC/QA information.

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

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


Basis for Audit Finding: Twin Creeks has developed environmental monitoring programs to evaluate the performance of the cyanide management systems on wildlife, surface and groundwater quality. The environmental programs have been prepared and approved by qualified professionals and implemented by qualified personnel and include all appropriate sampling and analysis documentation.

5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities

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

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

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Basis for Audit Finding: Twin Creeks has developed a comprehensive closure and reclamation plan that address decommissioning of all cyanide facilities, including a schedule for closure activities. The plan has sufficient detail to support the Code compliance. The plan includes written procedures to decommission the cyanide facilities including: heap leach facilities, process ponds, and processing facilities. The plan includes general descriptions of the commitments for management of cyanide solutions, encapsulation of solids with covers, collection and control of seepage, rinsing of equipment, pipelines and tanks that contained cyanide solution (all rinsate will be returned to the containment of process circuit) and disposal of piping and other equipment. Twin Creeks is required by Nevada State regulations and their permit requirements to review and update the Reclamation Plan at least every three years. Additional reporting requirements by Security Exchange Commission require that Newmont reevaluate their mine closure liabilities every year. Twin Creeks conducts an internal review and update of the reclamation and closure requirements and obligations on an annual basis.

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

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

Basis for Audit Finding: Twin Creeks' decommissioning cost estimate is for the funding of third party implementation of the decommissioning activities of the cyanide-related facilities. The cost estimate has been reviewed and approved by the Nevada State and federal authorities. The estimate included costs for a third-party contractor to complete the work and management costs for the process to be overseen by the United States (US) Bureau of Land Management (BLM). Assumptions are documented and calculations have been prepared by Twin Creeks' professionals using the BLM and the NDEP approved model (Standardized Reclamation Cost Estimator).

Twin Creeks is required by Nevada State regulations and their permit requirements to review and update the cost estimate at least every three years. Additional reporting requirements by Security Exchange Commission require Newmont to reevaluate Twin Creeks' mine closure liabilities every year.


Twin Creeks has established approved financial mechanisms to cover the estimated costs for cyanide related decommissioning activities.

6. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide

Standard of Practice 6.1: Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

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

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Basis for Audit Finding: As described in the Project Description, Twin Creeks has made some modifications/expansions to its cyanide facilities since the Initial Code Certification Audit. Twin Creeks has evaluated potential cyanide exposure scenarios and updated its operating plans and procedures to incorporate the procedures required for these new modifications/expansions. All SOPs and Standard Task Procedures (STPs) revised since the time of the Initial Code Certification Audit were reviewed to verify compliance. Individual task specific SOPs provide details for safe operation of cyanide equipment, personal protective equipment requirements and inspection requirements.

Twin Creeks has a Change Management Policy that requires any proposed process and operational changes be evaluated. A risk assessment should be conducted to identify and evaluate potential risks and impacts on worker health and safety, the environment and the communities, and incorporate control mechanisms to eliminate or minimize those risks or impacts. All changes are communicated to the workforce and training requirements updated. Twin Creeks has safety meetings to provide information and training to employees as well as solicit input from employees on worker safety issues.

Standard of Practice 6.2: *Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.*

in full compliance with


The operation is in substantial compliance with **Standard of Practice 6.2**

not in compliance with

Basis for Audit Finding: The pH of the cyanide solution is monitored and maintained to prevent the formation of Hydrogen Cyanide (HCN) gas as recommended in the operating plans. Fixed HCN monitors are installed in areas of potential exposure to cyanide. In addition, Twin Creeks has handheld HCN meters (Monitox and MultiGas meters) which are made available to employees to check the hydrogen cyanide concentrations in any area. Prior to maintenance work or confined space entry, work areas are checked for HCN concentrations with a handheld HCN meter. HCN sensors are set at 4.7 parts per million (ppm) low level alarm and 10 ppm high level alarm. Low level alarms require investigation and high level alarms require evacuation. In addition to an audible alarm, there are warning lights and an alarm display on the control room. HCN monitors are maintained, calibrated and inspected as recommended by the manufacturer. Warning signs are in areas where cyanide is used to alert workers that cyanide is present, that smoking, open flames, eating and drinking are not allowed and that the necessary cyanide-specific PPE must be worn. Pipes carrying cyanide are marked and the direction of flow is indicated with arrows on the pipe. Signage for confined spaces at the tank entry points has also been placed.

