March 2017

ICMI RECERTIFICATION SUMMARY AUDIT REPORT

Goldstrike Mine, Nevada, United States of America

REPORT

Submitted to:
International Cyanide Management Institute (ICMI)
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And:

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Project Number: 1665174

Distribution:
ICMI – one pdf
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Golder Associates

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1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Mine:	Goldstrike Mine
Name of Mine Owner:	Barrick Gold Inc.
Name of Mine Operator:	Barrick Goldstrike Mines Inc.
Name of Responsible Manager:	Bill MacNevin
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2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

2.1 Mine Location

Goldstrike is located in the Little Boulder Basin adjacent to the Tuscarora Mountain Range on the county line between Elko and Eureka Counties, approximately 27 miles northwest of the community of Carlin, Nevada (Figure 1). Goldstrike is located on both private land and federal land administrated by the U.S. Department of Interior, Bureau of Land Management. The North Area of the Newmont Carlin Mine is adjacent to the south boundary of the Goldstrike Mine. The local environment consists of high desert and the surrounding land uses include ranching, mining, and a limited amount of irrigated agriculture. The nearest community is the community of Carlin with a population of approximately 2,300 people. Elko, some 50 miles to the southeast with a population of approximately 18,000, is the largest regional city.

Figure 1-1

Figure 1: Location Map

2.2 Background

As noted on the Barrick website, Goldstrike produced 1.05 million ounces of gold in 2015, at a cost of sales of $722 million, and all-in sustaining costs of $658 per ounce. Goldstrike's proven and probable mineral reserves as of December 31, 2015, were 8.5 million ounces of gold (74 million tonnes, grading 3.59 grams per tonne). Production at Goldstrike in 2016 was expected to be 1.05-1.10 million ounces of gold, at a cost of sales of $860-$900 per ounce, and all-in sustaining costs of $720-$760 per ounce.

Goldstrike consists of a single large open pit mine; two underground mines; overburden stockpiles; topsoil stockpiles; two tailings impoundments; a closed and reclaimed heap leach facility; two separate grinding and milling circuits feeding a roaster and carbon-in-leach (CIL) circuit and an autoclave and CIL circuit; administration and maintenance facilities; access and haul roads. These facilities are arranged in two general areas of operation (Figure 2): 1) the AA-Block area which includes the Betze-Post open pit, the Meikle and Rodeo underground mines, the Wet Mill/Autoclave and RIL circuit, the AA-Tailings Disposal Facility, and the reclaimed AA-heap leach facility; and 2) the North-Block area which includes the Roaster and CIL circuit and the North-Block Tailings Disposal Facility.

Goldstrike became a signatory to the Code in 2005. The operation was initially certified in 2007 and subsequently recertified in 2010 and 2014. The December 2016 audit, then, is the fourth audit cycle for this operation.

Figure 2: Aerial Photograph (from Google Earth)

SUMMARY AUDIT REPORT

Auditors Findings

Goldstrike is:

☒ **in full compliance with**

☐ in substantial compliance with

☐ not in compliance with

The International Cyanide Management Code

No significant cyanide release or exposure incidents were noted as occurring during the audit period.

Audit Company: Golder Associates Inc.

Audit Team Leader: Kent Johnejack, Lead Auditor and Technical Specialist

Email: kjohnejack@golder.com

Name of Other Auditors

Name, Position	Signature
Juan Cartajena, Support Auditor	
Rick Frechette, Independent Reviewer	

Golder has been involved in the construction oversight for a cyanide-related project at Goldstrike during the recertification period. Therefore, Golder subcontracted to Mr. Rick Frechette of Knight Piesold Inc. to address selected aspects of Standards of Practice 4.8 where a conflict of interest exists.

Dates of Audit

The Recertification Audit was undertaken over four days between December 12 and 15, 2016.

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

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

Goldstrike Mine
Name of Facility

Signature of Lead Auditor

March 15, 2017
Date

Goldstrike Mine
Name of Facility

Signature of Lead Auditor

March 15, 2017
Date

PRINCIPLE 1 – PRODUCTION

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

Standard of Practice 1.1: **Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment**

The operation is

☒ **in** full **compliance with** **Standard of Practice 1.1**

☐ in substantial compliance with **Standard of Practice 1.1**

☐ not in compliance with **Standard of Practice 1.1**

Summarize the basis for this finding/deficiencies identified:

The operation in full compliance with Standard of Practice 1.1, requiring the operation purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

Goldstrike receives liquid cyanide under a corporate contract between Barrick Gold of North America Inc. and Cyanco Inc. Section 4 of the contract states that both parties are signatories to the Code and must maintain certification throughout the full term of the contract. Cyanco's plant in Winnemucca, Nevada was first certified in 2006 and recertified in 2010, 2013, and 2016, as shown on the ICMI website. The auditors confirmed compliance by review of the most recent recertification report. Goldstrike purchased cyanide only from Cyanco during the recertification period, as verified by interview and review of Bills of Lading.

PRINCIPLE 2 – TRANSPORTATION

Protect Communities and the Environment during Cyanide Transport

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 2.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 2.1, requiring that the operation establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.

Goldstrike does not contract the cyanide transporter directly. Rather, the transporter (TransWood Inc.) is contracted by the manufacturer (Cyanco). TransWood is certified under the Code and compliance with this Standard of Practice is based on TransWood's certification. TransWood was initially certified in 2006 and recertified in 2010, 2013, and 2017, as shown on the ICMI website. The auditors reviewed the most recent summary audit report to verify compliance.

Standard of 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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 2.2, requiring that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

Goldstrike does not contract the cyanide transporter directly. Rather, the transporter (TransWood Inc.) is contracted by the manufacturer (Cyanco). TransWood is certified under the Code and compliance with this Standard of Practice is based on TransWood's certification. TransWood was initially certified in 2006 and recertified in 2010, 2013, and 2017, as shown on the ICMI website. The auditors reviewed the most recent summary audit report to verify compliance.

The supply chain consists of one step: delivery of liquid cyanide by TransWood from the Cyanco plant in Winnemucca, Nevada to Goldstrike. The auditors reviewed Bills of Lading from throughout the recertification period to confirm compliance.

PRINCIPLE 3 – HANDLING AND STORAGE

Protect Workers and the Environment during Cyanide Handling and Storage

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

The operation is

- ☒ **in full compliance with**
- ☐ in substantial compliance with **Standard of Practice 3.1**
- ☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 3.1, requiring that cyanide handling and storage facilities are designed and constructed consistent with sound, accepted engineering practices, quality assurance/quality control (QA/QC) procedures, spill prevention and spill containment measures.

Goldstrike has designed and constructed the cyanide offloading and storage facilities in accordance with sound engineering practices and cyanide producer's guidelines. Goldstrike receives liquid cyanide at the roaster via a single offload and outside 20,000 gallon storage tank with secondary containment. The auditors observed that the offload, storage tank, and secondary containment were in good condition.

Goldstrike previously received liquid cyanide at a second offload at the autoclave/wet mill with one outside 15,000 gallon storage tank and a second inside 15,000 gallon storage tank. However, these tanks were taken out of service when the autoclave/wet mill was converted to a resin process. The outside tank was decontaminated and removed from site, as documented in a letter from the contractor completing the work (RAM Enterprise Inc.). At the time of RIL start-up, the inside tank was locked out/tagged out to prevent use. More recently is was decontaminated and signed as out of service, along with blinding of the piping to prevent use. The auditors verified these conditions during the site visit and via photographs.

The design and construction of these offloading and storage facilities have not changed since previous audits (other than the decommissioning the outside tank at the autoclave/wet mill). Therefore the findings regarding design and construction from the previous audit cycle are still valid. Given that the offload and storage facility at the autoclave/wet mill were out of service during the current audit cycle, the auditors focused on the active offload and storage facility at the roaster.

The offload and storage area at the roaster are located outside, away from surface water and places were staff may congregate. However, the offload is located in a traffic-way/walk-way between several buildings. For this reason, Goldstrike temporarily places cones around the offload ramp during an offload, according

to a written procedure, and has placed signage on building doors in the vicinity advising operators to check for an offloading in progress before exiting the doors.

Liquid cyanide is unloaded at the roaster on a curbed and sloped concrete ramp at the roaster. A wall cutout would drain leakage from the offload ramp to a sump for the distribution pumps immediately inside the adjacent building. These measures prevent seepage to the subsurface and allow for recovery of leaked solution. Goldstrike has not changed the ramp since previous audit cycle and the auditors observed the ramp to be in good condition.

Goldstrike has installed two level sensors on the storage tank at the roaster offload to prevent tank overflows. An automatic level sensor has a readout at the offload ramp as well as at the roaster control room panel. A second dial gage is located on the outside of the tank itself. The auditors confirmed that both were functioning and reading approximately the same value of 61 percent full.

The cyanide storage tank at the roaster was installed on a concrete base within concrete secondary containment consisting of chest-high concrete walls and a concrete floor. These measures prevent seepage to the subsurface and constitute a competent barrier to leakage. Goldstrike has not changed the facility since the previous audit cycle and the auditors observed the concrete to be in good condition.

Goldstrike stores liquid cyanide in the storage tank at the roaster in the open air that provides adequate ventilation against the build-up of HCN gas. This tank has a closed top and rests on a concrete base that minimize the potential for contact of reagent-grade liquid cyanide with water. Access to the secondary containment for the storage tank is limited via the adjacent building with valves properly locked out to prevent inadvertent operation. The tank is located in its own secondary containment that is separate from incompatible materials, such as acids, strong oxidisers and explosives and apart from foods, animal feeds, and tobacco products.

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

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Practice 3.2 requiring that cyanide handling and storage facilities are operated using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Both Goldstrike and Cyanco have developed written procedures to prevent exposures and releases during offloading of liquid cyanide from the tanker truck. The procedures describe the operation of valves and couplings for unloading liquid cyanide. The procedures specify personal protective equipment consisting of chemical resistant suit (pants, coat), chemical resistant gloves and boots, goggles, face shield, and radio. The Goldstrike procedure requires an observer during making and breaking connections, as well as observation from the control room via video camera. Prior to starting an offload, the driver and observer check the tank level with the control room to confirm that the tank level is less than 60 percent. Cones are placed to restrict access in the “red zone”, a 25-foot diameter area around the rear of the tanker truck. The starting and ending tank levels are noted on the Cyanco Bills of Lading. The auditors reviewed the procedure, bills of lading, and observed an offload to verify compliance.

Goldstrike receives liquid cyanide in tanker trucks; therefore, there are no empty containers to be managed. Similarly, there are no full containers that might rupture during handling or risks from stacking the containers. Clean-up of spills during mixing is not an issue because the liquid cyanide does not require mixing. If spill clean-up was needed during offloading, however, the driver would hose down the offload ramp to the adjacent sump via the wall cutout.

PRINCIPLE 4 – OPERATIONS

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

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

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

The cyanide facilities for this audit cycle were:

- North Block Area: roaster cyanide offload and storage tank; roaster CIL circuit; roaster Inco/sulfur dioxide destruct circuit; North Block Tailings Storage Facility (NBTSF); NBTSF seepage pond; paste plant caro's acid destruct plant; paste plant; underground workings with paste backfill; pipelines to and from the NBTSF; and the Cole's Crater Pond (aka Roaster Containment Pond, an emergency catch pond along the tailings and reclaim pipeline route)
- AA-Block Area: strip circuit (low concentration cyanide solution; no new cyanide is added at the strip circuit)

The major changes in the list of cyanide facilities since the previous audit cycle are:

- The inactive AA-Block TSF is no longer a cyanide facility based on analytical data in the quarterly reports submitted to the Nevada Division of Environmental Protection (NDEP). The TSF no longer has a decant pool and the WAD cyanide concentrations in the seepage pond and the underdrain were below 0.5 mg/L throughout the recertification period.
- The autoclave/wet mill was converted to a resin-in-leach (RIL) that does not use cyanide. In fact, the presence of cyanide in this circuit would be detrimental. Goldstrike constructed the non-cyanide Tailings Storage Facility 3 (TSF3) to ensure that tailings decant return flow to the autoclave/wet mill would be cyanide free. The Valdez Pond associated with the autoclave/wet mill also no longer receives any solution with cyanide.

There were no modifications (e.g., raises) to the NBTSF this audit cycle. However, the construction of the 9B raise was completed in the previous audit cycle, but the completion reporting did not occur until afterwards in 2013. Therefore, construction quality assurance for the 9B raise at the NBTSF is included in this audit cycle. Other minor modifications to the cyanide facilities for this audit cycle are:

- Pipeline for transferring low-concentration cyanide solution from the strip circuit at the autoclave/wet mill to the roaster in 2014
- For the strip circuit at the autoclave/RIL, decommissioning of the cyanide offload in 2016, including removal of the outside storage tank, and decommissioning of the inside storage tank in 2017
- Expansion of the CIL circuit at the roaster in 2016

Goldstrike has implemented two high-level operating systems. The operation's environmental management system was most recently certified under ISO 14001 in 2014. The Barrick Responsible Information Management System (RIMS) is used to track incidents, procedures, permits, and certificates. Other management systems at Goldstrike include: Oracle for maintenance; Data Control System-Process Intelligence (DCS-PI) in the plant control rooms; Learning Management System (LMS); and PTracker of online training modules with embedded standard operating procedures. Design assumptions and parameters are best summarized in the site's Water Pollution Control Permits, as well as the associated fact sheets and operating plans. Goldstrike has developed procedures for safe operation of the cyanide facilities at the roaster, paste plant, cyanide destruct circuits, NBTSF, strip circuit at the autoclave/RIL and other associated facilities. These procedures describe hazards, controls, pre-operational inspections where applicable, maintenance where applicable, personal protective equipment, and task activities.

Goldstrike has developed management of change (MOC) procedure that requires, regardless of the area being impacted by the change, a review and response by the Safety, Health and Environmental Functional Area Representatives. The auditors reviewed completed examples of MOC forms to verify compliance.