Shower and eyewash stations are located at the cyanide offloading areas and throughout the process areas. Showers and eyewash stations were inspected and determined to be operational. Fire extinguishers are located throughout the facility and are inspected monthly (pin, handle, hose and pressure) by Twin Creek staff and annually by a Nevada State certified 3rd party contractor (empty, pressure test and fill). Material Safety Data Sheets (MSDSs) are available via the Newmont Intranet at any computer terminal throughout the plant. The MSDSs are in English, the language of the workforce. Twin Creeks has an Accident Investigation Policy that requires all incidents and accidents involving cyanide exposure be investigated and evaluated to determine if its programs and procedures to protect worker health and safety and to respond to cyanide exposures are adequate or if changes are necessary.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 6.3**

not in compliance with

Basis for Audit Finding: Each of the cyanide offloading areas is equipped with a cabinet containing PPE, an oxygen resuscitator and a cyanide antidote kit (amyl nitrite). Other areas where PPE, resuscitators, and antidote kits are located are the process building control rooms. The Emergency Response Vehicles (ERVs) have oxygen, Automated External Defibrillator (AED) and a full cyanide antidote kit (amyl nitrite, Lyophilized Hydroxocobalamin and sodium nitrite). Telephones (FEMCO PA System) are located in the vicinity of the offloading areas. Cyanide operators have a radio to contact their supervisor, when needed. The emergency response equipment (including cyanide antidote kits, Self-Contained Breathing Apparatus (SCBAs), oxygen kits, and 5 minute escape capsules) are inspected monthly. Supplies are replaced if used and inspection records are maintained. The antidote is stored and replaced as specified by the manufacturer's storage temperature range and expiration date.

The Twin Creeks Emergency Response Plan (ERP) contains information regarding emergency response procedures for cyanide exposures. Additionally, the "Spills in Cyanide Secondary Containment" includes instructions for working with cyanide, cyanide hazards and emergency response actions for cyanide exposure and spills. Twin Creeks has employees trained to serve as First Responders and Emergency Medical Technicians (EMTs). Every shift has at least one First Responder trained on the administration of amyl nitrite and oxygen for treatment of cyanide exposure. Twin Creeks has more than 30 First Responders trained to address cyanide exposure.

Twin Creeks made formalized arrangement with the Humboldt General Hospital to provide medical assistance to workers exposed to cyanide. Hospital acknowledged in writing that they understand that a potential cyanide exposure can occur at the mine and that they have qualified staff, equipment, cyanide antidote and expertise to be able to respond effectively to a concentrated exposure to cyanide. In the event of a cyanide accident, Twin Creek will administer the necessary first aid and call the Humboldt General Hospital in Winnemucca to dispatch an ambulance to the site. The mine will deploy its ERV with the patient and meet the ambulance at a prescribed point on the mine road. The patient and a cyanide antidote kit will be transferred to the ambulance. These procedures are described in the ERP. Twin Creeks conducts cyanide related mock drills based on likely release/exposure scenarios to test response procedures and incorporate lesson learned from the mock drills into its response planning.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

7. EMERGENCY RESPONSE: Protect communities and the environment through the development of emergency response strategies and capabilities

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

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

Basis for Audit Finding: Twin Creeks has developed several plans and SOPs that address emergency response to potential accidental releases of cyanide. Twin Creeks plans contain procedures for potential scenarios such as: cyanide intoxication; on-site accidents during cyanide transportation; releases during offloading and mixing; cyanide related fire and explosion; pipe, valve or tank ruptures; electrical power outage and pump failures; overtopping of ponds and tailings impoundment; uncontrolled seepage; tailings impoundment failure or heap leach pad slope failure; failure of the cyanide destruction system; cyanide spill control and clean-up; and, decontamination and emergency evacuation.


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

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

Basis for Audit Finding: Twin Creeks workforce participates in the emergency response planning process through their weekly safety meeting and through mock drills. The site is remote and the nearest community, Golconda, is over 25 miles away. There are no identified risks of release scenarios that may affect it. The ERP does not designate any responsibilities to offsite responders and communities. However, Twin Creeks participated in mock drills involving Humboldt County (via the Local Emergency Planning Committee (LEPC)) in July 2013 and with the Turquoise Ridge Mine (a neighboring mine) in September 2012. In addition, Twin Creeks have a formalized arrangement with the Humboldt General Hospital to provide medical assistance to workers exposed to cyanide, if needed.