Goldstrike has developed contingency procedures for abnormal operating conditions and temporary cessation and closure. The operating plans include contingency measures for fluid management, spills, leaks, overtopping, seasonal closure, and temporary closure. The Operation, Maintenance, and Surveillance (OMS) Manual for the NBTSF describes contingency measures for blockage of drainage pipework; flows within the sloping, toe, or foundation blanket drain; leakage from seepage collection sump; leakage from seepage collection pond; and leakage from tailings distribution pipeline. This manual also describes temporary cessation of operations for power outages, earthquakes, extreme rainfall, extreme low temperature, and operational shutdown.

Goldstrike inspects their cyanide facilities on a shift, batch, daily, monthly, annual, and random frequency depending on the type of inspection. This program is adequate to assure that cyanide facilities are functioning properly. The inspection forms include the name of the inspector, date of the inspection, and a comments section for noting deficiencies and conditions. Corrective actions are tracked on the forms or in databases (Oracle and Cintellate). The auditors reviewed completed examples of inspection records from throughout the recertification period to verify compliance.

Goldstrike visually inspects tanks, columns, vessels, pumps, pipelines, valves and other appurtenances for corrosion, leakage, cyanide salts, and general condition during the regular inspections. In addition, Goldstrike conducts annual non-destructive testing (NDT) on the cyanide storage tank at the roaster. Other vessels are subject to NDT and internal visual inspection at varying frequencies. Secondary containments are inspected on a shift or daily basis. Leak detection and collection systems at the NBTSF and ponds as required by their Water Pollution Control Permits with results reported in the required quarterly reports. The leak detection system on the low cyanide pipeline from the autoclave/RIL to the roaster is inspected each shift. Goldstrike inspects the NBTSF, the associated seepage pond, and the Cole's Crater Pond on a daily basis for available freeboard. The Engineer of Record inspects the dam annually with reports submitted to the Nevada Division of Water Resources. There are no diversions for the NBTSF.

Goldstrike has implemented a maintenance program that ensures cyanide equipment and devices function properly. The program includes proactive (regularly scheduled for prevention) and reactive maintenance (scheduled based on inspections). Maintenance is managed with the Oracle database. Cyanide-related maintenance is prioritized immediately or within 7 days. Goldstrike also calibrates HCN monitors and pH sensors on a monthly and weekly schedule, respectively. The auditors reviewed examples of completed work orders, maintenance histories, and calibration records from throughout the recertification period to verify compliance.

Goldstrike has backup generators to prevent unintentional releases and exposures during power outages at the roaster, the strip circuit at the autoclave/RIL, the paste plant, and the NBTSF seepage pond. Backup generators are not installed at the decant return pumps at the NBTSF because in the event of a power outage all inflows would stop. The pit maintenance crew maintains all generators at the mine. The auditors observed these generators to visually be in good condition and reviewed maintenance histories from throughout the recertification period to verify compliance.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.2**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.2, requiring that the operation limit the use of cyanide to that optimal for economic recovery of gold so that the waste tailings material has as low a cyanide concentration as practical.

The roaster receives ore from a number of surface and underground sources at Goldstrike, as well as surface and underground sources at the Barrick Cortez Mine. Goldstrike thoroughly blends these ores before milling to ensure consistent ore characteristics to the roaster and CIL. The roaster metallurgist stated that this blending strategy eliminates the need for repeated studies by ore type to optimize cyanide addition. The cyanide addition rates determined by the operation ranged approximately from 0.4 to 0.6 pounds per ton at the head of the CIL circuit to maintain the target concentration of 0.1 ppm residual cyanide at the tail of the circuit.

Goldstrike manages cyanide concentrations in tailings from the roaster with a manual control strategy. Samples are collected from each CIL tank every 3 hours for analysis of free cyanide at the onsite laboratory. The cyanide addition rate is adjusted by the control room operators to maintain a residual concentration of 0.1 ppm free cyanide at the tail of the CIL circuit. The auditors reviewed a time series graph of the addition rate at the head of the circuit and examples of operator's logs from throughout the recertification period to verify compliance.

Notwithstanding the above control strategy for cyanide addition, Goldstrike operates two cyanide destruct circuits at the roaster to minimize cyanide concentrations in tailings. The first destruct circuit, an INCO/SO2 circuit, reduces cyanide concentrations in the tailings reporting to the NBTSF. The second destruct circuit, also an INCO/SO2 circuit, reduces cyanide concentrations in the tailings reporting to the paste plant and then to the underground workings.

This Standard of Practice no longer applies to the autoclave/RIL, as it was converted to a non-cyanide RIL process and no longer generates tailings with residual cyanide.

Standard of Practice 4.3: **Implement a comprehensive water management programme 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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.3, requiring the operation to implement a comprehensive water management program to protect against unintentional releases.

Goldstrike currently uses a water balance model developed in 2014 for operating the NBTSF. This water balance is comprehensive and probabilistic. The water balance is comprehensive in that it includes raises and available storage through the year 2025. The model is updated monthly with daily inputs. The model

inflows include tailings deposition (solids and water), seepage return flow, underdrain return flow, precipitation, and runoff. The model outflows include reclaim water, underdrain outflow, seepage collection outflow, and evaporation. Storage inputs include tailings solids, entrained water, and free water. This water balance is probabilistic in that it models the 24-hour Probable Maximum Flood (PMF) of 7.75 inches.

The water balance incorporates reasonable parameters for the mine setting. Run-on from upgradient watersheds is negligible and the potential for ice formation is low because of the large size of the decant pool. The water balance model does not incorporate losses other than evaporation because the TSF is completely double-lined with a seepage collection system. There are no discharges to surface water. The effects of a potential power outage would be negligible because pumping of slurry uphill from the roaster to the TSF would simply stop. Underdrains were installed to capture and remove any water occurring beneath the facility.

Goldstrike implements the water balance with weekly surveys of the water surface elevation and quarterly bathymetric surveys, as well as other monitoring activities (inclinometers, weather, solids content, flow meters, and piezometers). There are no diversions to for the NBTSF. Goldstrike operates the NBTSF with 7 feet of freeboard, which is comprised of 4 feet for the PMF and 3 feet for wave run-up. The weekly report from December 8, 2016 presents a time series graph of the water pool elevation compared to the permitted elevation that shows the required freeboard was maintained throughout the recertification period.

Goldstrike operates the seepage pond for the NBTSF with 3 feet of freeboard and Cole's Crater Pond (a catch pond along the tailings pipeline route) with 9 inches of freeboard. The auditors reviewed daily inspection forms for these ponds to verify compliance.