Twin Creeks also hosts Winnemucca Community breakfasts/lunches (alternatively held at the site, including site tours) to discuss the operation and the use of cyanide. Community Breakfasts are conducted on a quarterly basis where a variety of subjects are discussed; but the process allows the general public the opportunity to comment on all aspects of the operation including the use of cyanide. The Emergency Response Coordinator is a member of the LEPC which allows for the communication of the use of cyanide at the mine and the discussion of emergency response in case of a cyanide accident.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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

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

Basis for Audit Finding: Twin Creeks has committed in its ERP the necessary emergency response equipment and first aid to manage all cyanide incidents at the operation and to coordinate transportation to the nearest medical facility. The ERP defines the individuals (primary and alternate) capable to commit the resources necessary to implement a plan in the event of an emergency situation. The ERP lists the on-site Emergency Responders and includes their emergency contact information, rotation schedule and certifications. Training for Emergency Responders includes firefighting, Hazardous Materials (HazMat), advanced first aid, vehicle and equipment rescue, rope rescue, incidents command and others. The training includes details for providing first aid for personnel exposed to cyanide, to administer amyl nitrite, locations of cyanide antidote kits, medical oxygen, hazard awareness associated with sodium cyanide and HCN gas, victim and rescuer decontamination procedures. Training also includes procedures described in the ERP.


The ERP includes call-out procedures and 24 hour contact information for coordinators and response team members. Twin Creeks has developed procedures for weekly inspections and inventories of rescue equipment as well as procedures for inspecting the cyanide kits, five minute escape bottles and SCBAs. All emergency equipment and supplies are inspected on a regular basis. The ERP provides detailed contact information and describes the anticipated roles of the Humboldt General Hospital, if needed. Twin Creeks sent a letter to the Administrator of Humboldt General Hospital, regarding the mine use of cyanide and the potential for a cyanide exposure. The hospital administrator acknowledged in writing that they understand that a potential cyanide exposure can occur at the Twin Creeks Mine Site and that they have qualified staff, equipment and expertise to be able to respond effectively to a concentrated exposure to cyanide. Twin Creek participated in a mock mill with the Humboldt County LEPC in July 2013.

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

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

Basis for Audit Finding: The ERP includes procedures and contact information for notifying management, Cyanco, the Mine Safety and Health Administration (MSHA), the State of Nevada, Humboldt General Hospital, and numerous other organizations in the event of a cyanide emergency. The Twin Creeks Fluid Management System Operating Plan – ERP includes emergency telephone numbers: ambulance; fire department; police; sheriff; Humboldt General Hospital; 3E Company (chemical emergency); Washoe Poison Control Center in Reno; Twin Creeks Management Personnel; Bureau of Land Management; and Carlin Security. Newmont also has a corporate Rapid Response Team Procedure that includes communication procedures for media notification.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

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.

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

Basis for Audit Finding: Twin Creeks has developed cyanide response and remediation plans that address appropriate uses and situations for cyanide treatment chemicals. The ERP and the Fluid Management System Operating Plans include response procedures for liquid sodium cyanide and diluted process solutions. Spilled liquid sodium cyanide solutions are to be decontaminated as necessary with a treatment chemical solution. If low pH conditions occur then lime will be spread to increase to the pH value to at least 10. The ERP includes onsite location and quantity available of the chemicals and what final cyanide concentration will be allowed in residual soil as evidence that the release has been completely cleaned up.

The Fluid Management System Operating Plans require cyanide releases to be disposed of on the leach pad areas, or returned to the process circuit depending on the physical nature of the release. The Procedure for "Spills in Cyanide Secondary Containment" defines locations where spills can be pumped. After clean-up is complete, soil samples will be taken and analyzed to verify total cleanup success. Necessary monitoring activities in the event of a release will be conducted in line with the requirements of the Water Pollution Control Permits (WPCPs) (Permits NEV0086018 and NEV0089035) and in coordination with the NDEP Bureau of Mining Regulation & Reclamation representative, if warranted by extent of the release.

The ERP prohibits the use of chemicals to treat cyanide that has been released into surface waters. There are no surface water bodies on the property. Twin Creeks has a potable water system and also uses bottled water for drinking water supply. In the event of a cyanide release, bottle water would be used.

Standard of Practice 7.6:

Periodically evaluate response procedures and capabilities and revise them as needed.

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

Basis for Audit Finding: The ERP includes a section for periodic review and update of emergency response procedures. Twin Creeks conducts mock drills on a regular basis to practice and prepare for emergencies and to provide insight into the effectiveness of the ERP. The ERP is also reviewed following any incident or mock drill requiring its implementation. The auditor reviewed mock drill reports and previous versions of the ERP to verify compliance with this item.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

8. TRAINING: Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner

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

- in full compliance with**
- The operation is** in substantial compliance with **Standard of Practice 8.1**
- not in compliance with

Basis for Audit Finding: All site personnel are trained for cyanide safety as part of the “New Hire” training and during the Annual Refresher Training. New hire training materials include: physical and chemical characteristics, safe handling, PPE, poisoning symptoms, first aid for cyanide overexposure, and safety precautions (including the emergency breakaway device of the cyanide truck). Employees who are assigned to specific areas of operations (or circuits) where cyanide is an integral part of the process receive supplemental training on the safe use and handling of cyanide.

Twin Creeks requires all employees to have annual refresher training that includes cyanide training. Cyanide refresher training includes: emergency communication procedures, signs, audible and visual alarms, cyanide safety awareness, hazard communications, hazardous materials identification labels, routes of entry, first aid and MSDSs. Employees working with cyanide receive annual refresher on cyanide as part of the annual MSHA and Hazard Communication (HAZCOM) training.


Twin Creeks retains all cyanide training records for all employees. Training records include the names of the employee and the trainer, the date of training, the topics covered, and test results demonstrating an understanding of the training.

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

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

Basis for Audit Finding: In addition to the training in cyanide hazard recognition, all personnel in job positions that involve the use of cyanide and cyanide management (including offloading, mixing, production and maintenance) receive training on how to perform their assigned tasks with minimum risk to worker health and safety. Task specific training includes SOPs, STPs, and descriptions of operating circuits. Training on operating circuits is designed to ensure that the operator has the required skills, knowledge and ability to safely operate the circuits without direct supervision. The training includes cyanide safety, environmental, and process issues. The employee is required to pass oral and written tests prior to working on a circuit. A record is maintained demonstrating the level of training the employee has received on each circuit (e.g., Juniper Carbon Strip Circuit, Pinon and CIC Circuits, Leach South Area Circuit, and others).

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

All personnel in job positions that involve the use of cyanide and cyanide management receive training on how to perform their assigned tasks with minimum risk to worker health and safety. Task-specific training is provided prior to working independently with cyanide. In addition to the job specific training, Twin Creeks provides training in "Site Specific Hazard" and "Cyanide Safety" that includes cyanide management and first aid.

Qualified personnel provide task specific training related to cyanide management. The trainers are MSHA and HAZCOM certified. Task specific training is provided to new operators by various process supervisors who have several years of experience in the mine process.

Twin Creeks requires and provides annual refresher for cyanide management. Cyanide refresher training includes: emergency communication procedures, signs, audible and visual alarms, cyanide safety awareness, hazard communications, hazardous materials identification labels, routes of entry, first aid and MSDSs. Employees working with cyanide receive annual refresher on cyanide in the MSHA and HAZCOM training. In addition, Twin Creeks discusses cyanide related health and safety issues as well as changes in cyanide management SOPs, if any, at safety meetings.

Twin Creeks uses both written, digital (electronic), and verbal examinations to evaluate the effectiveness of the training and the employee's knowledge as it relates to understanding cyanide issues and safety measures. Records are retained of written and as well as results of verbal quizzes. In addition, employees are evaluated on their job performance by their supervisors through field observation of specific tasks. Training records are retained by Twin Creeks. Training records include the name of the employee and the trainer, the date of training; the topics covered, and test results demonstrating an employee's understanding of the training materials.