Goldstrike measures precipitation at a weather station approximately 1,000 feet to the west of the NBTSF. The water balance is updated monthly with daily precipitation values. The updated water balance is then available to adjust operating practices, if necessary. The auditors reviewed examples of the monthly updates from throughout the recertification period to verify compliance.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.4**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.4, requiring the operation implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

Goldstrike has implemented measures to restrict wildlife and cattle access to open waters at cyanide facilities. Pregnant and barren solutions at the roaster are managed in tanks rather than ponds. The cyanide destruct at the roaster limits concentrations in open water at the NBTSF, the associated seepage pond, and the catch pond along the tailings pipeline route to less than 50 ppm WAD cyanide. There are no open waters associated with the strip circuit at the autoclave/RIL. Goldstrike has also installed an 8-foot high fence around the NBTSF seepage pond, the tailings pipeline catch pond, the roaster area, the autoclave/RIL area, and the mine property. The auditors observed these fences to be in good condition at the time of the site visit.

Goldstrike demonstrated that the concentration of WAD cyanide in open waters did not exceed 50 ppm during the recertification period. The liquid fraction of the tailings inflow to the NBTSF showed concentrations less than 50 ppm. In the event that the tailings pipelines dump into the catch pond, the concentrations would be the same as the tailings slurry liquid fraction. The Goldstrike senior environmental engineer stated that the concentration of WAD cyanide in the NBTSF seepage pond is generally non-detect due to dilution from underdrain inflows. The auditors reviewed quarterly monitoring reports required by the Nevada Division of Environmental Protection from throughout the recertification period to verify compliance.

Goldstrike reported no wildlife mortalities related to process solutions during the recertification period. The auditors reviewed the quarterly mortality reports required by the Nevada Division of Wildlife to verify compliance.

The question related to overspray is inapplicable because Goldstrike does not operate a heap leach pad.

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

☒ **in full compliance with**

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

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.5, requiring the operation implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.

Goldstrike operates as a zero discharge facility with no permitted direct or indirect discharges to surface water. Goldstrike samples springs and ephemeral washes in the vicinity of the mine facilities, as required by their permits. Results for Spring Water #1, Spring Water #2, Bell Creek, Rodeo Creek, and Brush Creek showed non-detect values for WAD cyanide (the permit required constituent) throughout the recertification period. There are no permitted mixing zones or surface water remedial activities at Goldstrike. The auditors reviewed the quarterly monitoring reports for the recertification period to verify compliance.

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.6, requiring the operation implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

Goldstrike has implemented measures to protect the beneficial uses of groundwater beneath and downgradient of the operation. The NBTSF is fully lined with a composite liner and a seepage control system consisting of a drainage blanket and finger drains to reduce head on the liner system. Underdrains were also installed beneath the liner system. Drainage reports to a concrete collection vault and adjacent lined seepage pond for overflows. The two existing ponds associated with the NBTSF (i.e., the seepage pond and the catch pond for the tailings pipelines) are both double-lined with leak collection systems. Cyanide facilities at the roaster, paste plant, and strip circuit at the autoclave/RIL are equipped with concrete secondary containment as a measure to prevent seepage. The new low cyanide pipeline between the strip

circuit at the autoclave/RIL and the roaster was installed with secondary containment and leak detection as measures to prevent releases to the environment. Finally, the two cyanide destruct circuits at the roaster are indirect measures to protect groundwater quality.

Goldstrike has demonstrated that concentrations WAD cyanide in groundwater were less than a reference standard downgradient of the cyanide facilities. Local beneficial uses of groundwater are water supply for processing and drinking. Goldstrike uses 0.2 ppm WAD cyanide as a reference standard for groundwater based on federal drinking water standards. The gradient from the cyanide facilities is strongly to the south and west to the Betze open pit, which is a regional groundwater sink that prevents offsite migration of groundwater. There are two groundwater wells located between the cyanide facilities associated with the roaster and NBTSF and the open pit: MW-1D and MW-11-01. Sampling results from both wells were non-detect during the recertification period for WAD cyanide. For completeness, Golder reviewed analytical data for other wells at the mine (whether downgradient of cyanide facilities or not); all reported WAD cyanide less than 0.2 ppm during the recertification period.

Goldstrike uses part of the roaster tailings as cemented rock fill (i.e., paste backfill) in the Meikle and Rodeo underground mines. The paste plant is preceded by a cyanide destruct circuit. Cement and fly ash are added in the paste plant so that the paste hardens after placement via pipeline behind bulkheads in the underground workings. The potential for worker exposure to cyanide in cemented rock fill is controlled by cyanide destruction, addition of hardening agents, and mine ventilation. The potential for impacting groundwater is limited by the regulator-approved mix design and quarterly sampling of the filter cake and hardened cemented rock fill. The Water Pollution Control Permit requires quarterly testing of the filter cake for WAD cyanide and cured cylinders of cemented rock fill for leachable WAD cyanide. Filter cake WAD cyanide concentrations ranged from approximately 2 to 9 ppm throughout the recertification period, well below the 20 ppm permit requirement. Leachable WAD cyanide from the cured cylinders was non-detect throughout the recertification period. The auditors reviewed the permit, fact sheet, and sampling results from the recertification period to verify compliance.

Goldstrike has not caused cyanide concentrations in groundwater to rise above established standards for cyanide, and therefore is not engaged in groundwater remediation related to cyanide.

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

The operation is

☒ **in full compliance with**

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

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.7 requiring that the operation provide spill prevention or containment measures for process tanks and pipelines.

Goldstrike has provided properly sized secondary containments for all cyanide-related tanks, columns, and vessels; there are none without secondary containment. With the exception of the expansion of the CIL circuit at the roaster, the secondary containments for the other cyanide storage tanks, columns, and vessels have not changed since the previous audit cycle and the previous findings regarding configuration and sizing are still valid. The existing containments consist of concrete walls and floors with sealed joints designed for a volume of at least 110 percent of the largest vessel. The auditors observed the existing containments to be in good condition.

The secondary containment for the existing CIL circuit at the roaster was expanded to include two new columns during this audit cycle. The intermediate wall between the new and existing circuits was removed, thus making a single large containment consisting of concrete walls and floor with sealed joints. A design drawing showed that the foundations for the new CIL columns consisted of a concrete ring beam with a solid concrete slab inside the ring beam, thus providing an impermeable barrier. The secondary containment for the entire roaster CIL circuit has flow-through capability to the Cole's Crater Pond (aka Roaster Containment Pond). The combined available volume of 461,855 cubic feet (ft^3) from the secondary containment and Cole's Crater Pond is more than enough to hold the required volume of 132,438 ft^3. The auditors observed the entire containment to be in good condition.

Goldstrike has installed sumps with pumps to return cyanide solutions, slurry, and/or precipitation to the process circuits. Therefore, no written procedures are necessary to prevent discharge of solutions or slurry to the environment.

Goldstrike has provided both spill prevention and containment measures for pipelines containing cyanide solutions and tailings slurry to collect leaks and prevent releases to the environment. The tailings slurry line between the roaster, cyanide destruct circuit, and the paste plant are contained in a combination of overhead pipe trays and pipe-in-culvert under a road crossing. The tailings and reclaim lines between the roaster and the NBTSF are contained in a combination of lined channels, pipe-in-culvert under road crossings, and triple pipe-in-pipe on slopes. In addition, the Cole's Crater Pond is a double-lined emergency catch pond with leak detection for containment of spills from these pipelines. Lines associated with the double-lined seepage collection pond with leak detection also are contained in a combination of lined channels and pipe-in-pipe configuration. The low cyanide pipeline between the roaster and strip circuit at the autoclave/RIL is equipped with both containment and prevention measures. Above grade reaches have a lined channel for containment while below grade reaches have a pipe-in-pipe configuration with leak

detection; some short segments have pipe-in-culvert or steel sleeve configurations. The auditors observed these pipeline containment measures to be in good condition.

The question regarding special protection for pipelines that pose a risk to surface water is inapplicable because there are no perennial or ephemeral watercourses with special protection needs in the vicinity of the mine.

Goldstrike has constructed pipelines and tanks of mild steel, stainless steel, and high density polyethylene (HDPE), all of which are compatible with cyanide and high pH conditions. The auditors observed pipeline materials during the site visit to verify compliance.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.8**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.8 requiring that operations implement QA/QC procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

There were three modifications to cyanide facilities considered this audit cycle. Although Raise 9B for the NBTSF was constructed in 2013 during the previous audit cycle, the completion report was not available in time for use in the previous audit report. For completeness, the completion report for Raise 9B is included this audit cycle. The second modification was an expansion of the CIL circuit at the roaster in 2016. The third modification was construction of a pipeline for transferring low concentration cyanide solution from the autoclave/RIL to the roaster in 2014. Golder was not involved in construction oversight for the first two modifications, but Golder was responsible for the completion reporting for the third project (i.e., the low concentration cyanide pipeline). Accordingly, Golder contracted an independent reviewer to review the report where a conflict of interest exists.

Goldstrike has retained QA/QC records for cyanide facilities in two forms: a library with hard copies at the mine administration building and a server with electronic versions. The auditors observed both the library and archived files on the server to verify compliance.

Golder Review

Goldstrike contracted outside consultants for quality assurance/quality control (QA/QC) services for the 9B Raise at the NBTSF and for the expansion of the roaster CIL circuit. The auditors reviewed the completion reports to verify the existence and content of the QA/QC programs and that qualified review ensured construction in accordance with the designs and specifications.

Tierra Group International Ltd. (Tierra) produced an as-built report for the 9B Raise. This included design modifications; as-built drawings; daily reports with observations on earthworks and geosynthetics installation; testing results for materials suitability, including structural fill, random fill, drain rock, geosynthetic clay liner (GCL), and linear low density polyethylene (LLDPE) liner; and field compaction testing results via nuclear density testing. The report was stamped by a professional civil engineer registered in the State of Nevada.

Hatch Ltd (Hatch) produced a Record of Construction Report for the roaster CIL expansion. This report included as-built drawings; daily reports with observations on excavation and grading, fill placement, rebar and concrete placement, and joint sealant installation; testing results for materials suitability, including grain size, plasticity, and compaction characteristics for soil and slump and compressive strength for concrete; and field compaction results via nuclear density testing. The Record of Construction Report for the roaster CIL expansion was also stamped by a professional structural engineer registered in the State of Nevada.

Knight Piesold Independent Review

Golder Associates (Golder) fulfilled the responsibility of CQA services regarding the TCM-Low-Cyanide Solution pipeline installation to the roaster. The design documentation includes drawings and specifications, both produced by Ausenco, and the as-built report prepared by Golder certifies the pipeline installation in accordance with the design drawings. Daily field reports by Golder substantiate the regular presence of Golder CQA staff to observe proper completion of the work.

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

☒ **in full compliance with**

The operation is

☐ in substantial compliance with **Standard of Practice 4.9**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 4.9 requiring that operations implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

Goldstrike has developed a sampling and analysis plan that covers sampling surface water, groundwater, and process solutions. This plan was recently updated by qualified in-house staff with 10 to 15 years of experience in environmental science and management. The plan includes sections on field sampling, quality assurance/quality control, and reporting. It specifies proper field methods, purging, preservation, containerization, filtration, decontamination, equipment maintenance, handling, packaging, shipping, chain-of-custody, record keeping, and data validation. The lists of constituents (including WAD cyanide) are specified in tables in the Water Pollution Control Permits for the mine, as are the required sampling frequencies. Depending on the location and type of sample, the frequencies vary from weekly, monthly, quarterly, semi-annual, and annual. Goldstrike conducts monitoring at approximately 30 locations around and downgradient of the mine, as shown on maps accompanying the permits. Goldstrike uses the Edge software on a field laptop to record sampling conditions and create a seamless link to the environmental sampling database, EQUIS. The auditors reviewed the sampling plan, permits, maps, output from the Edge and EQUISs databases, and quarterly monitoring reports to verify compliance throughout the recertification period.

Goldstrike inspects, records, and reports wildlife mortalities due to any cause, including contact with and ingestion of cyanide solutions. Goldstrike conducts weekly inspections of all cyanide facilities and notes whether the area is free of wildlife and/or wildlife mortalities. Given that concentrations of WAD cyanide in the few open waters at Goldstrike are low (generally around 20 ppm), the auditors judge that weekly inspections are adequate. Mortalities are reported to regulators quarterly. The auditors reviewed examples of completed inspections and quarterly reports from throughout the recertification period to verify compliance.

PRINCIPLE 5 – DECOMMISSIONING

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

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

☒ **in full compliance with**

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 5.1 requiring that the site plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

Goldstrike has developed written procedures for decommissioning cyanide facilities as part of overall mine closure planning. The Operating Plan for the Roaster (which includes the NBTSF) includes general statements about removing residual chemicals, decontamination, and management of draindown from the NBTSF. The mine's two reclamation plans also contain general statements regarding decommissioning, demolition, and closure. Finally, Goldstrike has a written procedure that describes operational decontamination procedures that would also be used during decommissioning. The two reclamation permits contain Gantt charts with general closure that would cover decommissioning activities. Regulations require that reclamation plans be updated every 3 years and when there are major modifications. Goldstrike has updated their two reclamation plans multiple times during the recertification period due to facility modifications.

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with the Standard of Practice 5.2 requiring that the site establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

Goldstrike has prepared closure cost estimates, updated them regularly, and provided financial assurance to regulators. Closure cost estimates accompany their two reclamation permits. Both estimates were developed using the Standardized Reclamation Cost Estimator (SRCE), a cost model required by state regulators. The model uses third-party unit costs updated annually by the regulatory agencies. Decommissioning costs for cyanide facilities are lumped into various sections within the estimates. Regulations require that reclamation cost estimates be updated every 3 years and when there are major modifications. Goldstrike has updated their two cost estimates multiple times during the recertification period due to facility modifications. Goldstrike has established a financial mechanism with the applicable jurisdictions to cover mine closure, including decommissioning of cyanide facilities. The financial assurance is separated according to the two reclamation permits for the mine and totals over a hundred million dollars. The estimated costs for decommissioning are substantially less the total bond amount.