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

- in full compliance with**
- The operation is** in substantial compliance with **Standard of Practice 8.3**
- not in compliance with

Basis for Audit Finding: All personnel responsible for offloading, mixing, production, and maintenance are trained in the procedures to be followed if cyanide is released. Training includes cyanide awareness, cyanide emergency response (including evacuation), first aid for cyanide poisoning, spill response (spills and leaks in the process area, spills during transportation of cyanide, etc.), use of the emergency response equipment, emergency communication procedures, signs, audible and visual alarms and MSDSs. All employees working on cyanide circuits have received training in decontamination and first aid procedures and serve as First Responders. Emergency Responders are trained in firefighting, HazMat, advanced first aid, vehicle and equipment rescue, rope rescue, incidents command and others. Emergency Response Coordinators, Emergency Responders and First Responders are all trained in the procedures described in the ERP, including the use of necessary emergency response equipment. They have participated in the cyanide mock drills.

The ERP does not designate any responsibilities to offsite responders or communities. Twin Creeks has formalized arrangements with the Humboldt General Hospital to provide medical assistance to workers exposed to cyanide, if needed. The hospital is aware of its potential need to treat patients as demonstrated by correspondence with the hospital, March 2012.

Twin Creeks Mine
Name of Facility


Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates

Twin Creeks requires and provides annual refresher for cyanide management, including cyanide exposure and releases. Cyanide refresher training includes: emergency communication procedures, signs, audible and visual alarms, cyanide safety awareness, hazard communications, hazardous materials identification labels, routes of entry, emergency actions for cyanide exposures and releases, and MSDSs. Employees working with cyanide receive annual refresher on cyanide in the MSHA and HAZCOM training. Training of the Emergency Responders also includes cyanide related emergency scenarios. Training agendas include a review of HCN intoxication and the administration of the amyl nitrite. Twin Creeks also discusses cyanide related health and safety issues at safety meetings.

Twin Creeks conducts mock drills to practice and prepare for emergencies and to provide insight into the effectiveness of the ERP. The October 2012 mock drill included a scenario for both a release of cyanide out of containment and a worker exposure. Mock drills are evaluated and lessons learned from the mock drills are incorporated into its response planning. Cyanide emergency drills are also evaluated from a training perspective to determine if personnel have knowledge and skills required for effective response. Training procedures are revised, if needed.

Training records are retained throughout an individual's employment documenting the cyanide training they receive. The records include the names of the employee and the trainer, the date of training; the topics covered, and test results demonstrating an understanding of the training materials.

9. DIALOGUE: Engage in public consultation and disclosure.

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

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

Basis for Audit Finding: Twin Creeks provides the opportunity to communicate issues of concern with the public through community communication sessions. Twin Creeks holds quarterly "Community Breakfasts/Lunches" in Winnemucca (or at the site) where the members of the general public and government leaders are encouraged to attend and discuss issues related to the mining operation, including the use of cyanide.

Additionally, Twin Creeks (Newmont) maintains a website that allows stakeholders to contact the company regarding cyanide use and management:

<http://www.beyondthemine.com/2008/?l=3&pid=5&pt=167&parent=19&id=409>

This site is provided with a "Contact Us" tab that allows an individual to contact the company via email and a 1-800 telephone number. Finally, stakeholders may comment during project permitting via "Open Houses" and public comment periods. No cyanide related issues of concern have been documented within the past 36 months.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 9.2**

not in compliance with

Basis for Audit Finding: Twin Creeks creates opportunities to interact with stakeholders and provide them with information regarding cyanide management practices and procedures. Twin Creeks holds quarterly “Community Breakfasts/Lunches” (alternatively held at the site, including Site tours) where members of the general public are provided with information on the operation and the use of cyanide. There is a phone number and e-mail address listed on the monthly “Newmont Notes” community newspaper that allows individuals to inquire regarding cyanide use and other issues. Twin Creeks provides periodic public tours of the facility, which includes a 15-minute video called “How Gold is Produced in Nevada Today” and a safety handbook.

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

in full compliance with

The operation is in substantial compliance with **Standard of Practice 9.3**

not in compliance with

Basis for Audit Finding: The Twin Creeks WPCPs require the company to file quarterly and annual reports to NDEP that includes a report of any cyanide spills and releases. These reports are available to the public. Additionally, Twin Creeks is required to complete MSHA reports that would include any cyanide related worker exposure or death. Operational and environmental information is provided in Newmont’s corporate annual report and on Newmont’s website. The website contains Newmont’s corporate sustainability document titled “Beyond the Mine”, which includes the types and the number of cyanide incidents for all operations including Twin Creeks.

Twin Creeks Mine
Name of Facility



Signature of Lead Auditor (Glenn Keays)

August 12 - 15, 2013
Audit Dates