PRINCIPLE 6 – WORKER SAFETY

Protect Workers' Health and Safety from Exposure to Cyanide

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 6.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The site is in full compliance with Standard of Practice 6.1 requiring that the site identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

Goldstrike has developed plans and standard operating procedures (SOPs) for all cyanide facilities in the operation. The plans and SOPs describe procedures for cyanide unloading, plant operations, entry into confined spaces, and equipment decontamination prior to maintenance to minimize workers exposure to cyanide. The SOPs include provisions for the use of appropriate PPE in areas where exposure to cyanide may occur. Daily inspections must be conducted prior to beginning work by filling the Field Level Risk Assessment (FLRA) form, which records are kept electronically.

Goldstrike has developed a procedure called "Management of Change" (MOC) that described the procedures to be followed to manage change and control the potential to adversely affect the adequacy of procedures, emergency response plans, and operating plans. The MOC document includes procedures for the request of change, area reviews, risk assessment, implementation of pre- and post-actions, implementation of change, record keeping, and approval by personnel involved in the process. All request for change must be reviewed by the supervisors involved in the process and by the Barrick's Safety, Health and Environmental Functional Area Representatives on site of within the Region.

Goldstrike solicits worker input in developing and evaluating health and safety procedures through weekly safety meetings. Workers also have the opportunity to provide their input on the daily inspection form (i.e., the FLRA).

The auditors reviewed the SOPs for the cyanide facilities, records of the FLRA forms, weekly safety meetings, and completed examples of MOC forms for the recertification period. Additionally, auditors observed a cyanide unloading event to verify that related procedures are being followed by workers.

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.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 6.2**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 6.2 requiring that the site operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

Goldstrike has developed plans, manuals and SOPs for the cyanide facilities. The manuals include pH ranges that must be maintained in the process to avoid the evolution of HCN gas (minimum of 9 for weak cyanide solutions and a minimum of 11 for strong cyanide solutions). Goldstrike continuously monitors pH levels using in line monitors. Goldstrike has developed a CN offloading procedure which includes instructions to maintain the pH of the solution above 11. Auditors reviewed pH time series graphs for the Roaster CIL Tank 1 and Strip Acid Wash 1 and B including the pH records from January 2014 to January 2017 and confirmed that pH was maintained between the ranges indicated above. A liquid cyanide offloading event was observed and auditors confirmed that the instructions and requirements included in the procedures were followed by the operators.

Goldstrike has installed fixed HCN gas monitors at the areas of potential worker exposure to cyanide, including the cyanide distribution pumps at the roaster pump house, roaster CIL, paste plant, acid wash, and at the strip circuit. All personnel that may enter an area of potential cyanide exposure must wear a portable HCN gas monitor. The HCN monitor alarms are set up at two levels to protect workers from exposure to HCN gas: (1) at 4.7 ppm and above, workers must leave the area and notify the owner of the area; and (2) at 10 ppm or above, all personnel must immediately evacuate the area and notify the emergency services.

Fixed and portable HCN monitors were maintained and calibrated monthly as directed by the manufacturer. The auditors reviewed calibration records for the recertification period to verify compliance.

Goldstrike has installed signage that alert workers to the presence of cyanide, identify the appropriate PPE, and prohibit smoking, open flames, eating, and drinking. SOPs developed for the cyanide areas also require the use of appropriate PPE prior to beginning of work in areas where exposure to cyanide may occur. Showers, low pressure eye wash stations and non-acidic sodium bicarbonate fire extinguishers have been

installed in strategic locations throughout the operation and they are maintained and inspected monthly and during the daily inspections. Pipes and tanks containing cyanide are appropriately marked indicating contents and flow direction. First aid instructions for cyanide exposure, including SDS, are included in each first aid kit and are in English, the language of the workforce.

Goldstrike has developed the Environmental Division On-call Manual that provides instructions for Incident Reporting to provide consistent guidance for reporting of all incidents. Incidents are recorded in the Incident Report Form. The reporting process includes a complete review and analysis of the incident to identify opportunities from improvement, and corrective actions.

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

The operation is

- ☒ **in full compliance with**
- ☐ in substantial compliance with **Standard of Practice 6.3**
- ☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 6.3 which requires that the site develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

Goldstrike has made available cyanide antidote kits and oxygen at the roaster laboratory, paste plant, and strip circuit control room. Automated External Defibrillators (AEDs) are distributed in several locations within the strip circuit and roaster areas. Goldstrike has two emergency response vehicles that each carry a cyanide antidote kit in case of a cyanide related emergency. Goldstrike switched from amyl nitrite to cyanokits in April 2015. Cyanokits are inside a locked unplugged refrigerator (at room temperature) or in insulated containers in compliance with the recommendations of the manufacturer. Cyanokits are inspected weekly by the Emergency Response Supervisor. Weekly inspections also included rescue and first aid equipment. All Cyanokits available at Goldstrike are on the same replacement schedule. Auditors verified that the expiration of all cyanokits available at Goldstrike is September 2017.

Goldstrike has developed a Crisis Communication and Mine Emergency Response Plan (ERP) and a Cyanide Reference ERP to respond to cyanide exposures. The ERPs contains procedures for transporting workers exposed to cyanide to the local hospital. Patients exposed to cyanide will be transported to the Northern Nevada Regional Hospital (NNRH) via Goldstrike emergency response vehicle or via air ambulance. Air ambulance services are included as part of Goldstrike Safety contract and it is not for the exclusive use of Goldstrike. NNRH has cyanide antidotes readily available to be used upon patient arrival, as stated in the service agreement letter between Goldstrike and NNRH (December 8, 2016). The ERPs

are reviewed either annually, after an incident or after a drill. The Cyanide Reference ERP includes emergency contacts information, procedures for emergency response for specific scenarios and off-site emergency telephone numbers, if needed. Both ERPs were last reviewed in June, 2016.

Goldstrike has a trained and appropriately equipped Emergency Response Team (ERT) to provide medical assistance to workers exposed to cyanide. Training includes rope rescue, first responders, HazMat, and firefighting. The ERT is divided in four divisions (A, B, C, and D) with the objective to cover all work shifts.

Goldstrike conducts quarterly mock based on likely release/exposure scenarios to evaluate the effectiveness of the ERPs. Records show that at least one of the quarterly drills per year included a cyanide related scenario/emergency during the recertification period. The 2014-Q4, 2015-Q4, and 2016-Q4 mock drills were held to test the Goldstrike's response capabilities under a cyanide release, cyanide exposure, and a cyanide release with workers exposure to cyanide scenarios, respectively. Each mock drills was documented with a report in which opportunities for improvement were recorded to then be discussed in the annual review process of the ERPs.

PRINCIPLE 7 – EMERGENCY RESPONSE

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

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.1 which requires that the site prepare detailed emergency response plans for potential cyanide releases.

Goldstrike has developed a Crisis Communication and Mine ERP and a Cyanide Reference ERP that address potential accidental releases of cyanide. These ERPs contain procedures for catastrophic releases, transportation accidents, releases during unloading, fires and explosions; pipes, tanks, and valve ruptures, overtopping of ponds and impoundments; power outages and pump failures, uncontrolled seepage; failure of cyanide treatment, destruction or recovery, and failure of tailings impoundments. Goldstrike has also developed SOPs for all the cyanide areas and an Environmental Division On-call Manual.

Planning for response to transportation-related emergencies is addressed by Goldstrike's cyanide supplier and transporter via their certifications with the ICMI. Goldstrike purchases their cyanide exclusively from Cyanco under a contract. Cyanco contracts TransWood as their cyanide transporter. Cyanco Supply chain and TransWood were certified on July 5, 2015 and January 12, 2017, respectively.

The Crisis Communication and Mine ERP, the Cyanide Reference ERP, the Environmental Division On-call Manual, and the SOPs for the cyanide areas contain detailed descriptions of the procedures for clearing site personnel from areas of exposure, first aid in case of cyanide exposure, control and containment of releases at their source, and mitigation and future prevention of releases. The North Block TSF Emergency Action Plan includes inundation maps that show that in case of an impoundment failure, the release of tailings would not reach the City of Carlin, the closest downstream community. The inundation maps were developed considering that the impoundment was at maximum design storage capacity.

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.2 which requires that the site involve site personnel and stakeholders in the planning process.

Goldstrike discusses the implementation of their ERPs with their workforce during weekly safety meetings, training sessions, and mock drills. Workers have the opportunity to provide input during these activities. Goldstrike is a member of the Local Emergency Planning Committee (LEPC) which includes representatives of Elko County Sheriff, Newmont Mining, Elko School District, Red Cross, Elko Fire Department, and others. The closest downstream community to the site if the City of Carlin, located 27 miles southeast of the mine. No risks have been identified for Carlin in case of a potential accidental cyanide release to the environment. Inundation maps in case of an impoundment failure have been developed and they show that a release would not reach the City of Carlin. These maps were developed considering a release of the impoundment operating at its maximum design capacity.

Goldstrike has determined that no outside agencies will play a role during an onsite cyanide related emergency. Goldstrike has on-site trained teams to provide firefighting, medical emergency, and hazmat clean-up services. However, Goldstrike coordinates with external responders. Goldstrike has made a service agreement with NNRH to treat patients that have been exposed to cyanide. NNRH professionals have been appropriately trained in cyanide exposure treatment and has the appropriate facilities to do so.

Goldstrike updates their ERPs at least annually. The review process includes updates of the contact list, improvement of procedures listed in the ERPs based on mock drill evaluations, addition of response equipment to enhance response, and others. Verification was by reviewing the ERP review reports and interviewing the emergency response supervisor.

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.3 which requires that the site designate appropriate personnel and commit necessary equipment and resources for emergency response.

Goldstrike has developed a Crisis Communication and Mine ERP and a Cyanide Reference ERP that include primary and alternate emergency response coordinators, a list of the ERT, requirements for appropriate training for emergency responders, call-out procedures and 24-hour contact information for the coordinators and members of the ERT, duties and responsibilities of the coordinators and ERT members, a list of emergency response equipment, procedures to inspect emergency response equipment to ensure its availability, and descriptions of the roles of outside medical facilities in the emergency response procedures. Goldstrike does not use any outside response agencies for onsite emergencies. However, Goldstrike coordinates with external emergency responders. Goldstrike has made a service agreement with NNRH to treat patients that have been exposed to cyanide. NNRH has stated that they have the capabilities onsite to treat patients that have been exposed to cyanide and their professionals have received the appropriate training to administer cyanide antidotes. The Crisis and Communication and Mine ERPs includes a full contact list for Off-Site Emergency Services, if additional support is needed for off-site emergencies.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.4**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.4 which requires that the site develop procedures for internal and external emergency notification and reporting.

The Crisis and Communication and Mine ERP includes a detailed description of the communication procedures and how to activate the Incident Command System at Goldstrike in case of an emergency. Sections 2 and 6 include a complete contact information list for onsite and off-site, respectively, emergency contacts that include management, regulatory agencies, outside response providers (if needed), and the local hospital.

Goldstrike developed inundation maps in case of a tailings impoundment failure and determined that no downstream communities would be affected. Maps were developed assuming a failure of the impoundment operating at its maximum capacity. Nonetheless, the Crisis and Communication and Mine ERP, in Section 7, includes a protocol for communications with the media, in which the Public Information Officer

(PIO) is responsible for developing and releasing information about incidents to the news media, incident personnel, and other agencies and organizations.

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

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 7.5**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.5 which requires that the site incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

Goldstrike has developed a Crisis Communication and Mine ERP and the Environmental Division On-call Manual that describe remediation measures, for likely cyanide release scenarios, for the recovery or neutralization of solutions or solids, clean-up of contaminated soils or other contaminated media, and management and disposal of spill clean-up debris.

Goldstrike does not consider the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water. Releases could not be reasonably expected to enter surface water because there are no surface water bodies in the vicinity of the mine.

Environmental monitoring to identify the extent and effects of a cyanide release will be conducted as dictated in Goldstrike Water Pollution Control Permits. Contaminated soils are to be excavated and samples must be collected and sent to the lab. Goldstrike has also developed a Sampling and Analysis Plan that that covers water and wastewater sampling procedures. Additional instructions for sample collection are included in the Environmental On-call Manual

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

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 7.6, which requires that the site periodically evaluate response procedures and capabilities and revise them as needed.

The Crisis Communication and Mine and the Cyanide Reference ERPs are revised annually by members of the ERT, Safety and Health management and others. The ERPs are also reviewed after mock drills, if opportunities for improvement were identified during the exercises. Goldstrike conducts quarterly mock drills based on likely release/exposure scenarios to evaluate the effectiveness of the ERPs. Records show that at least one of the quarterly drills per year included a cyanide related scenario/emergency during the recertification period. The 2014-Q4, 2015-Q4, and 2016-Q4 mock drills were held to test the Goldstrike's response capabilities under a cyanide release, cyanide exposure, and a cyanide release with workers exposure to cyanide scenarios, respectively. Each mock drill was documented with a report in which opportunities for improvement were recorded to then be discussed in the annual review process for the ERPs. The auditors verified that recommendations from the mock drills were incorporated into the ERPs.

PRINCIPLE 8 – TRAINING

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

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 8.1 which requires that the site train workers to understand the hazards associated with cyanide use.

All new employees, regardless of their functions, are required to complete the new hire training, which include cyanide hazard recognition. Goldstrike has developed Cyanide Safety training that must be completed by all personnel who may encounter cyanide. The Cyanide Safety training includes elements of hazard recognition, potential health effects, HCN gas alarm procedures, first aid, unloading procedures, and emergency response protocols. Additionally, Goldstrike is required by MSHA to conduct Annual Refresher Training (ART) to all workers. ART includes cyanide training. Auditors reviewed training records for the Cyanide Safety training and individual's employment training records for the recertification period to verify compliance. Records are kept as both hard copies and electronically for the length of employment of workers.

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.

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.2**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 8.2 which requires that the site train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

Goldstrike trains their workers to perform their normal production tasks in a safe manner to minimize risk to their health and safety and to prevent unplanned releases. Goldstrike has developed Operator Competency Checklist forms for each cyanide area that list all the elements of training that must be completed by workers

to acquire the minimum required skills and knowledge to perform their basic tasks in a safe manner. The checklist includes prerequisites, complete circuit/station overview, SOPs, and critical task training. Training is provided by experienced operators or area supervisors. All workers are then tested to evaluate their knowledge and understanding, and the effectiveness of the training before they are allowed to work independently. Goldstrike has developed an Operation Proficiency Assessment form that lists all the elements to be tested to demonstrate workers' proficiency on performing their basic tasks. Scores obtained by the workers are recorded in an electronic database. The Operation Proficiency Assessment forms are signed and dated by the supervisor, trainer, and workers. Records are retained throughout workers' employment. Refreshers are provided via annual MSHA training and weekly safety meetings. Goldstrike in an electronic database and in hard copies. Records include the name of the training/topic, worker, trainer, and supervisor, test scores, and the dates on which the training was received. The auditors reviewed records of SOP training, the Operator Competency Checklists, and Operation Proficiency Assessments to verify compliance. Random interviews with process operators were conducted to confirm that training and refreshers were given during the recertification period.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 8.3**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 8.3 which requires that the site train appropriate workers and personnel to respond to exposures and environmental releases of cyanide

Goldstrike personnel involved in unloading, production and maintenance activities are trained in procedures to be followed for cyanide spills. The SOP called Sodium Cyanide includes procedures to be followed in case of a spill. For minor releases, the SOP indicates that spilled material will be shoveled or swiped into a drum followed by flushing with a dilute solution of sodium hypochlorite or calcium hypochlorite. For larger releases, workers will request the assistance of the ERT and notify the Environmental Department and provide details of the incident. The SOP also includes procedures for decontamination and first aid in case of eye contact, inhalation, and skin contact. In addition, the annual Cyanide Safety training includes sections of decontamination and first aid procedures in case a worker is exposed to cyanide.

Goldstrike trains emergency response coordinators and ERT members in the procedures described in the Crisis Communication and Mine ERP, and Cyanide Reference ERP according to a training calendar. These ERPs address cyanide first aid, patient transportation to Northern Nevada Regional Hospital, evacuation

procedures, cyanide release scenarios, emergency contact information, media reporting procedures, use of emergency response equipment, and others. ERT members are also trained in Hazmat, confined space, fire rescue, cardiopulmonary resuscitation, use of AEDs, and cyanide first aid.

Goldstrike does not involve any outside emergency response agencies. Goldstrike has complete onsite capabilities to manage onsite cyanide related emergencies; the only outside involved would be patients transported via Goldstrike ambulance to NNRH. Nonetheless, Goldstrike has shared the contents of their ERPs with the Elko County LEPC during their meetings.

Goldstrike provides refresher training in cyanide first aid, cyanide release scenarios and the ERPs on a regular basis. Refreshers are also provided during weekly safety meetings in the process areas.

Goldstrike conducted quarterly mock drills during the recertification period in which cyanide release and exposure scenarios were simulated. The 2014-Q4, 2015-Q4, and 2016-Q4 mock drills tested response capabilities to a cyanide release, a cyanide exposure, and a cyanide release with worker exposure, respectively. Mock drills were documented with a report in which opportunities for improvement were recorded to then be discussed in the annual review process of the ERPs. For example, the 2015-Q4 mock drill report included an opportunity for improvement that recommended additional cyanide poisoning training to be given in 2016. Auditors verified that additional training was included in the 2016 calendar and was in fact completed in March 2016. Workers from all process areas participated in these drills.

The auditors reviewed the ERPs, mock drill reports, LEPC meeting agendas, ERT training calendars and records, as well as training records for Cyanide Safety, SOPs, and ERPs, to verify compliance. Random interviews were conducted to confirm that Goldstrike has given regular training to their workforce.

PRINCIPLE 9 – DIALOGUE

Engage in Public Consultation and Disclosure

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 9.1**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 9.1 which requires that the site Provide stakeholders the opportunity to communicate issues of concern.

Goldstrike provides multiple opportunities for stakeholders to raise issues of concern regarding cyanide management. Opportunities are provided via a hotline number (1-800-719-0400), an email address (community@barrick.com), links to websites (e.g., www.Barrick.com), blog discussions (http://barrickbeyondborders.com/blog/), and other social media outlets managed by Barrick (LinkedIn, Instagram, Twitter, Facebook). Stakeholders can make personal contact at various meetings, tours, permit hearings, and other venues. Should stakeholders raise issues, Goldstrike maintains a grievance register that tracks the issue, actions, follow-up, and resolution. According to the Corporate Social Responsibility Manager, no cyanide-related grievances were logged during the recertification period.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 9.2**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 9.2 which requires that the site initiate dialogue describing cyanide management procedures and actively address identified concerns

Goldstrike actively creates opportunities to provide information and interact with stakeholders regarding cyanide management. Goldstrike participates in mine expos, high school career fairs, classroom visits at grade schools, and mine tours. Goldstrike regularly participates in quarterly meetings with the Western Shoshone Tribe. Public hearings for permits are another mechanism that provides an opportunity for input, although the Goldstrike Corporate Social Responsibility Manager stated that no public hearings took place during the recertification period.

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

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 9.3**

☐ not in compliance with

Summarize the basis for this finding/deficiencies identified:

The operation is in full compliance with Standard of Practice 9.3 which requires that the site make appropriate operational and environmental information regarding cyanide available to stakeholders.

Goldstrike has developed written descriptions of their cyanide management activities that are available to the public. However, Goldstrike is moving away from printed written materials to on-line written materials, according to the Corporate Social Responsibility Manager. The auditors reviewed websites for Barrick Corporation (www.Barrick.com), Barrick Beyond Borders (http://barrickbeyondborders.com), and the Elko Free Press Mining Quarterly (http://elkodaily.com) to verify the presence of information on cyanide management.

Goldstrike has verbally disseminated information on cyanide management on-line. The auditors accessed websites for Barrick Beyond Borders (http://barrickbeyondborders.com) and the Nevada Mining Association (http://www.nevadamining.org) to verify the presence of videos and photographs related to cyanide management. According to the US Census Bureau, more than 80 percent of the population in Lander, Eureka, and Elko counties have high school degrees or higher, which reduces the need for extensive dissemination of information in verbal form.

During the recertification period, Goldstrike had no cyanide exposures resulting in hospitalization or fatality; no cyanide releases off the mine site requiring response or remediation; no cyanide releases on or off the mine site resulting in significant adverse effects to health or the environment; seven minor process solution or slurry releases on the mine site that were reported to regulatory authorities; and no releases that caused applicable limits for cyanide to be exceeded. Had there been significant releases or exposures, information would have been publically available via public documents at the Nevada Division of Environmental Protection, Barrick's annual responsibility reports accessed at www.Barrick.com, and the Mine Safety and Health Administration website at http://arlweb.msha.gov/drs/ASP/MineAction.asp.

Report Signature Page

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Date: March 15, 2017

KJ/JC/rt

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